The Effects of Visual Metaphor in Advertising at Different Processing Routes

Testing the Pleasure-interest Model of Aesthetic Liking for different metaphor structures at a long and short exposure time

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Summary

Visual metaphors are often used in advertisements to convey the message that a product (target) has certain characteristics, which can be derived from interpreting the relation with another object (source). Three metaphor structures distinguished in literature are, ascending in complexity, juxtaposition, fusion and replacement. This last metaphor structure is in the current research divided into replacement without context, target replacement and context replacement. Several theories have been proposed about how people can be positively affected by certain stimuli. For example, the fluency theory states that more fluency leads to more pleasure, and thus stimuli become less pleasurable with increasing complexity. On the other hand, there are various theories proposing the effect of an inverted U-curve, meaning that there is an optimal innovation effect of stimuli when they are complex, but not too complex. Within the PIA model, all these theories are combined and which effect occurs is proposed to be dependent on processing route (automatic or controlled). In the current study, the PIA model is tested in the domain of rhetorical advertising. It is expected that certain emotions will be evoked, caused by felt fluency and/or processing pleasure as a result of certain metaphor structures. An experiment is conducted with metaphor structure as a within-subjects factor and exposure time (proposed to affect processing route) as a between-subjects factor. Results of the current study partially support the PIA model. However, some of the findings deviate from expectations raised by earlier research. It is therefore worthwhile to further investigate these effects and the PIA model in general, in order to become more certain of what strategies will work best in the field of advertisement.

Introduction

In everyday language, metaphors are used frequently by explaining one domain of experience (target domain) in terms of another domain of experience (source domain): “love is a journey” (Lakoff, 1994). Metaphors seem to appeal to people as a form of communication, because they are like riddles that bring satisfaction after solving them (Phillips & McQuarrie, 2004). However, solving these metaphorical ‘puzzles’ requires an amount of cognitive effort that is not always available.

People use figurative language to compare similar things, provoke thought and add interest (Roberts & Kreuz, 1994). A domain where these communication goals also apply, is advertising. Since advertisements often consist of images, many advertisers use visual metaphors to convey certain messages and intentions (Forceville, 1994). Figure 1 shows several examples of visual metaphors in advertisements.

Figure 1. Visual metaphors in advertisements, demonstrating the claims that Heinz tomato ketchup is as fresh as real tomatoes, smoking kills like a gun and drinking milk results in a perfect set of teeth.

This promotional strategy seems to have positive effects. Van Mulken, Van Hooft and Nederstigt (2014) present support for the claim that advertisements are more appreciated when they contain metaphors than when they don’t. There are, however, different forms of visual metaphors that can be distinguished. The three kinds of visual metaphors included in the study of Van Mulken et al. (2014) are the juxtaposition, fusion and replacement (figure 2). In these images a target (glasses) and source (carrots) object are either shown alongside each other or

mixed to become one object, or the target object is replaced by the source object. When examining the literature, however, it can be noted that various forms of replacement are used in studying visual rhetoric. Divergently created advertisements with different names can be found in literature, which nevertheless have in common that they all contain the substitution of one element by another with the aim of transferring a metaphorical message.

Figure 2. Visual metaphors used in Van Mulken et al. (2014), conveying the message that the glasses are like carrots which are said to be good for the eyesight. From left to right: no metaphor, juxtaposition, fusion, replacement.

Exactly what the effects of metaphors in advertising are in general remains an important issue about which researchers have conflicting ideas. Reber, Schwarz and Winkielman (2004), for example, propose the stance that objects that can be more fluently processed result in more aesthetic pleasure. They refer to this as the fluency theory. However, Berlyne (1971) suggests that aesthetics liking takes the form of an inverted U-curve when shifting from fluently simple towards more complex objects. The results of several other studies support this idea and subsequently more theories are shaped that are in line with this vision (Van Mulken et al., 2014; Giora et al., 2004; Hekkert, Snelders and Wieringen, 2003). According to these studies, there is a point (the highest point of the inverted U-curve) where a perfect balance between novelty and typicality exists, resulting in more aesthetic liking then when either novelty or typicality increases or decreases. In other words, there seems to be a preference for stimuli that are complex to a certain degree, but not too complex.

A model in which the conflicting perspectives of different researchers in this area are aimed to be combined, is the Pleasure-Interest model of Aesthetic liking by Graf and Landwehr (2015). According to this model, aesthetic objects can be processed automatically or controlled. The two processing routes will consequently lead to different emotions: pleasure or interest. To

what degree these emotions will eventually be evoked, is dependent on the level of perceived disfluency and the ability to reduce this. A factor that can affect the way people process certain stimuli, is exposure time (Hekkert et al., 2003, p. 122). With less time given to process something, the receiver will be likely to immediately process it without much elaboration. On the other hand, when more time is available during moment of exposure, people are able to process the stimulus more elaborately. Looking at the PIA model, this would mean that exposure time affects the taken processing route and therefore the emotion that will be influenced. The current research aims to test the assumptions of the PIA model in the domain of advertising. This will be done by examining how different kinds of visual metaphor structures affect either pleasure or interest at different exposure times.

RQ: What is the influence of visual metaphor structure and exposure time on pleasure, displeasure, interest, boredom and confusion?

Theoretical Framework

Metaphor Structures

As mentioned earlier, in prior research three different kinds of visual metaphors have been distinguished (figure 3): juxtaposition, fusion and replacement (Phillips & McQuarrie, 2004; Maes & Schilperoord, 2008; Van Mulken et al., 2014).

Figure 3. Juxtaposition, fusion and replacement metaphor respectively
(Van Mulken, Van Hooft & Nederstigt, 2014)

The simplest visual structure among those metaphor structures is the *juxtaposition* (Phillips & McQuarrie, 2004). According to Schilperoord, Maes and Ferdinandusse (2009), "juxtaposition comes into existence if (at least) two entities are abstracted from their normal context and are aligned symmetrically with respect to perceptual attributes like size, shape, spatial orientation, and distance". The juxtaposition is described by Forceville (2002) and Teng and Sun (2002) as giving a comparison of those two objects (X is like Y). Seeing two objects depicted simultaneously as happens with juxtaposition, invites people to construe cross-domain mappings. This is, nevertheless, not required and that is why Forceville (2002) states that the juxtaposition does not necessarily express a pictorial metaphor but pictorial similes. In the metaphor analysis of Ortiz (2010), juxtaposition is (together with fusion and replacement) acknowledged as one of the three basic structures of visual metaphors found in pictorial advertising. In accordance with the cited definition above, Ortiz (2010) describes juxtaposition (referring to Teng and Sun, 2002) as "items represented symmetrically aligned with respect to size, orientation and distance". The depicted objects can differ from each other in sort, in which case they evoke cognitive dissonance between what is perceptually suggested (the objects are part of a common category) and what is conceptually perceived (the objects are two different matters). Viewers of this form of metaphor will therefore be inclined to search for shared

characteristics of the objects in order to reduce the experienced incongruence (Ortiz, 2010). The existence of these characteristics in the depicted objects is what advertisers want to bring to consumer's minds in visual structures where one of the object is a product being promoted (Phillips and McQuarrie, 2004).

A somewhat more complex visual structure than the juxtaposition, is the pictorial metaphor structure called *fusion*. In this metaphor structure two objects are partially visible and fused together; they blend into each other in some sort of way (Phillips and McQuarrie, 2004). Several researchers therefore refer to this structure as a hybrid metaphor (Forceville, 2007 in: Ortiz, 2010; Van Mulken, Le Pair and Forceville, 2010). As a result of the two objects fusing together, perceivers are assisted in drawing the conclusion that there are certain characteristic similarities between the two objects, or in other words, a metaphoric relationship exists (Phillips and McQuarrie, 2004). Finding the associations that create the connection between the two objects, requires a certain degree of cognitive elaboration – more than needed when watching a juxtaposition – since the fusing makes it more difficult to conceptualize a realistic representation of the separate objects (Lagerwerf, van Hooijdonk and Korenberg, 2012).

The third metaphor structure that is regularly used in advertisements, is *replacement*. For this kind of metaphor, a part of the advertising image has to be replaced with something else. The most straightforward form of replacement, as can be seen in figure 3, is the one where only a target object is replaced by a source object, without any context (Van Mulken, Van Hooft & Nederstigt, 2014). Phillips and McQuarrie (2004) explain how complexity increases moving from juxtaposition to fusion to replacement. Consequently, they argue that viewing an advertisement containing juxtaposition requires less processing than one containing fusion, while a replacement advertisement requires most processing. This is, because the identification of two objects that are juxtaposed is relatively easy, while for fusion viewers need to imagine detaching the two objects which might lead to doubt about whether the objects are identified

correctly. As for replacement, an object that is not present in the image must be identified by figuring out to what missing object the displayed object refers and how the two are linked (Phillips and McQuarrie, 2004).

Findings of Van Hooijdonk and Van Enschot (2016), however, show that the earlier mentioned replacement without context is misunderstood by perceivers. In the study, where appreciation for different metaphor structures is measured, the replacement object is not perceived as a metaphor referring to another object, but is instead perceived literally. The results therefore display that felt fluency is highest for the replacement metaphor and lower for the juxtaposition and fusion metaphors which are perceived as equally fluent. Since felt fluency is also found to influence aesthetic appreciation, the replacement metaphor turns out to bring the most pleasure, even though the reason for this is a misunderstanding of the advertisement. For the replacement structure to have the anticipated effect, more cues might thus be needed. How exactly to use replacement in advertising, seems to be interpreted differently by researchers. In the following paragraph the different forms of replacement found in the literature will be discussed.

Different Forms of Replacement

In previous studies, the metaphor structure ‘replacement’ seems to appear in various designs. For example, in their study Van Mulken et al. (2014) display a form of replacement where the whole target object is replaced with the source object without any context available. However, in this same study they also use the replacement concept for replacing the target object with the source object, in the context of the target object (figure 4). Yet a different approach is the one Schilperoord (2016) uses, replacing not the target object, but its context to create a different source domain where the target object is still visible (figure 5). He calls this substitution. In several other studies, replacement is also described as a metaphor structure where either the target or source object is shown, while the other is suggested through the context (Schilperoord,

Maes & Ferdinandusse, 2009; Ortiz, 2010). Van Mulken et al. (2010), for example, call the use of replacement a contextual metaphor. Furthermore, Madupu and Ranganathan (2013) point out that advertisers using the replacement structure often add clues to the advertisement, making it somewhat easier for people to figure out the object that is not present but yet important for the message.

Even though these different forms of replacement – without context, with target object missing and with source object missing – are used as if they are the same concept, there might be differences in how they are perceived. Forceville (1994), for instance, states that a metaphor needs a context in order to create an understanding of the expressed comparison between two concepts. Replacements seem to be dependent on the accompanying context, because this context activates a certain schema that enables interpretation of the message (Maes & Schilperoord, 2008). Whether people are able to interpret a replacement structure correctly is thus contingent upon the context. On top of this, Van Mulken et al. (2014) suggest that replacements without context are appreciated least in their research because they lack the information which the context could have provided. This would suggest that the form of replacement where the shown object is still accompanied by the context of the associated object, has a more positive effect on understanding and appreciation than the replacement without context.

Figure 4. Target object replaced with source in target context (Van Mulken et al., 2014)

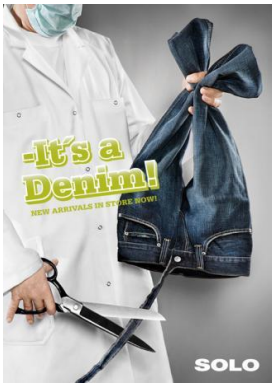

Figure 5. Target object in source context (Schilperoord, 2016)

Theories on Aesthetic Liking

When considering the literature on effects of the different metaphor structures, it is found that various researches have raised different views. According to the fluency theory, proposed by Reber et al., (2004), feelings of fluency as a result of processing a stimuli are perceived as positive. Consequently, this leads to a positive judgement of the object with regard to aesthetic appreciation. So, this would mean that the more fluency one feels when processing an object, the more aesthetic appreciation one feels for this object. On top of this, Turner Jr and Silvia (2006), find that stimuli become less pleasant when they get more complex.

Berlyne (1971), however, takes a different stance on this. He proposes a theory about aesthetic pleasure taking the form of an inverted U-curve, when moving from less to more complex structured stimuli. Through this inverted U-curve it is thus shown which stimuli is most optimal; the one in the middle. In accordance with this, Van Mulken et al. (2014) find that the positive effects of a metaphor only apply up to a certain point of complexity. For example, the fusion structure creates a more positive effect than the (simpler) juxtaposition, but the replacement metaphor gets too complex and people are no longer capable of comprehending the conveyed meaning. This then negatively affects appreciation. Giora et al. (2004) consider the phenomenon of optimal innovation, where novel versions of a known concept have a positive effect, until these versions become too novel and the effect turns negative. There is thus a point where the innovation of a concept is most optimal, confirming the existence of an inverted U-shaped process. Besides this, the MAYA principle by Hekkert, Snelders and Wieringen (2003) proposes this same idea of an optimal mixture between typicality and novelty. If an object is too typical or too novel, the effect will not be as positive as it could be when the perfect balance between these two factors is created. All of these findings are consistent with Silvia's (2006) appraisal structure of interest, which explains that interest is based on a novelty-complexity appraisal and a coping potential appraisal. This means therefore, that more novel

and complex stimuli are perceived as more interesting, until they become too difficult to understand and interest starts decreasing along with coping potential.

The Pleasure-Interest Model of Aesthetic Liking

A model in which the conflicting perspectives of different researchers in this area are aimed to be combined, is the Pleasure-Interest model of Aesthetic Liking (Graf & Landwehr, 2015; figure 6). The model proposes a dual-process perspective on the effect that fluency has on aesthetic preferences, based on cognitive elaboration of perceivers. Aesthetic objects can either be processed immediate and automatically when they are perceived, or they can be processed in a more controlled way (Shiffrin & Schneider, 1977). Automatic processing often happens unintentionally, with little amounts of cognitive resources required. Besides, people are not consciously aware of it happening, and it cannot be stopped voluntarily (Bargh, 1994 in: Gawronski & Creighton, 2013, p. 283). Controlled processing, on the other hand, is a more elaborate way of processing. It therefore does require considerable amounts of cognitive resources and is initiated intentionally. It can also be stopped voluntarily, since people are consciously aware of it (Bargh, 1994 in: Gawronski & Creighton, 2013, p. 283).

According to the PIA model, when a stimulus is processed automatically, this leads to either pleasure or displeasure depending on how fluently the stimulus can be processed. More felt fluency means more pleasure (conform the fluency theory of Reber et al., 2004). However, such an object can also be processed in a more controlled way, if a receiver has a high need for cognitive enrichment or if the stimulus allows for processing this way. This elaborate processing leads, according to Graf and Landwehr (2015) to either interest when earlier felt disfluency is reduced, boredom when there is no or little disfluency to begin with and still people process more elaborately, or confusion when feelings of disfluency are not reduced by careful elaboration. Graph and Landwehr (2015) also propose the idea that, since receivers either only take the automatic route, or follow this up with controlled processing, they will

either be affected in their level of pleasure or in their level of interest, and not in both. This means that the feeling of a certain level of pleasure resulting from the automatic processing, will be overruled by the feelings that are evoked when people chose to go further in controlled processing. The eventual feeling that is evoked by the stimulus through either automatic or controlled processing, which can be a certain level of pleasure, displeasure, interest, boredom or confusion, will determine the level of aesthetic appreciation one has for that stimulus. In the current study, above mentioned assumptions of the PIA model will be tested.

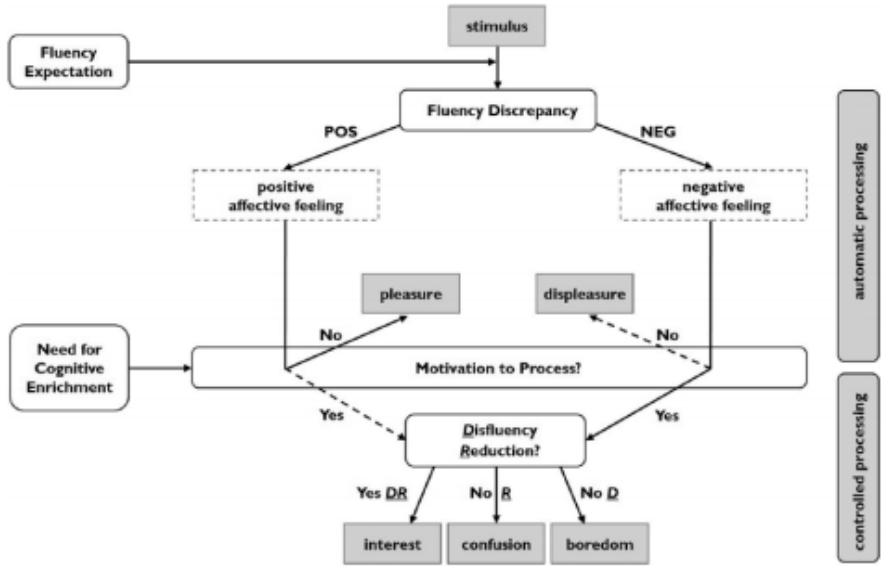

Figure 6. Pleasure-Interest Model of Aesthetic Liking (Graf & Landwehr, 2015)

Van der Lee (in preparation) is one of the researchers who has already tested the assumptions of the PIA model. What makes his study different from others, is the fact that he has tested the model for the domain of rhetorical advertisements, while it is actually designed for the domain of art and has also been tested in this domain. With regard to the different processing routes, the results of Van der Lee (in preparation) show that controlled processing is more likely to occur when people experience high disfluency, while high felt fluency does not lead to this form of controlled processing. Subsequently, it is found that the metaphor structure fusion is found most interesting, and that interest decreases when advertisements are less understandable or less novel. This finding is consistent with Silvia's (2006) appraisal structure of interest. Van

der Lee (in preparation), however, does not find the expected effect of disfluency reduction leading to an increase in interest. Furthermore, according to Van der Lee (in preparation), confusion increases when moving from the least to the most novel structure. He connects this to disfluency which turns out to be higher for the more novel structures. This will lead to confusion when this disfluency is difficult to reduce (Graf and Landwehr, 2015). Moreover, feelings of boredom are found to be highest for the non-figurative advertisement, but also for replacement. Van der Lee (in preparation) attributes this to a lack of motivation but it could also be a result of misunderstanding and perceiving the replacement as a non-figurative advertisement, as shown in Van Hooijdonk and Van Enschot (2016). Finally, the finding of Van der Lee that it is fusion, and not the least complex stimuli, that evokes the most pleasure, is in contradiction with assumptions about pleasure decreasing with complexity (Reber et al., 2004; Turner Jr & Silvia, 2006). Even though Van der Lee used a viable method by indicating the processing route through self-report, pleasure results might more strongly support these assumptions for a situation where people are forced to process automatically.

As mentioned earlier, a stimulus can allow for people to either process it in a controlled way or merely automatically. Namely, when this stimulus has an exposure time that is shorter, people have less time to elaborately process it then when the exposure time would be longer (Hekkert et al., 2003). Also according to Petty and Cacioppo (1986), the way people will process a stimulus (elaborately or automatic) can be influenced by either giving or not giving them the opportunity to do so. They give an example of the difference between information given through audio and video or on print. With audio and video it is determined how long one is exposed to the information, whereas the print option gives more processing opportunity because exposure is self-paced. Consequently, the first method leads to less elaborate evaluation of the information than the second. On top of this, Houston, Childers and Heckler (1987) explain how reducing exposure time to an advertising message is a way of limiting people's

chances of engaging in elaborative processing, since the amount of processing that can be done is less when less time is available.

Hypotheses

In the current study, two extra forms of replacement will be added on top of the version without any context. Reason for this is the earlier mentioned observation that in literature (Van Mulken et al., 2014; Schilperoord, 2016; Schilperoord, Maes & Ferdinandusse, 2009; Ortiz, 2010; Van Mulken et al. 2010), that different kind of replacement forms are used interchangeably and the ones with context are stated to be more effective than the ones without (Forceville, 1994; Van Mulken et al., 2014). Besides, the results of Van Hooijdonk and Van Enschot (2016) show that the replacement form where only a target object is replaced by a source object, is misunderstood by perceivers. These findings together lead to the decision to take the replacement metaphors as shown in figure 4 and 5 into consideration in the current research, under the names target replacement and context replacement. Thus, the metaphor structures used for this research will be juxtaposition, fusion, target replacement, context replacement and replacement (without context).

Taking into consideration earlier mentioned studies about exposure time and processing routes, it would be expected that a short exposure time triggers automatic processing, while a longer exposure time allows for following this up with more controlled processing (Hekkert et al., 2003; Petty and Cacioppo, 1986; Houston, Childers and Heckler, 1987). Therefore, in the current study it is presumed that a (short) exposure time of 100 ms indicates automatic processing, while a (long) exposure time of 5000 ms means that controlled processing takes place.

Following the assumptions of Graf and Landwehr's (2015) PIA model, this would mean that the shorter exposure time results in different levels of pleasure for the metaphor structures, which can be predicted when looking at the fluency theory (Reber et al., 2004). However, for

interest, as well as confusion and boredom, no differences are expected since these factors are claimed not to be affected when processing is done automatically (Graf & Landwehr, 2015). Following the reasoning of Reber et al.'s (2004) theory, the expectation would be that simpler figures are appreciated more because of the felt fluency that is higher. This would therefore mean that levels of pleasure are highest for juxtaposition, somewhat lower for fusion and even lower for the replacement forms with the replacement form without context resulting in the least pleasure. However, taking into account the finding of Van Hooijdonk and Van Enschot (2016) that this form of replacement is likely to be misunderstood, the expectation is that the level of pleasure for this metaphor structure will be highest. Furthermore, it is expected that metaphors expressed through target replacement (where the target object is replaced but the context remains visible; figure 4) and context replacement (where the target object is still present in another context; figure 5) are less likely to be misunderstood than metaphors existing of pure replacement of a target object by a source object. They are therefore predicted to be judged according to the fluency theory for short exposure time. It is then expected that the context replacement form creates a higher felt fluency because the target object is still visible, which is not the case for the target replacement form. Both are, however, expected to be perceived lower in felt fluency than the juxtaposition and fusion forms.

Thus, taking the earlier research as mentioned above into consideration, figure 7 can be created which displays the expectation for pleasure levels evoked by the different metaphor structures as a result of short exposure time. However, even though displeasure is also expected to be affected by metaphor structure at short exposure time, it is not clear what the pattern will look like, since results of Van der Lee (in preparation) reveal that displeasure is not necessarily the opposite of pleasure.

H1: At an exposure time of 100 ms, the metaphor structures will evoke different levels of pleasure, as displayed in the figure 7.

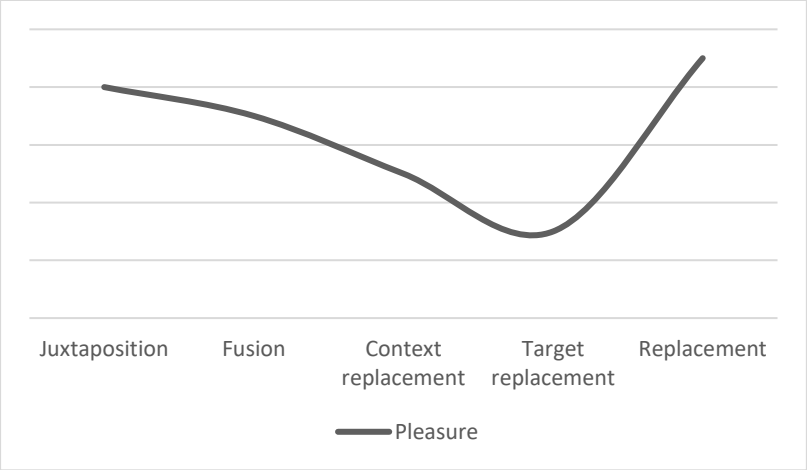

Figure 7. Expected findings for pleasure at short exposure time, taking into consideration earlier research results for aesthetic appreciation

H2: At an exposure time of 100 ms, the metaphor structures will evoke different levels of displeasure.

H3: At an exposure time of 100 ms, the effects of the different metaphor structures on pleasure levels will be mediated by felt fluency, in a way that higher felt fluency causes more pleasure.

H4: At an exposure time of 100 ms, no effects of different metaphor structures on interest, boredom and confusion will be found.

On the other hand, for a longer exposure time, differences in responses to the metaphor structures would be expected to take the form of an inverted U-curve showing which metaphor structure is most optimal when processing is done in a controlled way (Berlyne, 1971; Van Mulken et al., 2014; Giora et al., 2004; Hekkert, Snelders and Wieringen 2003; Silvia, 2006). These differences in responses would have to be expressed solely in terms of interest, confusion or boredom, since the feeling of a certain level of pleasure is overruled by those emotions (Graf and Landwehr, 2015). Figure 8 shows the results for interest that are expected after controlled processing, taking into account the studies that propose an inverted U-curve or optimal innovation effect (Silvia, 2006; Berlyne, 1971; Giora et al., 2004; Hekkert et al., 2003) and the

findings of Van der Lee (in preparation) when testing the PIA model. Considering the result of Van der Lee (in preparation) that fluency reduction does not lead to more interest, and the idea that more complex stimuli evoke more interest (Silvia, 2006) because people like to 'puzzle' when processing in an elaborate way (Phillips & McQuarrie, 2004), it is expected that less felt fluency will cause more processing pleasure, leading to more interest. Also, for boredom (figure 9) and confusion (figure 10) after controlled processing, the results are shown that would be expected when looking at the findings of Van der Lee (in preparation). It is expected that boredom will be a result of less processing pleasure, while confusion is caused by less felt fluency (Van der Lee, in preparation).

H5: At an exposure time of 5000 ms, the metaphor structures will evoke different levels of interest, boredom and confusion as displayed in the figures 8, 9 and 10 respectively.

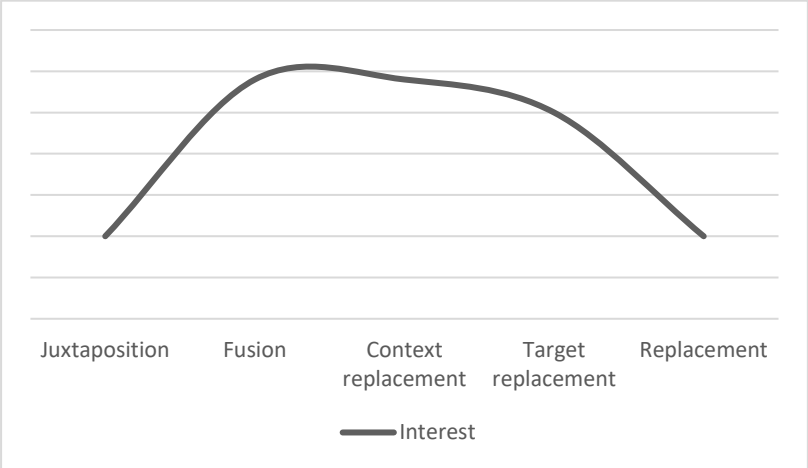

Figure 8. Expected findings for interest at long exposure time

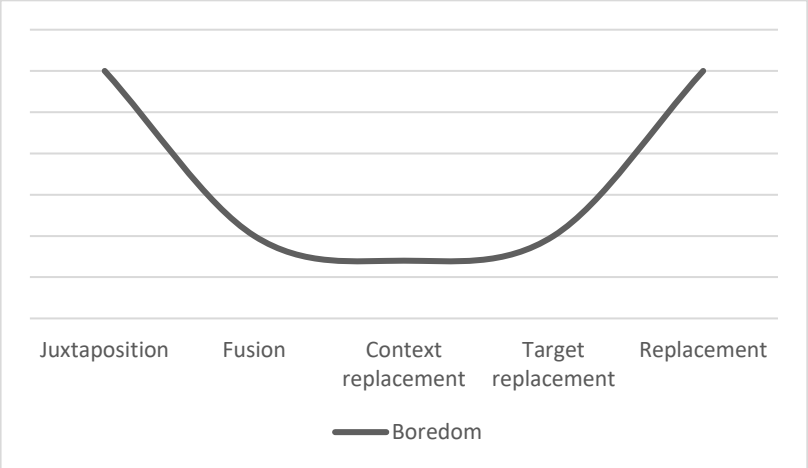

Figure 9. Expected findings for interest at long exposure time

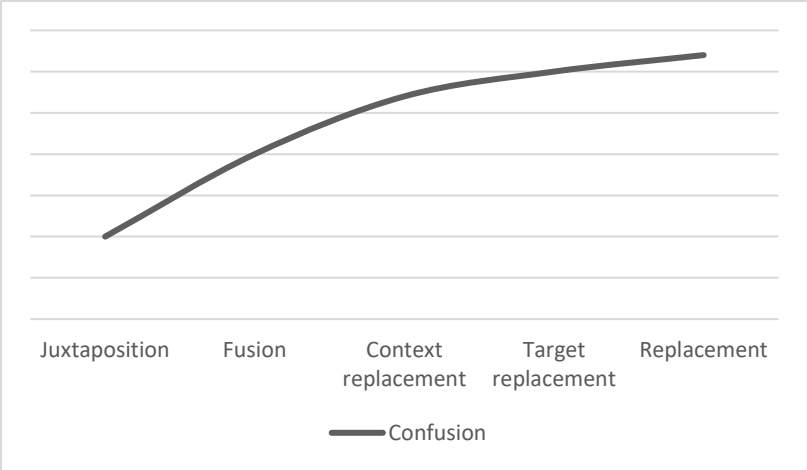

Figure 10. Expected findings for confusion at long exposure time

H6: At an exposure time of 5000 ms, the effect of different metaphor structures on interest level will be mediated by felt fluency and processing pleasure, in a way that less felt fluency causes more processing pleasure, which then causes more interest.

H7: At an exposure time of 5000 ms, the effect of different metaphor structures on boredom level will be mediated by processing pleasure, in a way that more processing pleasure causes less boredom.

H8: At an exposure time of 5000 ms, the effect of different metaphor structures on confusion level will be mediated by felt fluency, in a way that more felt fluency causes less confusion.

H9: For controlled processing, no effects of different metaphor structures on pleasure and displeasure will be found.

Method

Data for the pre-test and main experiment were collected in cooperation with Evelyn Gaarman and Steffie van der Horst. The pre-test was conducted and analysed together. For the main experiment, data were only gathered, but not analysed in cooperation. In the experiment, items were used which measured the reactions to certain stimuli by means of aesthetic pleasure, evoked emotions (pleasure, displeasure, interest, boredom and confusion), comprehension, felt fluency and processing pleasure. Reporting of the complete study was done individually and the current study focusses on the data regarding the evoked emotions, felt fluency and processing pleasure.

Pre-test

Materials. The stimuli used for this study were self-created advertisements. Since the main experiment would need 50 stimuli, in first instance 125 stimuli were created to make sure that the total of remaining stimuli after the pre-test would be enough for the actual experiment. So, 19 products were used to create five advertisement versions of those products; one for each metaphor structure. Every product was given a fictive brand name which was placed in the advertisement together with the product name (for example, the text ‘Bakerist Energy bar’ was shown in the advertisement for the product energy bar, just as ‘Odo Deodorant’ could be read in the deodorant advertisement). Figure 11 shows an example of the five advertisements created

for the product ‘coffee’. It was ascertained that all stimuli had the same colour scheme, and the ones without context had the same background, to prevent that differences other than metaphor structure would be of influence.

Figure 11. Example of pre-test stimuli: five different versions of the product ‘coffee’ (juxtapostition, fusion, replacement, target replacement and context replacement respectively)

Participants. A total of 58 participants, recruited via Facebook, took part in the pre-test. They were all Dutch speaking people, with an average age of 24,5 years. In total, there were 17 male participants and 41 female participants. Their level of education was high school (2 participants) MBO (2 participants), HBO (29 participants) or WO (25 participants). The participants filled in the questionnaire at a chosen place and time, without a researcher present.

Procedure. The pre-test consisted of an online questionnaire, created in Qualtrics, displaying the 19 (products) x 5 (metaphor versions) advertisements and accompanying items. The products were divided over three questionnaire versions A, B and C, so every participant viewed five versions of six or seven products. These metaphor versions were, in contrast with the actual experiment, all presented at the same time (as can be seen in figure 11). Stimuli were shown to the participants, who were expected to respond to the questions accompanying them. Furthermore, participants were asked to fill in their age and educational level. The complete questionnaire can be found in appendix 1.

Measures. The questionnaire aimed to investigate the artful deviation, conventionality, comprehensibility and comparability of the created stimuli. Therefore, 7-point Likert scales were used, based on Van der Lee’s (in preparation) measuring of novelty (perceived typicality of the stimulus), complexity (perceived ability to understand the stimulus) and relatedness (perceived relatedness of shown image and advertised product). Specifically, for all individual advertisements on artful deviation was measured, using three 7-point Likert scales (“The image is straightforward/creative, innovative/old-fashioned, predictable/surprising”). Also, comprehensibility was measured using the 7-point Likert scale “The image is easy/hard to

understand". Besides, perceived and actual understanding of the overall message of the five versions was measured ("I totally do/do not understand the message communicated through the advertisements" on a 5-point Likert scale and "Please explain the message of the advertisements in your own words"). Furthermore, conventionality of the message was measured using three 7-point Likert scales ("The comparison that is made is old/new; unusual/usual; illogical/logical") and comparability of the target and source object was also measured this way ("The two objects are not similar/similar; not different/different; not related/related"). On top of this, people were asked to indicate for each individual version if the intended message (which was then explained) came across clearly ("In this image the metaphor comes across unclearly/clearly") and there was room for comments if unclarity was indeed observed. Finally, a 7-point Likert scale was used for indicating if the brand name referred to the product clearly. Also, there was a final open question about "what the participant would do different if he or she was the designer of the advertisements". All measures, including alpha's and scores, regarding the pre-test can be found in appendix 1.

Data analysis. The stimuli that scored significantly lower than an average of 4 points on conventionality and/or comparability, and those which were not understandable enough (understood by less than 75 per cent of participants), were discussed and if necessary removed from the set of materials. Based on all scores and thorough discussion, decisions were made about which stimuli should be used for the actual experiment. The remaining stimuli were sometimes improved based on feedback participants were able to give on the pictures during the questionnaire. Besides, the fictional brand names were changed if they scored too low on the 7-point scale ('the brand name fits the product clearly/not clearly') and also the advertisements were changed in they did not fit the message significantly clear (except for replacement which was often found not to be clear, but was expected to; Hooijdonk & Van Enschot, 2016). Furthermore, the pre-test was used to check how the different metaphor

structures in general related regarding complexity and artful deviation, to make sure the created advertisements were in accordance with the literature about complexity and artful deviation of different metaphor structures (for example, metaphor structures get more complex when moving from juxtaposition to fusion, to replacement). Eventually, 50 stimuli were chosen to be used for the actual experiment: ten products with each five versions.

Main Experiment

Materials. In the main experiment, the 50 stimuli that were chosen after the pre-test, were used. During the experiment, each participant was exposed to 10 experimental stimuli (each metaphor structure two times) interspersed with 10 filler stimuli. Since participants were not meant to see a specific product more than once, 10 products were used with five versions: one for each metaphor structure. In figure 12, the five advertisement versions of the product energy bar can be found. Figure 13 shows some examples of the fillers that were used. For this, advertisements conveying different kinds of messages were chosen and photoshopped to look like the other stimuli. A fictive name was also added. This way, the fillers would not deviate from the stimuli, and the goal of investigating metaphors in advertisements would not be exposed to the participants since the fillers contained not only metaphors but also other methods of persuasion.

Figure 12. Example of stimuli: five different versions of the product 'energy bar' (juxtapostition, fusion, replacement, target replacement and context replacement respectively)

Figure 13. Example of fillers

Participants. A total of 164 Dutch speaking participants, with an average age of 21.86 years, took part in this study. In total, there were 46 male participants with an average age of 22.57 years. The average age of the 118 female participants was 21.58 years. For all participants, the level of education was either HBO (13 participants) or WO (151 participants). They were recruited through the participants pool of Tilburg University, and by personal invitation to join the experiment. Some of them received a participation point in exchange for performing the experiment. Besides, most participants performed the experiment by themselves at a laptop in a lab or office at Tilburg University. Several, however, performed the experiment outside of the university. Still, they used the same laptop and performed the experiment under the same conditions as the other participants.

Design. This study had a 2 (exposure time) x 5 (metaphor structure) design. Exposure time was a between subjects factor, while metaphor structure was a within subjects factor. Participants were either shown all advertisements for 100 ms, or for 5000 ms. However, they did see all metaphor structures during the experiment. With E-prime, five experiment versions were created, differing for the order in which the products were shown. This was done to prevent bias. The order in which the different metaphor structures were showned maintained the same for each version. Table 1 shows the five different experimental versions that were used in both the 100 ms and 5000 ms condition.

Table 1. The five different versions of the experiment (J = juxtaposition, F = fusion, R = replacement, CR = context replacement and TR = target replacement)

Version 1	**Version 2**	**Version 3**	**Version 4**	**Version 5**
Filler 1	Filler 1	Filler 1	Filler 1	Filler 1

Filler 2	Filler 2	Filler 2	Filler 2	Filler 2
Duster J	Condom J	Deodorant J	Energy bar J	Suitcase J
Suitcase CR	Duster CR	Condom CR	Deodorant CR	Energy bar CR
Energy bar R	Suitcase R	Duster R	Condom R	Deodorant R
Filler 3	Filler 3	Filler 3	Filler 3	Filler 3
Deodorant F	Energy bar F	Suitcase F	Duster F	Condom F
Filler 4	Filler 4	Filler 4	Filler 4	Filler 4
Condom TR	Deodorant TR	Energy bar TR	Suitcase TR	Duster TR
Filler 5	Filler 5	Filler 5	Filler 5	Filler 5
Matress J	Sports shoes J	Toothpaste J	Laundry detergent J	Toilet freshener J
Toilet freshener CR	Matress CR	Sports shoes CR	Toothpaste CR	Laundry detergent CR
Filler 6	Filler 6	Filler 6	Filler 6	Filler 6
Filler 7	Filler 7	Filler 7	Filler 7	Filler 7
Laundry detergent R	Toilet freshener R	Matress R	Sports shoes R	Toothpaste R
Filler 8	Filler 8	Filler 8	Filler 8	Filler 8
Toothpaste F	Laundry detergent F	Toilet freshener F	Matress F	Sports shoes F
Filler 9	Filler 9	Filler 9	Filler 9	Filler 9
Sports shoes TR	Toothpaste TR	Laundry detergent TR	Toilet freshener TR	Matress TR
Filler 10	Filler 10	Filler 10	Filler 10	Filler 10

Measures. A set of items was used to measure the response of the participants after they had seen a stimulus. Following the exposure to each advertisement, aesthetic pleasure was measured on a 7-point scale, according to the semantic differentials used by Van Enschot and Van Mulken (2014) ('beautiful-ugly', 'pleasurable-unpleasurable', 'interesting-not interesting', 'like-dislike') and one used by Blijlevens (2014, found in: Van Hooijdonk and Van Enschot, 2016): 'attractive-not attractive'. Nonetheless, in the present research the results of those measures were not taken into consideration. They were, however, used in the Theses of the persons in cooperation with whom the experiment was conducted (Evelyn Gaarman and Steffie van der Horst).

After above mentioned items, levels of boredom, pleasure, interest, displeasure and confusion were measured respectively with the use of 7-point Likert scales (Van der Lee, in preparation): ‘To what extent are the following concepts applicable to the advertisement?’ ‘boring’, ‘enjoyable’, ‘interesting’, ‘unenjoyable’, ‘confusing’. Furthermore, felt fluency was measured with two 7-point semantic differentials, based on Van Enschot and Van Mulken (2014): ‘It doesn’t take effort/takes effort to understand what is depicted’ and ‘The ad is easy/difficult to recognize’. After that, comprehension was measured with an open question asking the participants: ‘What does the advertising image mean?’ (Van Hooijdonk & Van Enschot, 2016). Finally, two items measuring processing pleasure followed, also using a 7-point semantic scale: ‘I enjoyed/did not enjoy thinking about the depicted’ and ‘I enjoyed/did not enjoy figuring out the message of the advertisement’.

All above mentioned questions were asked in Dutch. Therefore, they had to be translated from the English literature, making logical and fluent Dutch sentences which still expressed the same questions as they did in the literature they were based on.

Procedure. For the experiment, participants came to a lab or office at Tilburg University, or they came to the house of the researcher. They were all instructed to sit in front of a laptop and look at the screen. First, they filled in a few demographic questions (name, age, gender and level of education). Then they were shown an introduction text, after which the experiment started. To make sure the participants had the intended eye fixation, a cross appeared in the middle of the screen, followed by grey ‘noise’, before the first stimulus was shown (this grey noise was shown prior to each stimulus). Then, one at a time, the stimuli appeared on screen for a duration that was dependent on the participant’s condition (100 ms or 5000 ms). After each stimulus that was shown, the participants were expected to fill in the set of questions discussed earlier.

Data preparation. Before analysing the data, some of the variables were taken together and computed into one variable. For the fluency construct, in the experiment two items were used. After checking the reliability for those scales ($\alpha = .78$) the items were combined into one average fluency variable. This was also done for the two items of the construct processing pleasure ($\alpha = .97$). Besides, in the experiment all participants had seen every metaphor structure twice. Since a pre-test was used to make sure all advertisements with the same structure were perceived the same regarding conventionality, comparability and complexity, all scores for two advertisements containing the same metaphor structure were combined by taking the mean score of the two. So, for each construct measured in the experiment, there eventually was a mean score for juxtaposition, fusion, replacement, target replacement and context replacement per participant.

Results

Normality plots were created to make sure that the 10 different conditions (metaphor structure x exposure time) used in the experiment did not deviate from each other regarding the measured variables. Indeed, the different conditions were found to be normally distributed (appendix 2). Also, the data were checked for straight liners (people who constantly fill in the same number on each 7-point scale, most likely due to a lack of seriously partaking in the experiment), which were not found. The means and standard deviations regarding felt fluency and evoked emotions as a result of exposure time and metaphor structure can be found in table 2.

Tabel 2. Average scores per metaphor structure in *M (SD)* for 100 ms vs 5000 ms

Presentation time	Metaphor structure	Juxtaposition	Fusion	Target replacement	Context replacement	Replacement
100 ms	Boredom	4.44^{2} (1.17)	4.24^{12} (1.30)	4.17^{1} (1.26)	4.06^{12} (1.27)	4.93^{3} (1.31)
	Pleasure	3.47^{1} (.87)	3.49^{1} (1.10)	3.88^{2} (1.05)	3.82^{2} (1.07)	3.36^{1} (1.15)
	Interest	3.43^{12} (1.06)	3.54^{23} (1.38)	3.83^{3} (1.09)	3.68^{23} (1.20)	3.13^{1} (1.19)
	Displeasure	3.84^{1} (1.09)	3.99^{1} (.93)	3.80^{1} (1.01)	3.76^{1} (1.11)	4.01^{1} (1.15)
	Confusion	4.11^{23} (1.44)	4.49^{3} (1.49)	3.96^{12} (1.37)	4.25^{23} (1.32)	3.58^{1} (1.57)
	Felt fluency	3.89^{2} (1.27)	3.39^{1} (1.29)	3.94^{2} (1.20)	3.35^{1} (1.33)	4.59^{3} (1.36)
	Processing pleasure	4.18^{2} (1.48)	3.73^{1} (1.43)	3.89^{12} (1.32)	3.65^{1} (1.47)	3.60^{1} (.137)
5000 ms	Boredom	4.49^{3} (1.54)	3.81^{12} (1.37)	3.78^{1} (1.38)	4.13^{23} (1.40)	5.09^{4} (1.42)
	Pleasure	3.54^{3} (1.12)	$4.08\ (1.23)^{2}$	3.89^{3} (1.13)	3.62^{2} (1.21)	3.18^{1} (1.15)
	Interest	3.55^{2} (1.14)	4.18^{3} (1.21)	3.83^{2} (1.17)	3.58^{2} (1.25)	2.90^{1} (1.18)
	Displeasure	3.66^{1} (1.23)	3.46^{1} (1.21)	3.67^{1} (1.33)	4.00^{2} (1.29)	4.16^{3} (1.20)
	Confusion	3.22^{12} (1.37)	2.96^{1} (1.39)	3.41^{2} (1.61)	4.08^{3} (1.57)	4.23^{3} (1.56)
	Felt fluency	4.97^{2} (1.19)	5.32^{3} (1.12)	4.82^{2} (1.30)	3.85^{1} (1.38)	3.56^{1} (1.44)
	Processing pleasure	4.82^{34} (1.17)	4.86^{4} (1.25)	4.65^{23} (1.31)	4.52^{2} (1.28)	4.15^{1} (1.58)
Total	Boredom	4.47 (1.37)	4.02 (1.35)	3.98 (1.33)	4.10 (1.34)	5.01 (1.36)
	Pleasure	3.51 (1.00)	3.79 (1.20)	3.89 (1.09)	3.72 (1.15)	3.27 (1.15)
	Interest	3.49 (1.10)	3.86 (1.33)	3.83 (1.13)	3.63 (1.22)	3.02 (1.19)
	Displeasure	3.75 (1.16)	3.72 (1.11)	3.73 (1.18)	3.88 (1.20)	4.10 (1.18)
	Confusion	3.66 (1.53)	3.72 (1.63)	3.96 (1.37)	4.17 (1.45)	3.58 (1.57)

Felt fluency	4.44 (1.34)	4.36 (1.55)	4.38 (1.32)	3.61 (1.37)	4.07 (1.49)
Processing pleasure	4.50 (1.37)	4.30 (1.45)	4.27 (1.37)	4.09 (1.44)	3.88 (1.50)

Note Emotion, fluency and processing pleasure scores vary from 1 = not at all agree to 7 = totally agree

Note Superscripts indicate the significant differences (ascending) between the metaphor structures per measured variable

To investigate the influence of exposure time and metaphor structure on pleasure, interest, boredom, confusion and displeasure a one-way ANOVA with repeated-measures was conducted with exposure time (100 ms or 5000 ms) as a between subjects factor and metaphor structure as a within subjects factor (pairwise comparisons using LSD procedure). It was examined how, per exposure time condition, the different metaphor structures related when it came to levels of pleasure, displeasure, interest, boredom and confusion.

Pleasure and Displeasure at Short Exposure Time

First, for the 100 ms condition, level of pleasure was influenced by metaphor structure ($F(3,679;294,326) = 5.23$, $p = .001$)[a] (figure 14). Pleasure was significantly highest for Target replacement and Context replacement. After this, Juxtaposition, Fusion and Replacement all followed; they did not significantly differ in the level of pleasure they evoked. This was different than the expectation shown in the graph accompanying the second hypothesis, about levels of pleasure evoked by the metaphor structures for short exposure time. Furthermore, the current results suggest that in the 100 ms there were no significant differences between the metaphor structures regarding displeasure levels ($F(3.734,297.895) = 1.272$, $p = .282$)[b] (figure

[a] Degrees of freedom corrected with the Huynh-Feldt estimates for sphericity because sphericity assumption was violated, $\chi2(9) = 25.835$, p=.002 and Greenhouse-Geisser was > .75

[b] Degrees of freedom corrected with the Huynh-Feldt estimates for sphericity because sphericity assumption was violated, $\chi2(9) = 18.191$, p=.033, and Greenhouse-Geisser was > .75

14). So, both pleasure and displeasure levels did not differ per metaphor structure in the way it was expected.

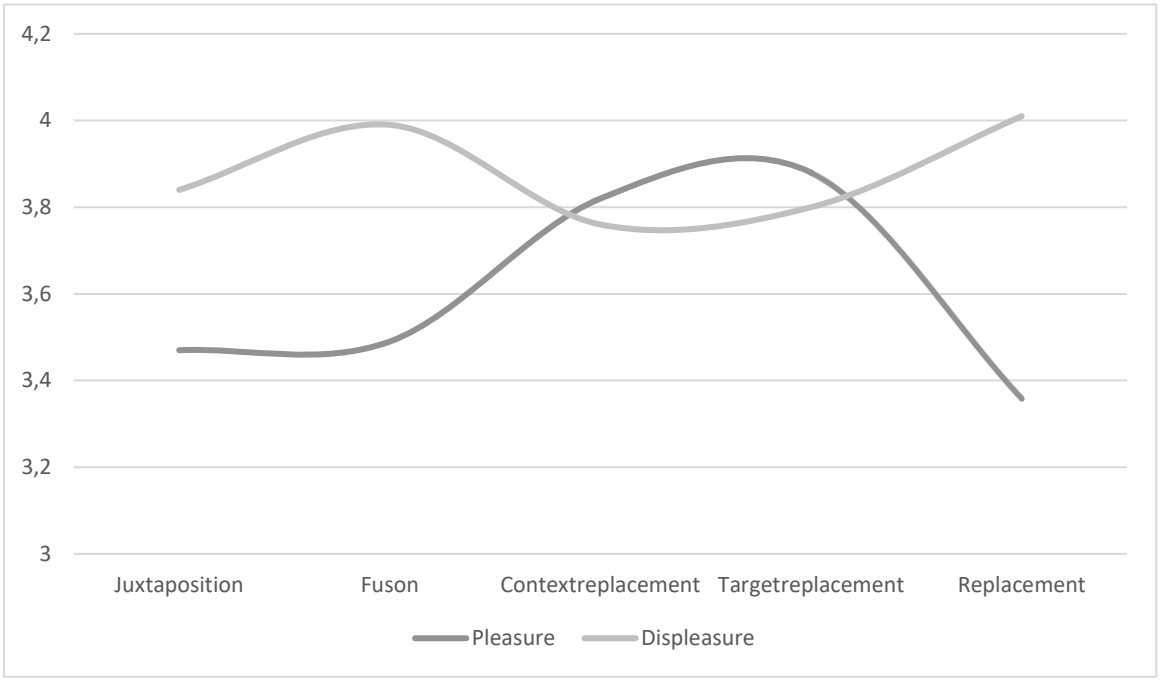

Figure 14. Effect of metaphor structures on pleasure and displeasure for short exposure time

Pleasure and Displeasure at Long Exposure Time

For the 5000 ms condition then, there was also an effect of metaphor structure on pleasure ($F(4,328) = 11.24$, $p < .001$). Fusion and Target replacement scored significantly highest on pleasure, after which Juxtaposition and Context replacement followed. Finally, replacement evoked significantly the least pleasure. Besides, in contrast with the 100 ms condition, in this 5000 ms condition there was an effect of metaphor structure on displeasure ($F(3,826;313,709) = 6.49$, $p < .001$)[c]. Replacement scored significantly highest on displeasure, while Context replacement scored second-highest and Juxtaposition, Fusion and Target replacement scored lowest and did not significantly differ from each other.

Interest, Boredom and Confusion at Short Exposure Time

It is found that metaphor structure did affect level of interest in the 100 ms condition ($F(4,320) = 5.68$, $p < .001$). Replacement scored significantly lower on interest than the rest of the

[c] Degrees of freedom corrected with the Huynh-Feldt estimates for sphericity because sphericity assumption was violated, $\chi2(9) = 18.191$, $p < .05$, and Greenhouse-Geisser was > .75

metaphors, except for Juxtaposition where no significant difference was found. Juxtaposition seemed to be in between Fusion and Context replacement on the one side, and Replacement on the other side, not differing significantly from one of those three structures. Juxtaposition did, however, score lower than Target replacement. Also, for the 100 ms condition, there seemed to be an effect of metaphor structure on level of boredom ($F(4,320) = 7.76$, $p < .001$)[e]. This effect came from the replacement structure scoring significantly highest, while for the other metaphor structures only Juxtaposition and Target replacement were significantly different from each other (Juxtaposition scored higher than Target replacement) but not from the rest. Finally, levels of confusion were also influenced by metaphor structure the 100 ms condition ($F(4,320) = 5.85$, $p < .001$). In the 100 ms condition, replacement scored significantly lower than Juxtaposition, Fusion and Context replacement (which were not significantly different). It did however not significantly differ from Target replacement, which also scored significantly lower than Fusion but did not differ from the other metaphor structures.

Interest, Boredom and Confusion at Long Exposure Time

In the 5000 ms condition, metaphor structure affected interest as well ($F(4,328) = 19.82$, $p < .001$)[d]. Replacement evoked significantly less interest than the other metaphor structures, while Fusion evoked significantly the most interest. Juxtaposition, Target replacement and Context replacement did not significantly differ from each other in scores. Even though not all metaphor structures evoked significantly different levels of interest, the pattern does take somewhat the same form as the graph accompanying the hypothesis about evoked interest for long exposure time. Deviating from expectation, however, is the Juxtaposition scoring higher on interest than the replacement structure without context.

[e] Degrees of freedom corrected with the Huynh-Feldt estimates for sphericity because sphericity assumption was violated, $\chi2(9) = 16.99$, $p < .05$, and Greenhouse-Geisser was > .75)

[d] Degrees of freedom corrected with the Huynh-Feldt estimates for sphericity because sphericity assumption was violated, $\chi2(9) = 25.554$, $p < .005$. and Greenhouse-Geisser was > .75).

Furthermore, metaphor structure influenced boredom in the 5000 ms condition ($F(3,83;313,97) = 17.78$, $p < .001$)[f]. Just like in the 100 ms condition, Replacement scored significantly highest. Also, Juxtaposition and Context replacement evoked more boredom than Target replacement, while only Juxtaposition scored significantly higher than Fusion. This last metaphor structure seemed to be in between Target replacement and Context replacement, but did not significantly differ from one of them. Looking at the 5000 ms results, they do somewhat show the same pattern as the boredom graph in the hypothesis. However, as in the case of interest, the evoked emotions did not significantly differ from each other in the way it was expected.

Finally, in the 5000 ms condition, confusion was also affected by metaphor structure ($F(4,328) = 17.402$, $p < .001$). Replacement and Context replacement evoked significantly the most confusion. Target replacement scored significantly higher than Fusion, with Juxtaposition in the middle but not significantly differing from one of those two structures. Again, the 5000 ms results show the pattern that was expected in the hypothesis, except for Juxtaposition which was expected to score lower (figure 15).

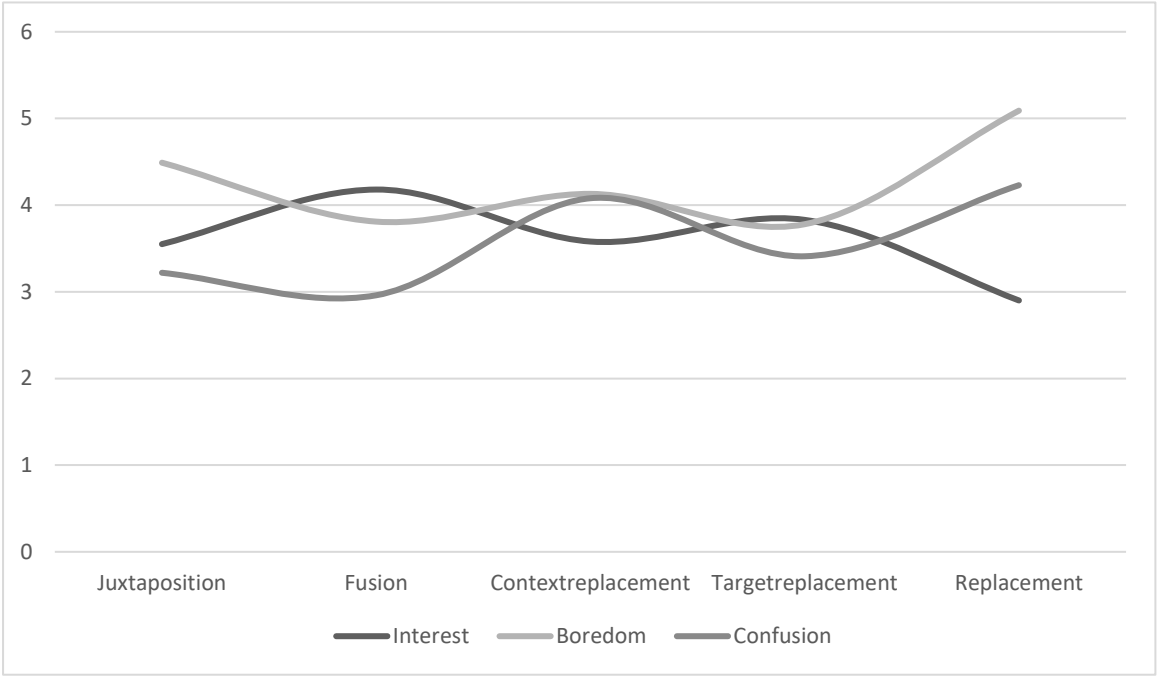

Figure 15. Effect of metaphor structures on interest, boredom and confusion for long exposure time

[f] degrees of freedom corrected with the Huynh-Feldt estimates for sphericity because sphericity assumption was violated, $\chi 2(9) = .810$, $p < .05$, and Greenhouse-Geisser was > .75).

Mediation Analysis for Pleasure at Short Exposure Time

For the 100 ms condition, the proposition that the effect of metaphor structure on pleasure would be mediated by felt fluency, was investigated. Therefore, a mediation analysis for repeated-measures was conducted using MEMORE (Montoya & Hayes, in press). In MEMORE it is not yet possible to add exposure time as a moderator, so mediation analysis was only possible for the different exposure time conditions separately. Figure 16 shows the model that was tested in this case. The total effect of difference in metaphor structure (X) on pleasure (Y) is shown in the upper construct through path *c*. Furthermore, in the construct thereunder, path *a* displays the effect of difference in metaphor structure (X) on felt fluency (M), and path *b* displays the effect of felt fluency (M) on pleasure (Y). Finally, path *c'* shows the direct effect of difference in metaphor structure (X) on pleasure (Y).

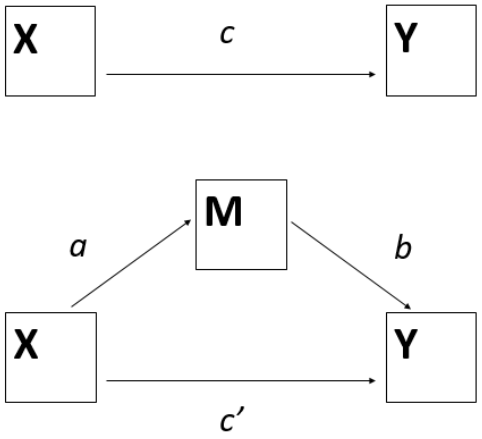

Figure 16. Mediation model for the effect of metaphor structure on pleasure, through felt fluency

In first instance, no difference in pleasure was found between Replacement and Juxtaposition: the total effect was not significant (b = .11, BCa CI = [-.19, .41]). The mediation analysis, however, disclosed that initially Juxtaposition tended towards evoking more pleasure than Replacement (direct effect: b = .27, BCa CI = [-.04, .57]), but this effect was suppressed by an indirect effect through felt fluency (b = -.16, 95% BCa CI = [-.33,-.03]). This effect consisted of a significant path *a* (b = -.70, BCa CI = [.14, .87]) and path *b* (b = .22, BCa CI = [.08,.37]). This thus means that Replacement scored higher on felt fluency, which positively affected pleasure, and thus suppressed the direct effect of Juxtaposition being more pleasurable.

For Target replacement and Replacement, subsequently, there was a difference in level of pleasure (total effect: b = -.52, BCa CI = [-.86, -.19]). With felt fluency present as a mediator,

a significant indirect effect of pleasure on metaphor structure through fluency was shown (b = .24, 95% BCa CI = [.06, .50]; path *a*: b = .65, BCa CI = [.29, 1.02]; path *b*: b = .36, (95% BCa CI = [.18, .55]). This indirect effect partially suppressed the direct effect (b = -.76, 95% BCa CI = [-1.09, -.43]. So, Target replacement evoked more pleasure than Replacement, but this effect was reduced because Replacement scored higher on felt fluency and higher felt fluency caused more pleasure.

For the difference between Context replacement and Replacement, similar effects were found. Replacement scored higher on felt fluency than Context replacement, and since higher felt fluency meant more pleasure, the effect of Context replacement being more pleasurable than Replacement was partially reduced. See appendix 2, table 1 for the results of the complete mediation analysis testing the effect of metaphor structure on pleasure through felt fluency.

Mediation Analysis for Interest at Long Exposure Time

For the 5000 ms condition, the proposition that the effect of metaphor structure on interest was mediated by felt fluency and processing pleasure, was also investigated through a serial mediation analysis for repeated-measures using MEMORE (Montoya & Hayes, in press). Figure 17 shows the model that presents this analysis. The total effect of difference in metaphor structure (X) on interest (Y) is shown in the upper construct through path *c*. Subsequently, path a_1 displays the effect of difference in metaphor structure (X) on felt fluency (M_1), and path b_1 displays the effect of felt fluency (M_1) on interest (Y). Besides, path a_2 displays the effect of difference in metaphor structure on processing pleasure (M_2), and path b_2 displays the effect of processing pleasure (M_2) on interes (Y). On top of this, the effect of felt fluency (M_1) on processing pleasure (M_2) is

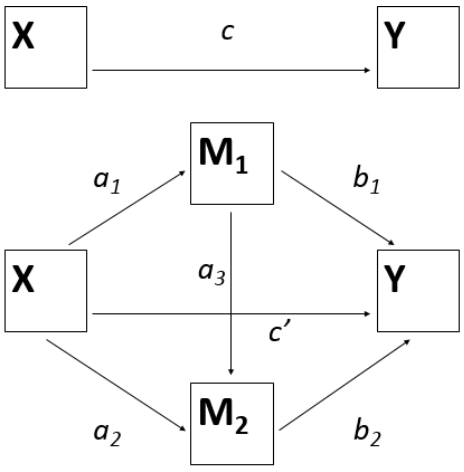

Figure 17. Mediation model for the effect of metaphor structure on interest, through felt fluency and processing pleasure

displayed through path a_3. Finally, path *c'* shows the direct effect of difference in metaphor structure (X) on interest (Y).

For the difference between Fusion and Juxtaposition, the effect of metaphor structure on interest was only mediated by felt fluency and not by processing pleasure. The total effect here was significant (b = -.63, 95% BCa CI = [-.97, -.29]). Furthermore, a significant direct effect of metaphor structure on interest was found within this model (b = -.46, 95% BCa CI = [.21, .69]). Besides, path a_1 was significant (b = -.35, 95% BCa CI = [-.64, -.06]), meaning that Fusion was perceived as more fluent than Juxtaposition. Also, path b_1 was significant (b = .45, 95% BCa CI = [.21, .69]): higher felt fluency led to more interest. A significant indirect effect of metaphor structure on interest through felt fluency was thus found for the difference between Fusion and Juxtaposition (b = -.16, 95% BCa CI = [-.36, -.02]). The result of Fusion evoking more interest than Juxtaposition was mediated by felt fluency, in a way that more felt fluency caused more interest. For the difference between Context replacement and Replacement, similar effects were found. However, for this pair it was processing pleasure, and not felt fluency, that mediated the effect of metaphor structure on interest. Context replacement scored higher on processing pleasure than Replacement, and more processing pleasure meant more interest (appendix 2, table 2).

Furthermore, for the difference between Target replacement and Replacement, first a total effect was found of metaphor structure on interest (b = -.93, 95% BCa CI = [-1.21, -.64]). A significant direct effect of metaphor structure on interest showed that Target replacement evoked more interest than Replacement (b = -.60, 95% BCa CI = [-.92, -.27]). Besides, path a_1 (b = -1.26, 95% BCa CI = [-1.62, -.89]), path a_3 (b = .31, 95% BCa CI = [.16, .46]) and path b_2 (b = .41, 95% BCa CI = [.18, .64]) were found to be significant (the other paths were not). This means that Target replacement was perceived as more fluent than Replacement, and higher felt fluency meant more processing pleasure. Subsequently, more processing pleasure meant

more interest. There thus was an indirect effect of metaphor structure on interest through felt fluency and then processing pleasure (b = -.16, 95% BCa CI = [-.35, -.05]). For the difference between Context replacement and Target replacement, similar effects were found: Target replacement was perceived as more fluent than Context replacement. Higher felt fluency meant more processing pleasure, and more processing pleasure led to more interest (appendix 2, table 2).

Furthermore, for the difference between Replacement and Fusion, the effect of metaphor structure on interest was mediated by felt fluency and processing pleasure. First, the total effect of metaphor structure on interest was significant (b = 1.28 BCa CI = [.95, 1.61]). However, for this model there was no significant direct effect of metaphor structure on interest (b = .36 95% BCa CI = [-.03, .75]). Still, path a_1 was significant (b = 1.76, BCa CI = [1.38, 2.14]), and path b_1 was too (b = .34, BCa CI = [.17, .51]): Fusion was perceived as more fluent than Replacement, and higher fluency meant more interest. A significant indirect effect of metaphor structure on interest through felt fluency was thus found for the difference between Replacement and Fusion (b = .59, 95% BCa CI = [.29, .93]). On top of this, path a_3 turned out to be significant (b = .24, 95% BCa CI = [.08, .39]). Since path b_2 was also significant (b = .46, 95% BCa CI = [.22, .69]), there was an indirect effect showing that metaphor structure positively affected felt fluency (path a_1), which on its turn positively affected processing pleasure (path a_3). Subsequently, processing pleasure positively affected interest (path b_2). In other words, Fusion evoked more interest than Replacement, and this effect was mediated by felt fluency and processing pleasure in a way that more fluency led to more processing pleasure, which led to more interest. For the differences between Context replacement and Juxtaposition (where a negative direct effect was partially suppressed by two positive indirect effects), and Context replacement and Fusion), similar mediation effects were found. See appendix 2, table

2 for the results of the complete mediation analysis testing the effect of metaphor structure on interest through felt fluency and processing pleasure.

Mediation Analysis for Boredom at Long Exposure Time

Then, for the 5000 ms condition, the proposition that the effect of metaphor structure on boredom would be mediated by processing pleasure, was investigated. Another mediation analysis for repeated-measures was conducted using MEMORE (Montoya & Hayes, in press). Figure 18 shows the model that was tested. The total effect of difference in metaphor structure (X) on boredom (Y) is shown in the upper construct through path *c*. Furthermore, path *a* displays the effect of difference in metaphor structure (X) on processing pleasure (M), and path *b* displays the effect of processing pleasure (M) on boredom (Y). Finally, path *c'* shows the direct effect of difference in metaphor structure (X) on boredom (Y).

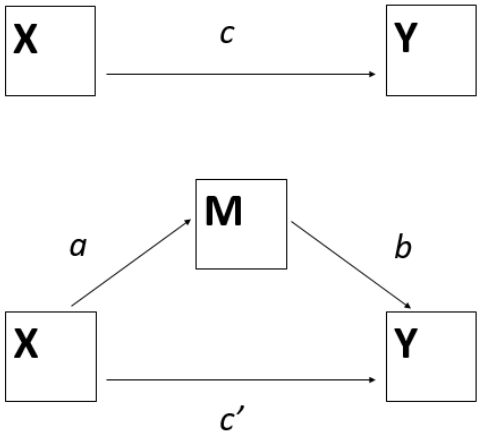

Figure 18. Mediation model for the effect of metaphor structure on boredom, through processing pleasure

So, considering the effect of metaphor structure on boredom, it was found that for the Replacement and Fusion difference, this effect was mediated by processing pleasure indeed. The total effect of metaphor structure on boredom was significant (b = -1.28, 95% BCa CI = [-1.64, -.91]). Fusion evoked less boredom than Replacement (direct effect: b = -.92, 95% BCa CI = [-1.31, -.52]). Path *a* was significant (b = .71, 95% BCa CI = [.43, .99]), just like path *b* (b = -.51, 95% BCa CI = [-.79, -.23]). This means that Fusion scored higher than Replacement on processing pleasure, and when processing pleasure was higher, level of boredom was lower. Thus, for the Fusion and Replacement difference, a significant indirect effect was found of metaphor structure on boredom through processing pleasure (b = -.36, 95% BCa CI = [-.66, -

.07]). For the difference between Target replacement and Replacement, similar effects were found.

Besides, for Target replacement and Fusion, the mediation effect was also similar. However, the initial direct effect showing that Fusion evoked more boredom (b = .12, 95% BCa CI [-.28, .34]), was suppressed by the indirect effect disclosing that Target replacement evoked more processing pleasure and this caused less boredom (b = -.09, 95% BCa CI [-.33,00]; path *a*: b = .21, 95% Bca CI = [.04, .37]; path *b*: b = -.46, 95% BCa CI = [-.85, -.06]). See appendix 2, table 2 for the results of the complete mediation analysis testing the effect of metaphor structure on boredom through processing pleasure.

Mediation Analysis for Confusion at Long Exposure Time

Finally, for the 5000 ms condition, the proposition that the effect of metaphor structure on confusion would be mediated by felt fluency, is investigated. Another mediation analysis for repeated-measures was conducted using MEMORE (Montoya & Hayes, in press). Figure 19 shows the model that was tested. The total effect of difference in metaphor structure (X) on confusion (Y) is shown in the upper construct through path *c*. Furthermore, path *a* displays the effect of difference in metaphor structure (X) on felt fluency (M), and path *b* displays the effect of felt fluency (M) on confusion (Y). Finally, path *c'* shows the direct effect of difference in metaphor structure (X) on confusion (Y).

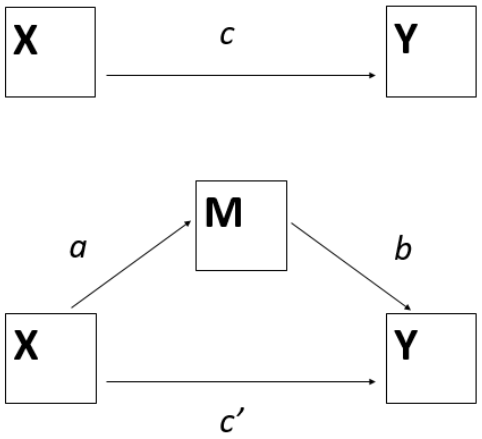

Figure 19. Mediation model for the effect of metaphor structure on confusion, through felt fluency

For the difference between Replacement and Juxtaposition, felt fluency mediated the effect of metaphor structure on confusion. First, the total effect of metaphor structure on confusion was significant (b = -1.01, 95% BCa CI = [-1.36, -.65]). The direct effect of metaphor

structure on confusion was not. However, when felt fluency was present in the model, there was a significant path *a* (b = 1.41, 95% BCa CI = [1.04, 1.78]) and a significant path *b* (b = -.54, 95% BCa CI = [-.72, -.36]), showing that Juxtaposition was perceived as more fluent than Replacement and higher felt fluency caused less confusion. There thus was a significant indirect effect of metaphor structure on confusion, through felt fluency (b = -.76, 95% BCa CI = [-1.12, -.43]).

Similar effects were found for the differences between Context replacement and Juxtaposition, Replacement and Fusion, Target replacement and Fusion, Context replacement and Fusion, Target replacement and Replacement, and Context replacement and Target replacement. Besides, for Fusion and Juxtaposition no initial effect was shown, but a similar positive indirect effect as explained above suppressed the direct effect which was negative. This thus means that the higher felt fluency for Fusion led to less confusion. See appendix 2, table 2 for the results of the complete mediation analysis testing the effect of metaphor structure on confusion through felt fluency.

Conclusion & Discussion

The goal of the current research was to examine the PIA model in the domain of advertising by investigating the effect of metaphor structure and exposure time on pleasure, displeasure, interest, boredom and confusion. Based on the PIA model it would be expected that, at a short exposure time, pleasure and displeasure levels are affected by differences in metaphor structures. In the current study this is true for pleasure, but not for displeasure: no effect of metaphor structure on displeasure is found, which is in contrast with what would be expected considering the PIA model. Possibly the exposure time was so short that all metaphor structures evoked the same level of displeasure, because people were unable to really distinguish them from each other. Reactions given by participants in this condition support this suggestion. After conducting the experiment, a considerable amount of people have mentioned that it went too fast to properly see the stimuli.

Pleasure, on the other hand, is affected by metaphor structure, even though not all metaphor structures seem to differ in evoked pleasure levels. Felt fluency mediates this effect of metaphor structure on pleasure in some of the cases, in a way that supports the idea of the fluency theory that if more fluency is felt when processing a stimulus, this stimulus evokes more pleasure (Reber et al., 2004). More specifically, the positive effect of felt fluency on pleasure causes partial suppression of the initial effects of metaphor structures. For metaphor structures that differ in pleasure levels, effects become smaller because the least pleasurable metaphor structure becomes more pleasurable as a result of more felt fluency. The pattern of pleasure levels as a result of the different metaphor structures, however, does not look like the one that was expected. Target replacement and Context replacement seem to evoke the highest levels of pleasure. This is unexpected since those are metaphor structures which are, according to earlier research (Phillips & McQuarrie, 2004) and the pre-test of the current research, more complex than Juxtaposition and Fusion. Besides, they do not score higher on felt fluency.

Context replacement is even perceived as less fluent than Juxtaposition. As a result of automatic processing it thus seems illogical for those two replacement structures to evoke most pleasure. A reason for this unexpected finding might be that the advertisements containing Target and Context replacements are more pleasurable to watch because, even in a 'flash' of 100 ms it can be seen that they are complete, natural looking, images instead of objects on a plain background (like Juxtaposition and Fusion). Besides, as is demonstrated in earlier studies (Schilperoord, Maes & Ferdinandusse, 2009; Ortiz, 2010; Madupu & Ranganathan, 2013), advertisers regularly use Target or Context replacements in their advertisements, which might mean that nowadays people are used to being exposed to advertisements like those, often very briefly. In other words, the effect might be a result of the mere exposure effect: repeated exposure enhances ones judgement about a stimulus (Bornstein & Craver-Lemley, 2016).

Contrary to the expectations raised by the PIA-model, the emotions interest, boredom and confusion are also evoked at a short exposure time. Notable for these three variables when processing happens automatically, is that Replacement is clearly found least interesting and most boring. This does make sense looking at the findings of Van Hooijdonk and Van Enschot (2016), showing that people perceive this form as a simple structure about which there is nothing more to figure out. In accordance with this, Replacement is seen as least confusing (and probably therefore thus boring). Subsequently, for controlled processing, the patterns of evoked interest and boredom look somewhat like expected proposed in the graphs accompanying the hypothesis about this. However, the levels of interest and boredom do not always differ significantly for the different metaphor structures. For evoked interest, a surprising outcome is that Juxtaposition, Target replacement and Context replacement do not differ while it was expected that these two replacement forms would be considered more interesting than the simple Juxtaposition, taking the inverted U-curve theory into consideration (Berlyne, 1971). Another surprising finding is that Context replacement scores relatively high on boredom. This

might be due to this metaphor structure being too easily figured out when processing elaborately, which is according to the PIA model likely to lead to boredom. However, the level of felt fluency for Context replacement for controlled processing is relatively low. Since the PIA model shows how boredom is evoked when there is no disfluency to be reduced, it is unlikely that this has led to Context replacement being perceived as more boring. Apparently there was disfluency to be reduced for this metaphor structure, but people were not motivated to do so. Even though the level of felt fluency is actually a more likely indicator for Context replacement to score high on confusion, it is remarkable that Context replacement scores high on both boredom and confusion, and that overall the patterns of boredom and confusion results look the same. That is, since the PIA model suggest that elaborate thinking which does not lead to interest will lead to either boredom or confusion, depending on disfluency and the degree to which this can be reduced. It is therefore unexpected that metaphor structures that evoke high levels of confusion are also perceived as relatively boring, and the other way around. An explanation for this might be similar to the suggestion Van der Lee (in preparation) provides to explain his finding that the complex metaphor structures in his research are perceived as considerable boring. In case of a complex metaphor structure, which is confusing, people might not be motivated to try to understand the advertisement. Consequently, they experience feelings of boredom related to this advertisement.

As expected, for controlled processing the effect of metaphor structure on level of interest is in some cases mediated by felt fluency and processing pleasure, even though there is not always a serial mediation where felt fluency also affects processing pleasure. In case of a mediation effect, it turns out that felt fluency affects processing pleasure different than was expected. Higher felt fluency seems to evoke more processing pleasure, while it was expected that more processing pleasure would be caused by lower felt fluency, considering the inverted U-curve (Berlyne, 1971) and the idea of stimuli becoming more interesting with complexity

(Silvia, 2006) because people enjoy solving the puzzle (Phillips & McQuarrie, 2004). It thus appears that the idea that less fluently perceived stimuli trigger a tendency to 'puzzle' and experience pleasure in processing, when exposure time allows for this, does not apply here. Supposedly, when processing felt less fluent, it was also less pleasurable to engage in. Processing pleasure, however, does positively affect interest as was expected.

Also in line with what was expected, is the finding that processing pleasure mediates the effect of metaphor structure on boredom in a way that more processing pleasure leads to less boredom. It seems logical that when people have more pleasure in the processing of an advertisement, this advertisement evokes less feelings of boredom then when less processing pleasure is experienced. Likewise, it is in accordance with expectations that felt fluency mediates the effect of metaphor structure on confusion. Graf and Landwehr (2015) explain in their PIA model that confusion arises when disfluency is felt and this cannot be reduced. The disfluency level then remains too high and causes confusion. So this indicates that a low level felt fluency will lead to more confusion than a high level of felt fluency. Findings of the current study concerning the emotion boredom, are thus in line with expectations raised by the PIA model.

However, also for controlled processing the results are in contrast with expectations raised by the PIA model with regard to what emotions will and will not be evoked. Difference in metaphor structure still seems to affect levels of pleasure and displeasure when people process in a controlled way. One could even argue that it looks like an optimal innovation or U-curve effect is present in the case of pleasure (Berlyne, 1971; Giora et al., 2004). This seems reasonable, looking at those optimal innovation theories which, without considering processing route, explain how metaphor structures lead to more aesthetic appreciation when stimuli are somewhat complex, but not too complex. Subsequently, the PIA model raises the suggestion that this phenomenon only occurs when there is room for elaborate processing. Since aesthetic

appreciation is likely to be expressed not only through interest but also through pleasure, the found effect of metaphor structure on pleasure for controlled processing seems rather plausible, even though the PIA model proposes that the effect on pleasure disappears with the transition from automatic to controlled processing.

All in all, the first and second hypothesis cannot be confirmed looking at the results of this research on a significance level. For automatic processing, no effect of metaphor structure on displeasure levels is found, rejecting hypothesis 2. Besides, the results do not match the expectations of hypothesis 1, which proposed that the different metaphor structures would result in varying levels of pleasure, with a pattern following the assumed levels of complexity based on earlier studies (Phillips & McQuarrie, 2004; Van Hooijdonk & Van Enschot, 2016) and the pre-test of the current study. However, even though the pattern is not as expected, the current findings do support the fluency theory (Reber et al., 2004) since it is shown that higher felt fluency causes more pleasure (in both exposure time conditions). This means that hypothesis 3 can be confirmed, although it should be noted that not for each case where metaphor structure affects pleasure, felt fluency acts as a mediator. Then, for controlled processing, the results come considerably close to the expectations of hypothesis 5, when looking at the pattern of how the reactions to the metaphor structures relate. Taking into consideration the mediation analyses, it can be stated that hypothesis 6, 7 and 8 correctly predicted how the effects of metaphor structure on interest, boredom and confusion would be mediated. However, not for all differences a mediation effect is found and for interest there are sometimes effects where either felt fluency or processing pleasure is not in the mediation. On top of this, the results of the current study lead to a rejection of the hypotheses 4 and 9 that for automatic processing, interest, boredom and confusion levels do not differ significantly between the metaphor structures, while this is also be true for pleasure and displeasure when processing is controlled.

All studied emotions seem to be affected for each processing route, except for displeasure which is only influenced for controlled processing.

Limitations and Future Research

In the current research there is reason to assume that in the short exposure condition automatic processing has taken place, while processing was controlled in the long exposure condition. Future research might consider adding a variable that more specifically measures which processing route takes place. This way, it can be stated with more certainty if indeed, the different processing routes evoke emotions that are not expected in the PIA model. Processing route could, for example, be assessed by asking people whether or not they engaged in elaborate processing (Van der Lee, in preparation). Another method could be to use psychophysiological measures like perioral facial electromyographic activity, through which cognitively effortful tasks can be distinguished from the ones requiring less mental activity (Petty & Cacioppo, 1986). Furthermore, an alternative for exposure time as an influencer of processing route could be distraction or personal relevance (Petty & Cacioppo, 1986). When people are distracted, they have a reduced capability of processing elaborately. Besides, personally relevant information is found to result in more motivation for elaborate processing (Petty & Cacioppo, 1986).

On top of this, the current research does measure overall felt fluency, but might have benefited from also measuring disfluency and the degree of reduction thereof after processing a stimuli. Van der Lee (in preparation), for example, measures in his research the initial felt fluency. Then, if participants indicate to have engaged in controlled processing, final fluency is also measured. This thus gives an idea of the amount of disfluency reduction that has taken place, and how this has affected responses.

Practical implications

Looking at the result patterns for interest, boredom and confusion it can be suggested that the PIA model provides useful insights for the domain of rhetorical advertising. Some surprising

effects, however, might be useful to take into consideration. For one, complex metaphors seem to be appropriate tools for evoking pleasure. However, it may be wise for advertisers to carefully consider what the exact goal of an advertisement is. Looking at the felt fluency levels, namely, it might be the case that complex metaphor structures are pleasurable, but not more comprehensible than simpler structures. Advertisers might thus want to find a balance between evoking pleasure and creating an understandable message. In that case it is beneficial for advertisements to be perceived as fluent, since this turns out to positively affect pleasure. Furthermore, as earlier research already made clear, adding context to replacement metaphors helps create a positive effect of an advertisement. Finally, when trying to evoke interest it might not be wise to create a small amount of fluency. This will, instead of leading to processing pleasure and interest, probably result in confusion. On top of this, since less felt fluency also causes processing pleasure to be low, advertisements like these might also be likely to be perceived as boring. Besides inducing felt fluency, other ways should be found to increate processing pleasure so that people become more interested.

All in all, the results of the current research show that the PIA model is worthwhile taking into consideration for explaining how visual metaphors affect certain feelings and emotions. However, the model is fairly complex and some surprising results are found. It is therefore absolutely interesting to further investigate this, using various approaches.

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Appendix 1

Pre-test Questionnaire, Measures and Results

Stap 1

Allereerst alvast bedankt voor je deelname!

De enquête die je zo gaat invullen is onderdeel van onze masterscriptie en deze zal ongeveer 20 minuten duren. Je krijgt zometeen een aantal advertenties te zien waarin gebruik wordt gemaakt van visuele vergelijkingen/metaforen. We zouden je willen vragen om hierover een aantal vragen te beantwoorden. Er zijn hierbij geen goede of foute antwoorden en je deelname is anoniem.

We willen je nogmaals bedanken voor je tijd en mening waar we erg veel aan hebben.

Groet,

Aniek van den Reek
Evelyn Gaarman
Steffie van der Horst

Stap 2

Bekijk de volgende advertenties en beantwoord de onderstaande vragen per advertentie.

Afbeelding 1

Afbeelding 2

Afbeelding 3

Afbeelding 4

Afbeelding 5

Afbeelding 1 is:

0	0	0	0	0	0	0
Rechttoe-rechtaan						Creatief
0	0	0	0	0	0	0
Innovatief						Ouderwets

0 0 0 0 0 0 0
Voorspelbaar Verrassend

Afbeelding 2 is:
0 0 0 0 0 0 0
Rechttoe-rechtaan Creatief
0 0 0 0 0 0 0
Innovatief Ouderwets
0 0 0 0 0 0 0
Voorspelbaar Verrassend

Afbeelding 3 is:
0 0 0 0 0 0 0
Rechttoe-rechtaan Creatief
0 0 0 0 0 0 0
Innovatief Ouderwets
0 0 0 0 0 0 0
Voorspelbaar Verrassend

Afbeelding 4 is:
0 0 0 0 0 0 0
Rechttoe-rechtaan Creatief
0 0 0 0 0 0 0
Innovatief Ouderwets
0 0 0 0 0 0 0
Voorspelbaar Verrassend

Afbeelding 5 is:
0 0 0 0 0 0 0
Rechttoe-rechtaan Creatief
0 0 0 0 0 0 0
Innovatief Ouderwets
0 0 0 0 0 0 0
Voorspelbaar Verrassend

Stap 3

Geef in de volgende vragen aan hoe makkelijk of moeilijk je de afbeelding te begrijpen vindt.

Afbeelding 1

Afbeelding 2

Afbeelding 3

Afbeelding 4

Afbeelding 5

Afbeelding 1 is:

0	0	0	0	0	0	0
Makkelijk te begrijpen					Moeilijk te begrijpen	

Afbeelding 2 is:

0	0	0	0	0	0	0
Makkelijk te begrijpen					Moeilijk te begrijpen	

Afbeelding 3 is:

0	0	0	0	0	0	0
Makkelijk te begrijpen					Moeilijk te begrijpen	

Afbeelding 4 is:

0	0	0	0	0	0	0
Makkelijk te begrijpen					Moeilijk te begrijpen	

Afbeelding 5 is:

0	0	0	0	0	0	0
Makkelijk te begrijpen					Moeilijk te begrijpen	

Stap 5

Bekijk nogmaals de onderstaande advertenties. Geef vervolgens antwoord op de onderstaande vragen, maar nu over de vijf advertenties gezamenlijk.

Afbeelding 1

Afbeelding 2

Afbeelding 3

Afbeelding 4

Afbeelding 5

Ik begrijp de boodschap die in de bovenstaande advertenties wordt gecommuniceerd:

0	0	0	0	0
Helemaal niet			Helemaal	

Leg kort in je eigen woorden uit wat de boodschap van de advertenties is.
……

Ruimte voor aanvullende opmerkingen
……

Stap 6

In de advertenties wordt een vergelijking gemaakt tussen twee objecten. Koffie wordt vergeleken met een wekker. Geef aan wat je van de vergelijking vindt.

De gemaakte vergelijking is:

Oud						Nieuw
0	0	0	0	0	0	0
Ongebruikelijk						Gebruikelijk
0	0	0	0	0	0	0
Logisch						Onlogisch
0	0	0	0	0	0	0

De twee objecten ‘koffie’ en ‘wekker’ zijn:

Gelijk						Ongelijk
0	0	0	0	0	0	0
Verschillend					Niet verschillend	
0	0	0	0	0	0	0

Niet verwant Verwant
0 0 0 0 0 0 0

Stap 7

In alle vijf advertenties wordt dezelfde metafoor toegepast. Komt deze in alle versies even goed naar voren?

Afbeelding 1

Afbeelding 2

Afbeelding 3

Afbeelding 4

Afbeelding 5

In afbeelding 1 komt de metafoor:
Onduidelijk naar voren Duidelijk naar voren
0 0 0 0 0 0 0

In afbeelding 2 komt de metafoor:
Onduidelijk naar voren Duidelijk naar voren
0 0 0 0 0 0 0

In afbeelding 3 komt de metafoor:
Onduidelijk naar voren Duidelijk naar voren
0 0 0 0 0 0 0

In afbeelding 4 komt de metafoor:
Onduidelijk naar voren Duidelijk naar voren
0 0 0 0 0 0 0

In afbeelding 5 komt de metafoor:
Onduidelijk naar voren Duidelijk naar voren
0 0 0 0 0 0 0

Q30: Wanneer je vindt dat de metafoor in één of meer advertenties minder goed naar voren komt, waar ligt dit volgens jou dan aan? Geef dit kort aan per afbeeldingsnummer(s). Noteer anders “n.v.t.” om verder te gaan.
……

De merknaam Il’Gusta Coffee verwijst naar koffie.

0	0	0	0	0	0	0
Onduidelijk						Duidelijk

Als jij de ontwerper van de advertenties zou zijn, wat zou jij dan anders doen?
……

[Herhaal stap 2 t/m 7 voor de andere negen metaforen]

Stap 8

Je bent bijna klaar! Graag willen we alleen nog wat basis achtergrondinformatie.

Geslacht:
- Man
- Vrouw

Leeftijd:
……

Hoogst genoten opleiding:
- Basisschool
- Middelbaar onderwijs
- MBO
- HBO
- WO
- Anders

Table 1. Alpha's and means for *conventionality* construct, consisting of three items measured on 7-point scales

Product	α	Variance	Item	α if deleted	M (SD)	SD
			Old/novel	.631	4.42	1.981
Coffee	.833	.283	Usual/unusual	.569	4.47	1.926
			Illogical/logical	.966	5.37	1.499
Laundry			Old/novel	.501	5.37	1.571
detergent	.647	.012	Usual/unusual	.199	5.53	1.504
			Illogical/logical	.816	5.32	1.529
			Old/novel	.651	3.47	1.307
Suitcase	.615	.483	Usual/unusual	.204	3.95	1.682
			Illogical/logical	.599	4.84	1.893
			Old/novel	.836	2.63	1.165
Sunglasses	.639	.433	Usual/unusual	-.053	2.79	1.653
			Illogical/logical	.602	3.84	1.834
			Old/novel	.469	6.00	1.054
Toilet freshener	.648	.012	Usual/unusual	.253	5.84	1.344
			Illogical/logical	.840	5.79	1.398
			Old/novel	.884	5.21	1.813
Matress	.710	.095	Usual/unusual	.347	5.79	1.437
			Illogical/logical	.656	5.68	1.635
			Old/novel	.520	3.85	1.631
Sports shoes	.644	.303	Usual/unusual	.183	4.85	1.531
			Illogical/logical	.827	4.75	1.682
			Old/novel	.870	4.95	1.538
Tooth paste	.852	.031	Usual/unusual	.638	4.80	1.824
			Illogical/logical	.836	4.60	1.957
			Old/novel	.876	3.80	1.765
Tissues	.849	.098	Usual/unusual	.668	4.25	1.650
			Illogical/logical	.611	4.40	1.635
			Old/novel	.821	2.70	1.780
Tea	.665	.106	Usual/unusual	.412	2.40	1.667
			Illogical/logical	.360	3.05	2.064
			Old/novel	.944	5.10	1.944
Duster	.922	.063	Usual/unusual	.795	5.35	1.814
			Illogical/logical	.912	5.60	1.603
			Old/novel	.745	2.60	1.492
Smartphone	.653	.333	Usual/unusual	.150	2.35	1.496
			Illogical/logical	.677	3.45	1.986
			Old/novel	.960	2.95	1.682
Pencil	.937	.086	Usual/unusual	.881	2.73	1.862
			Illogical/logical	.867	2.58	2.143
			Old/novel	.798	2.21	1.357
Camera	.783	.810	Usual/unusual	.481	2.37	1.832
			Illogical/logical	.790	3.84	2.167
			Old/novel	.821	5.05	1.471
Lollipop	.868	.034	Usual/unusual	.847	5.21	1.475
			Illogical/logical	.777	5.42	1.305
			Old/novel	.736	2.84	1.834
Condom	.745	.754	Usual/unusual	.361	3.32	2.029
			Illogical/logical	.790	4.53	1.867
			Old/novel	.923	4.21	1.653
Deodorant	.923	.306	Usual/unusual	.810	4.79	1.813
			Illogical/logical	.917	5.32	1.565
			Old/novel	.672	4.95	1.715
Energy bar	.793	.343	Usual/unusual	.532	5.37	1.674
			Illogical/logical	.839	6.11	0.875
			Old/novel	.856	2.26	1.327
Blond beer	.836	.036	Usual/unusual	.657	1.89	0.93
			Illogical/logical	.821	2.16	1.302

Table 2. Alpha's and means for *comparability* construct, consisting of three items measured on 7-point scales

Product	α	Variance	Item	α if deleted	M	SD
			Similar	-.130	3.37	1.640
Coffee	.617	.777	Not different	.462	3.37	1.571
			Related	.837	4.89	1.286
Laundry			Similar	.648	3.79	1.619
detergent	.748	.433	Not different	.448	3.95	1.939
			Related	.841	5.00	1.414
			Similar	.834	4.21	1.512
Suitcase	.919	.281	Not different	.899	3.79	1.475
			Related	.915	4.84	1.642
			Similar	.640	3.26	1.821
Sunglasses	.852	.557	Not different	.747	2.95	1.900
			Related	.949	4.37	1.950
			Similar	.564	4.11	1.853
Toilet freshener	.812	.250	Not different	.616	3.63	1.802
			Related	.935	4.63	1.499
			Similar	.804	3.68	1.765
Matress	.895	.485	Not different	.802	3.42	1.742
			Related	.934	4.74	1.759
			Similar	.764	3.85	1.663
Sports shoes	.873	.061	Not different	.794	3.45	1.572
			Related	.896	3.90	1.619
			Similar	.854	3.00	1.806
Tooth paste	.907	.076	Not different	.819	2.75	1.618
			Related	.924	3.30	1.720
			Similar	.848	4.00	1.717
Tissues	.901	.103	Not different	.821	3.40	1.118
			Related	.902	3.50	1.318
			Similar	.780	2.70	1.922
Tea	.901	.006	Not different	.968	2.80	1.963
			Related	.810	2.65	1.954
			Similar	.946	4.40	1.603
Duster	.914	.106	Not different	.808	3.75	1.743
			Related	.858	4.10	1.832
			Similar	.816	2.60	1.759
Smartphone	.909	.011	Not different	.933	2.55	1.761
			Related	.849	2.75	1.970
			Similar	.926	1.95	1.545
Pencil	.944	.019	Not different	.643	2.00	1.374
			Related	.876	2.21	1.619
			Similar	.797	2.79	2.043
Camera	.887	.444	Not different	.815	2.32	1.668
			Related	.910	3.63	2.114
			Similar	.822	3.37	1.383
Lollipop	.891	.310	Not different	.795	3.16	1.740
			Related	.920	4.21	1.843
			Similar	.801	4.68	1.701
Condom	.900	.317	Not different	.867	3.58	1.539
			Related	.896	3.95	1.649
			Similar	-.085	5.00	1.000
Deodorant	.517	.084	Not different	.413	4.95	.848
			Related	.682	5.47	.841
			Similar	.504	4.53	1.712
Energy bar	.768	.256	Not different	.838	3.89	1.792
			Related	.689	4.89	1.524
			Similar	.772	2.21	1.398
Blond beer	.879	.026	Not different	.770	1.89	0.937
			Related	.914	2.00	0.943

Table 3. Mean scores for the advertised products

Version	Product	Conventionality *M(SD)*	Comparability *M(SD)*	Comprehension *% understood*	Brand name fit *M(SD)*
A	Coffee	4.75 (1.57)		63	6.32 (1.45)
	Laundry detergent		4.25 (1.21)	89	4.95 (2.09)
	Suitcase		4.28 (1.43)	89	6.42 (.69)
	Sunglasses		3.53 (1.66)	73	6.63 (.83)
	Toilet freshener		4.12 (1.47)	89	6.53 (1.22)
	Matress	5.56 (1.30)	3.95 (1.60)	84	6.63 (.60)
B	Sports shoes		3.73 (1.45)	85	5.90 (1.59)
	Toothpaste	4.78 (1.56)	3.02 (1.58)	90	6.40 (.88)
	Tissues	4.15 (1.48)	3.63 (1.30)	75	5.65 (.166)
	Tea		2.71 (1.78)	45	6.45 (1.23)
	Duster	5.35 (1.67)	4.08 (1.60)	90	5.80 (1.70)
	Smartphone		2.63 (1.69)	55	6.20 (1.40)
C	Pencil	2.63 (1.79)	2.05 (1.44)	37	6.32 (.89)
	Camera	2.81 (1.52)	2.91 (1.76)	73	6.53 (1.02)
	Lollipop	5.23 (1.26)	3.58 (1.51)	42	6.26 (1.52
	Condom	3.56 (1.56)	4.07 (1.49)	79	6.84 (.50)
	Deodorant	4.77 (1.56)		84	6.79 (.42)
	Energy bar	5.47 (1.24)	4.44 (1.39)	79	6.16 (1.42)
	Blond beer	2.11 (1.04)	2.04 (1.00)	26	6.53(1.02)

Table 4. Degree to which each advertisements clearly displays the advertised message

Product	M	SD
Coffee Juxtaposition	4,84	2.22
Coffee Fusion	4,58	1.92
Coffee Replacement	1,89*	1.63
Coffee Targetreplacement	3,95	2.22
Coffee Contextreplacement	5,42	2.06
Laundry detergent Juxtaposition	5,16	1.89
Laundry detergent Fusion	6,11	1.29
Laundry detergent Replacement	1,21*	.42
Laundry detergent Targetreplacement	3,58	2.12
Laundry detergent Contextreplacement	5,32	1.80
Suitcase Juxtaposition	5,16	1.80
Suitcase Fusion	6,11	1.05
Suitcase Replacement	2,21*	1.65
Suitcase Targetreplacement	3,74	1.94
Suitcase Contextreplacement	2,47*	1.98
Sunglasses Juxtaposition	4,00	2.08
Sunglasses Fusion	5,53	1.90
Sunglasses Replacement	1,53*	.96
Sunglasses Targetreplacement	5,58	1.68
Sunglasses Contextreplacement	5,16	1.95
Toilet freshener Juxtaposition	5,53	1.61
Toilet freshener Fusion	5,84	1.50
Toilet freshener Replacement	2,32*	1.77
Toilet freshener Targetreplacement	5,95	1.51
Toilet freshener Contextreplacement	4,37	2.19
Matress Juxtaposition	5,84	1.30
Matress Fusion	5,11	2.03
Matress Replacement	2,58*	2.24
Matress Targetreplacement	4,11	2.31
Matress Contextreplacement	4,26	2.05

Sports shoes Juxtaposition	4,40	1.81
Sports shoes Fusion	6,25	1.29
Sports shoes Replacement	1,95*	1.32
Sports shoes Targetreplacement	5,55	1.85
Sports shoes Contextreplacement	4,95	2.11
Toothpaste Juxtaposition	5,10	2.13
Toothpaste Fusion	5,50	1.67
Toothpaste Replacement	2,20*	1.54
Toothpaste Targetreplacement	3,05*	1.73
Toothpaste Contextreplacement	4,35	2.01
Tissues Juxtaposition	4,05	2.40
Tissues Fusion	5,50	1.93
Tissues Replacement	1,75*	1.41
Tissues Targetreplacement	2,30*	1.38
Tissues Contextreplacement	4,95	1.54
Tea Juxtaposition	3,20	2.19
Tea Fusion	4,05	2.37
Tea Replacement	1,45*	1.10
Tea Targetreplacement	4,45	2.16
Tea Contextreplacement	5,00	1.92
Duster Juxtaposition	4,15	2.08
Duster Fusion	5,75	1.83
Duster Replacement	1,60*	1.19
Duster Targetreplacement	4,85	2.18
Duster Contextreplacement	2,95*	1.76
Smartphone Juxtaposition	4,20	2.26
Smartphone Fusion	5,80	1.40
Smartphone Replacement	1,50*	1.00
Smartphone Targetreplacement	3,50	1.82
Smartphone Contextreplacement	2,95*	1.96
Pencil Juxtaposition	3,21*	1.93
Pencil Fusion	4,16	2.12
Pencil Replacement	1,47*	.77
Pencil Targetreplacement	3,00*	1.56
Pencil Contextreplacement	2,79*	1.69
Camera Juxtaposition	5,11	2.05
Camera Fusion	4,53	2.07
Camera Replacement	2,32*	1.89
Camera Targetreplacement	4,84	1.57
Camera Contextreplacement	5,11	1.56
Lollipop Juxtaposition	5,47	1.68
Lollipop Fusion	6,47	1.02
Lollipop Replacement	2,26*	1.94
Lollipop Targetreplacement	3,32	2.29
Lollipop Contextreplacement	4,26	2.08
Condom Juxtaposition	5,42	1.87
Condom Fusion	5,63	1.30
Condom Replacement	3,16	2.27
Condom Targetreplacement	4,95	2.12
Condom Contextreplacement	4,26	2.16
Deodorant Juxtaposition	5,11	2.16
Deodorant Fusion	5,42	1.77
Deodorant Replacement	2,16*	1.68
Deodorant Targetreplacement	4,74	1.76
Deodorant Contextreplacement	5,11	1.73

Energy bar Juxtaposition	5,89	1.79
Energy bar Fusion	5,53	1.17
Energy bar Replacement	3,32	2.03
Energy bar Targetreplacement	4,63	2.17
Energy bar Contextreplacement	5,32	2.73
Blond beer Juxtaposition	4,05	2.25
Blond beer Fusion	4,32	1.83
Blond beer Replacement	2,05*	1.47
Blond beer Targetreplacement	3,95	1.93
Blond beer Contextreplacement	4,21	1.90

* Significantly < 4

Table 5. Differences in complexity scores for metaphor structures

Metaphor structure	**Complexity** ***M(SD)***
Juxtaposition	2.89^{1} (1.30)
Fusion	2.96^{1} (1.03)
Replacement	4.77^{4} (1.53)
Targetreplacement	3.81^{2} (1.03)
Contextreplacement	4.21^{3} (1.12)

Table 6. Differences in artful deviation scores for metaphor structures per version

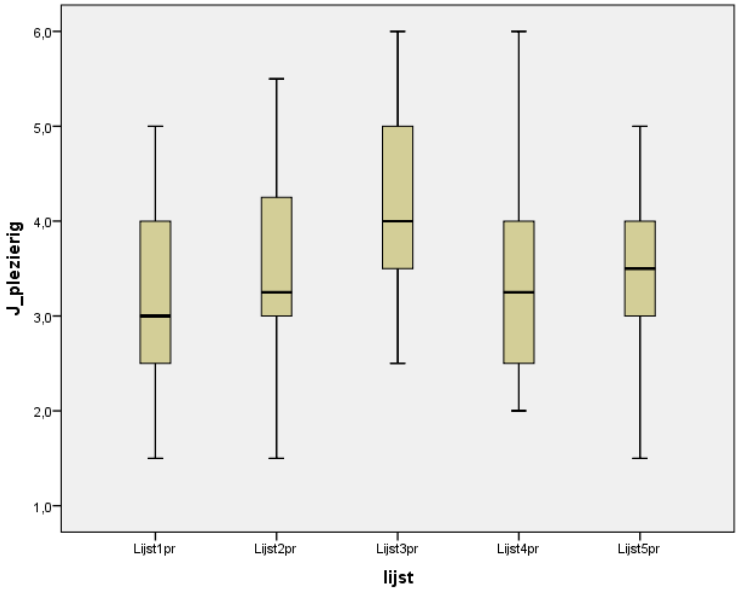
Arful deviation		α	Item Ms	Range	Variance
Version A	Juxtaposition	.890	2.468	1.895	.238
	Fusion	.890	4.558	1.947	.411
	Replacement	.961	2.383	1.421	.185
	Targetreplacement	.892	4.895	1.895	.457
	Contextreplacement	.862	4.787	2.421	.587
Version B	Juxtaposition	.877	2.622	1.550	.240
	Fusion	.785	4.325	3.300	.862
	Replacement*	.943	2.264	1.350	.129
	Targetreplacement	.818	4.875	1.500	.221
	Contextreplacement	.924	5.239	1.250	.131
Version C	Juxtaposition	.911	3.045	2.368	.518
	Fusion	.946	4.744	1.579	.158
	Replacement	.908	2.506	1.579	.175
	Targetreplacement	.920	4.494	2.316	.589
	Contextreplacement	.854	5.025	1.737	.306

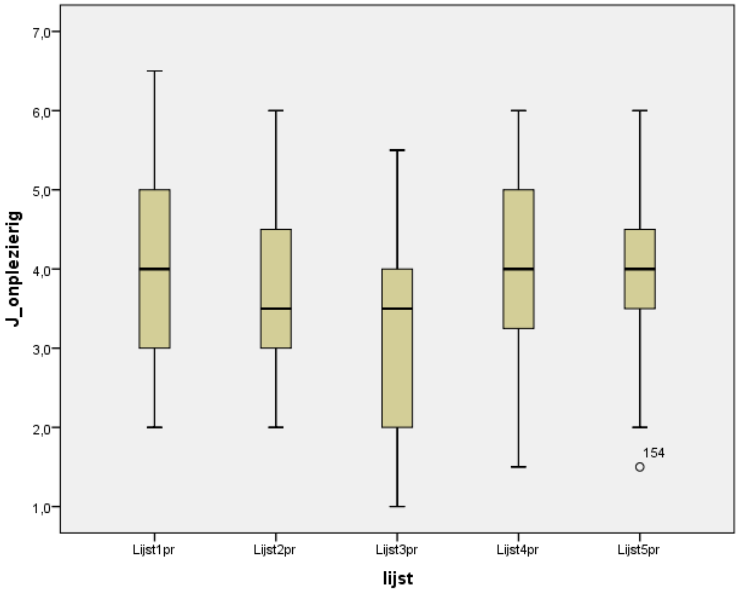
Table 7. Differences in artful deviation scores for metaphor structures

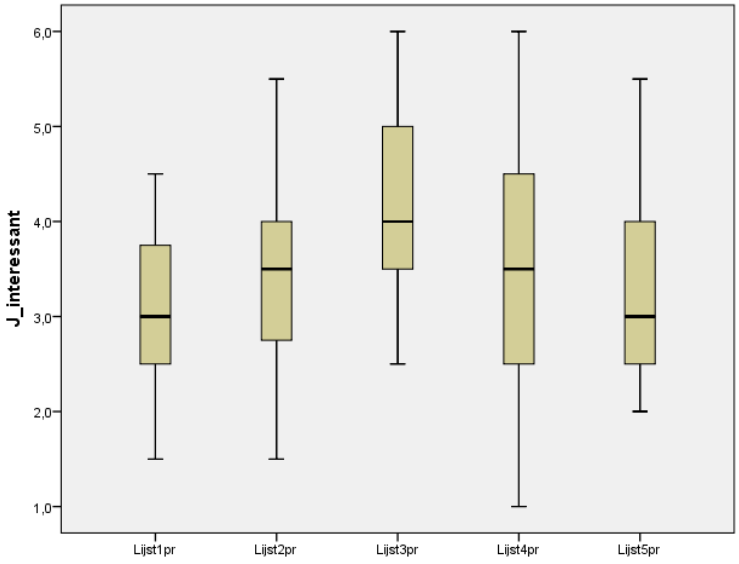
Artful deviation			CI 95%	
	M	SD	Lower	Upper
Juxtaposition*	2.71	0.94	2.48	2.95
Fusion	4.62	0.98	4.38	4.87
Replacement*	2.38	1.11	2.12	2.65
Targetreplacement	4.76	0.87	4.54	5.00
Contextreplacement	5.02	0.84	4.82	5.25

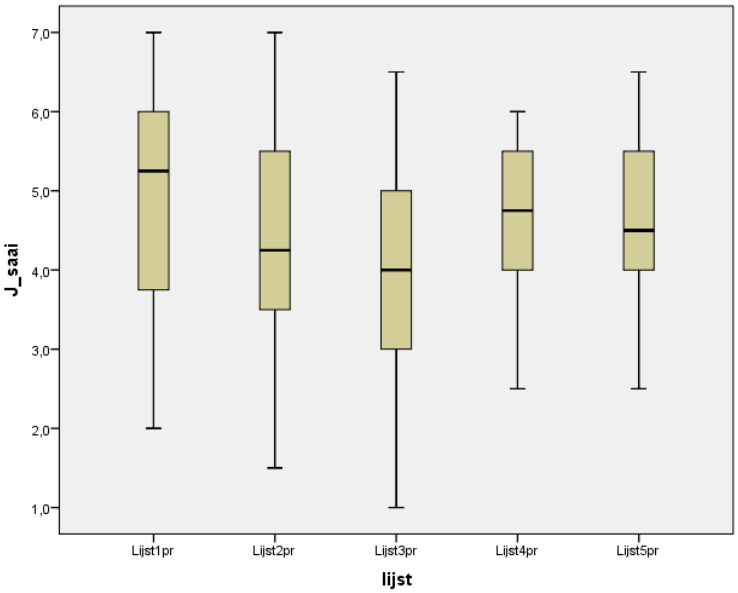
* Significantly lower than the rest

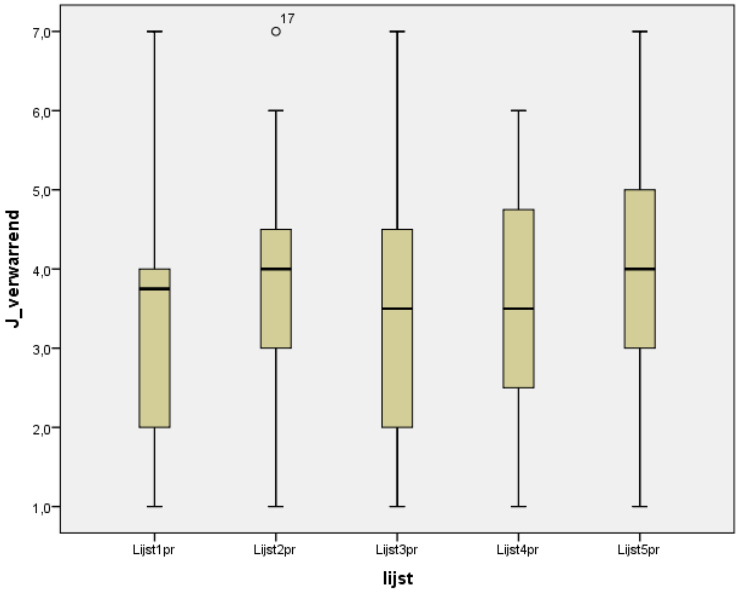
Appendix 2
Distribution of different variable scores for the five experimental conditions

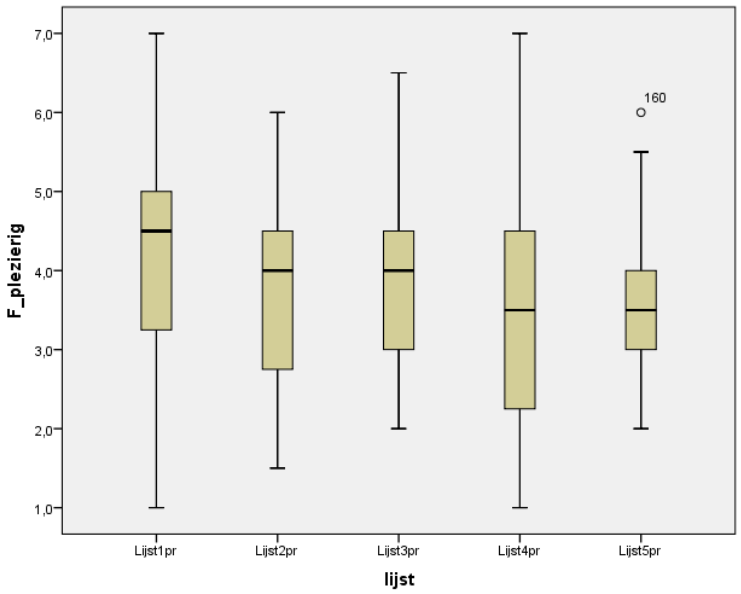








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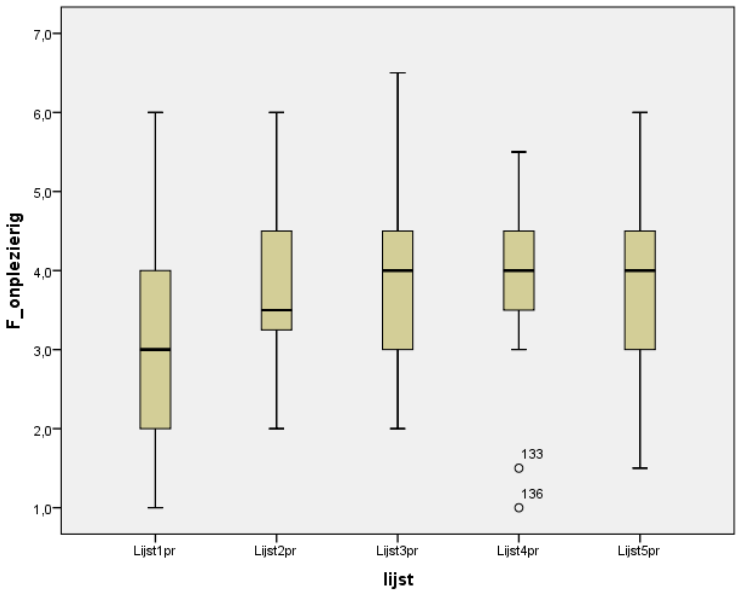
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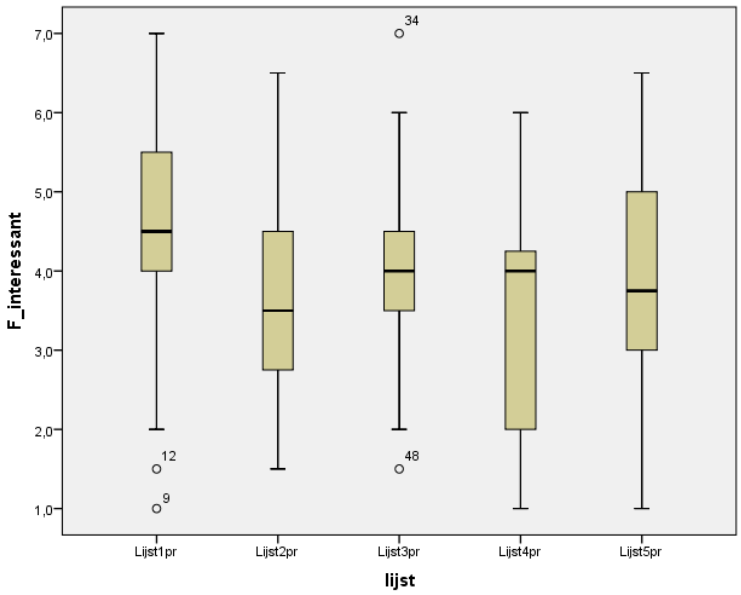
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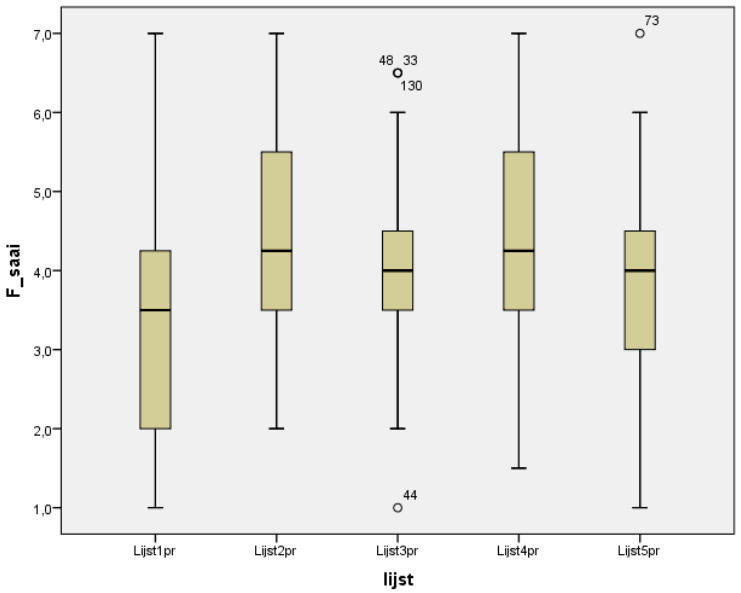
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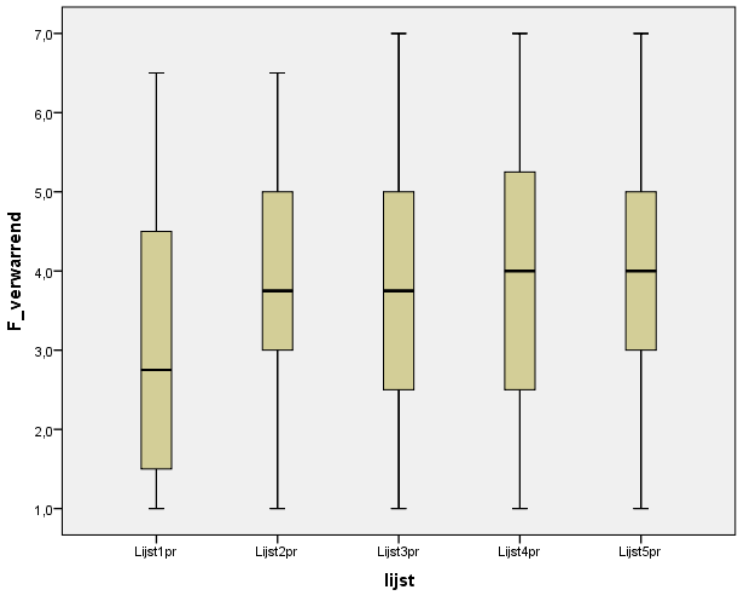
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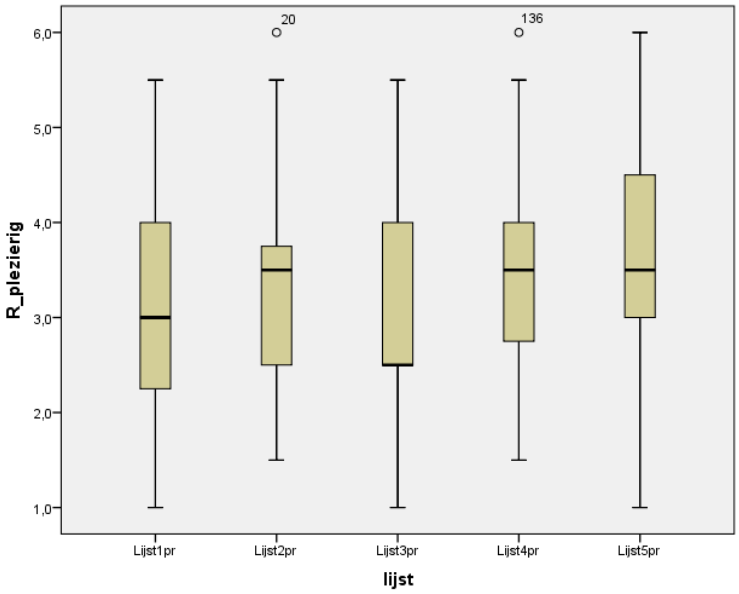
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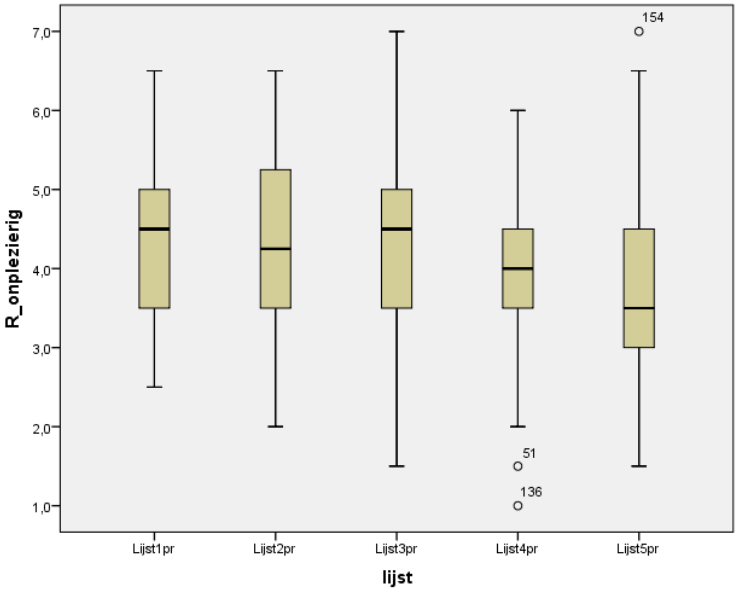
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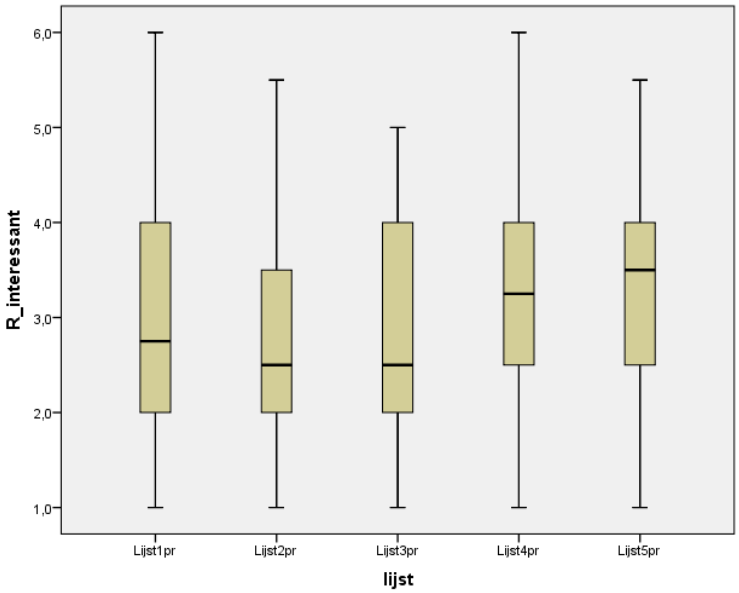
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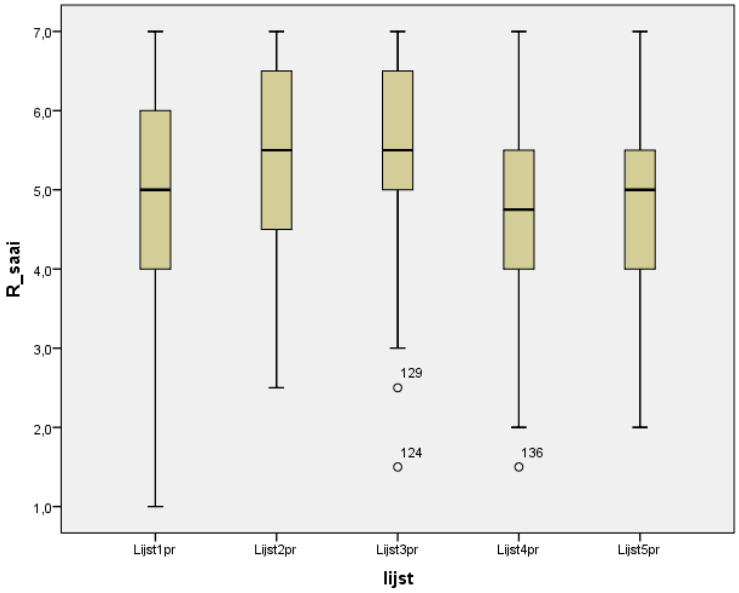
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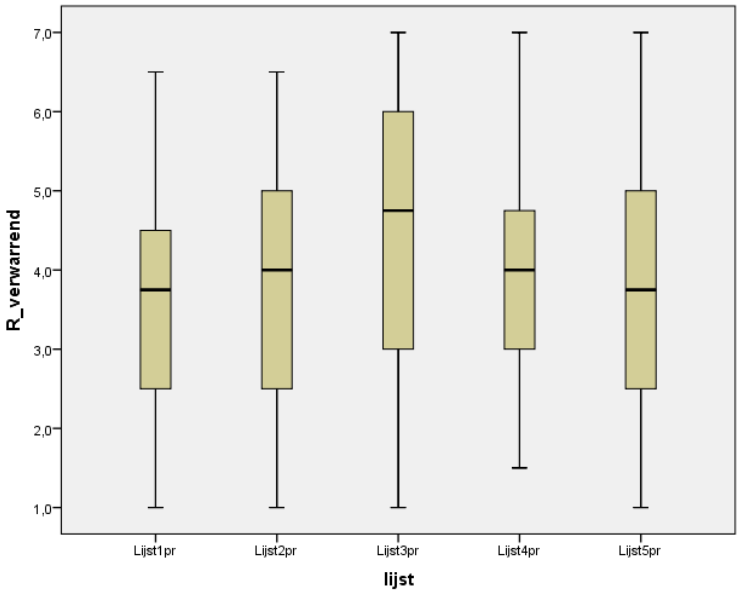
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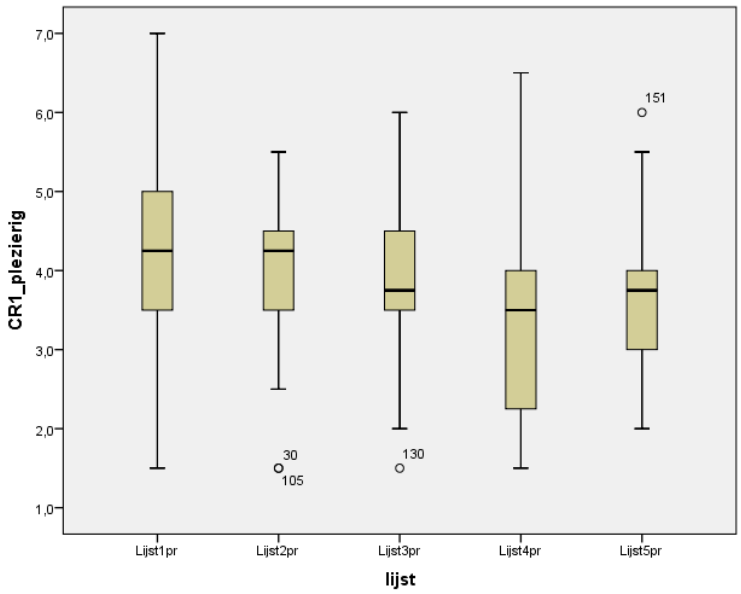
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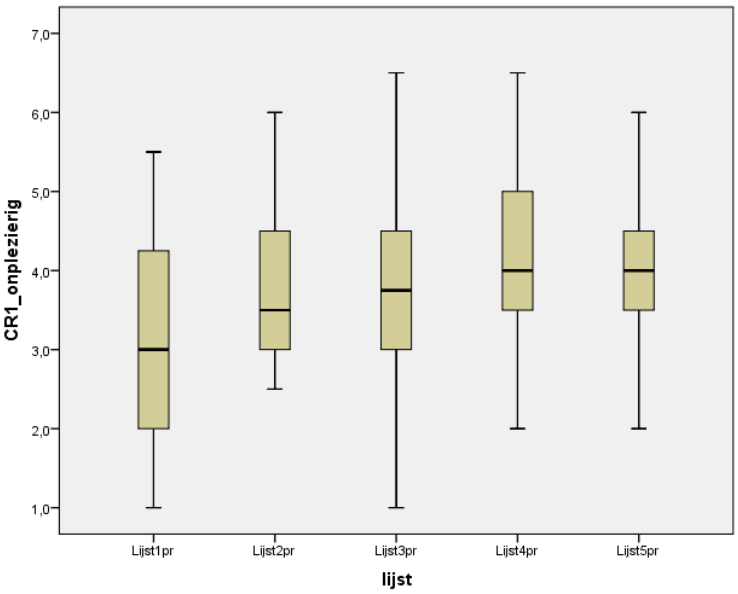
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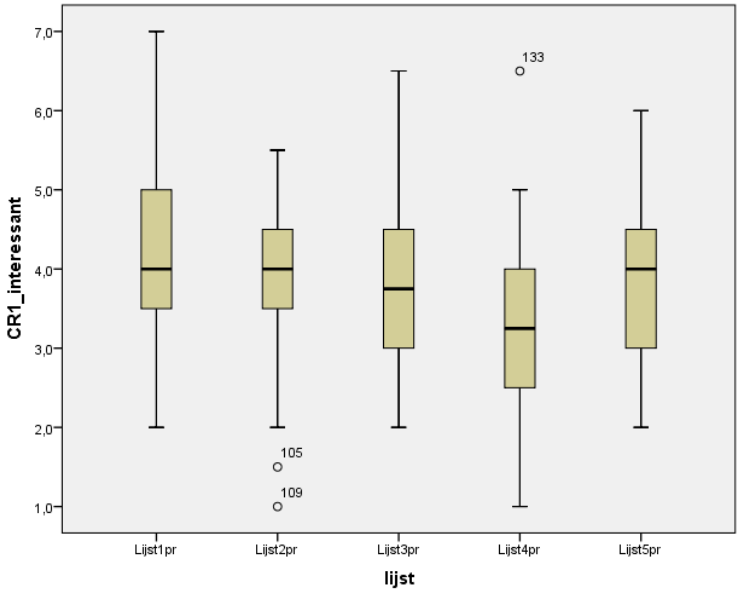
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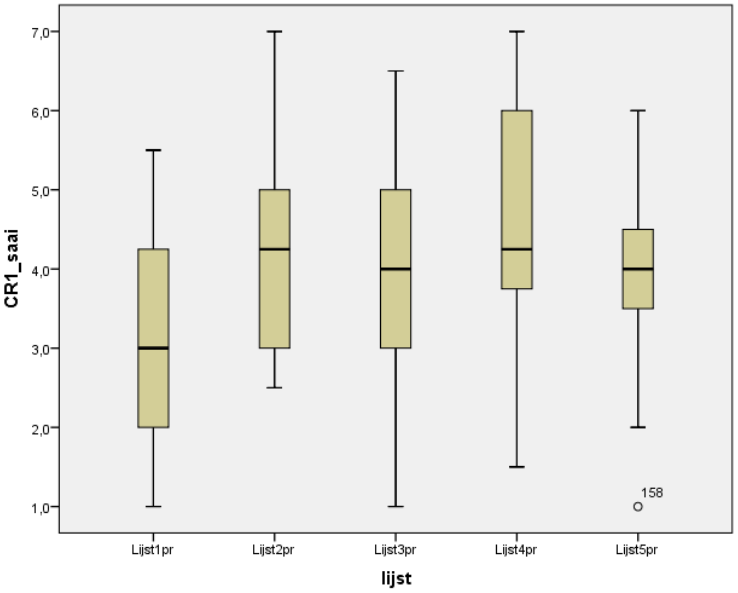
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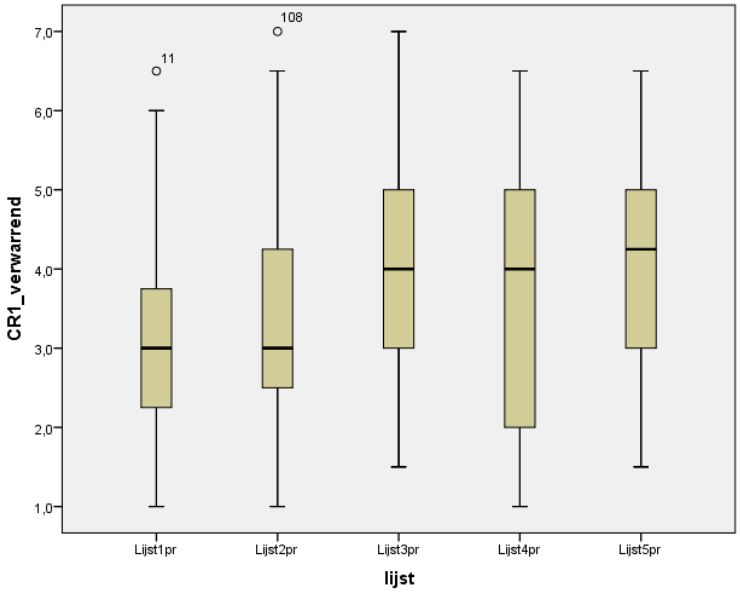
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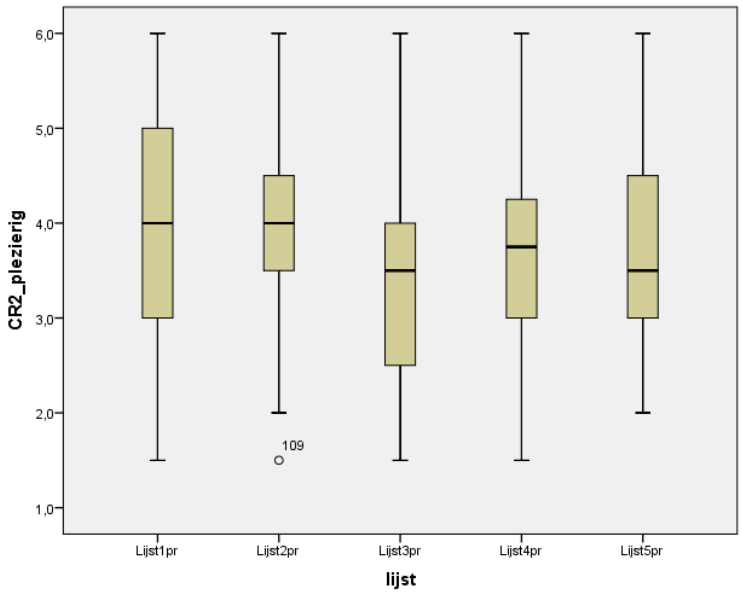
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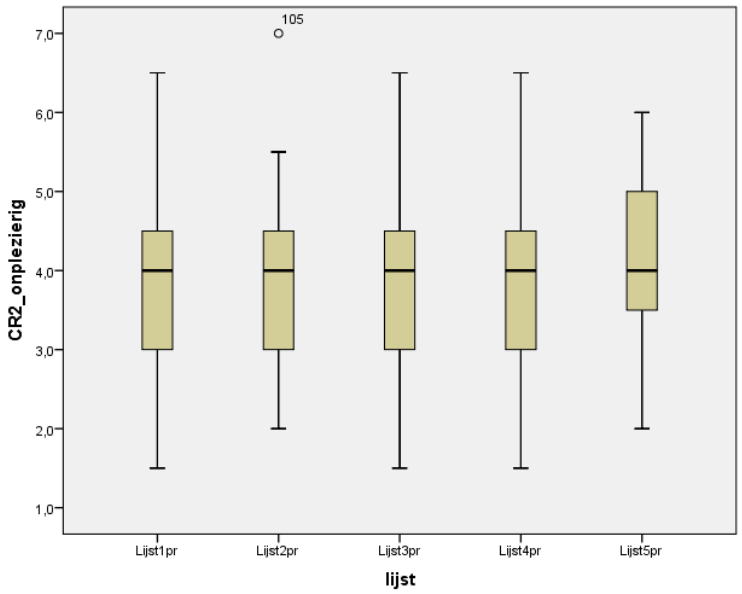
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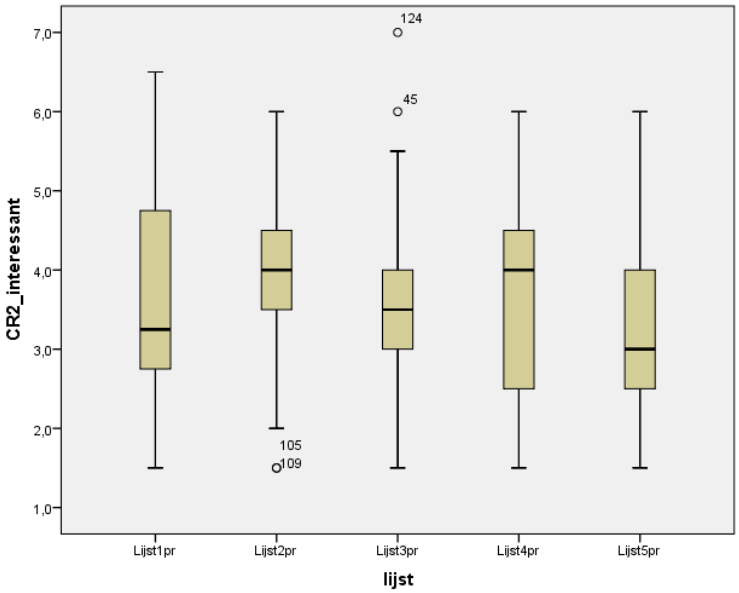
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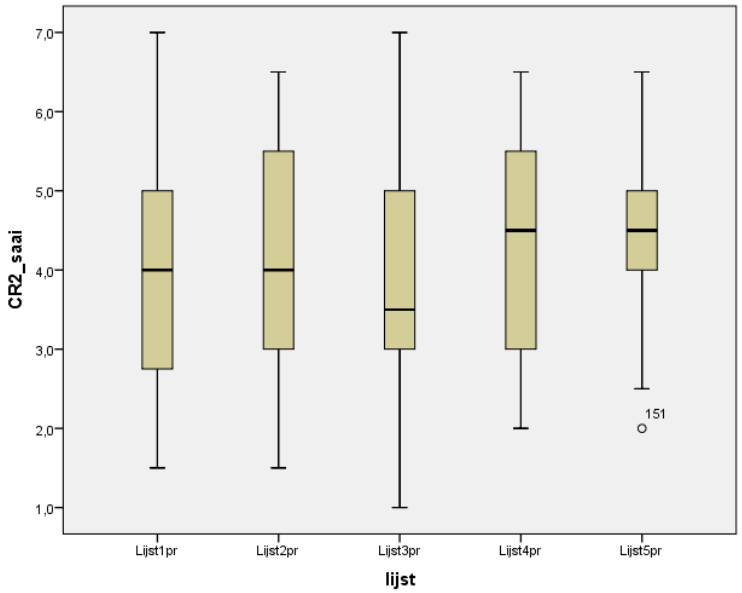
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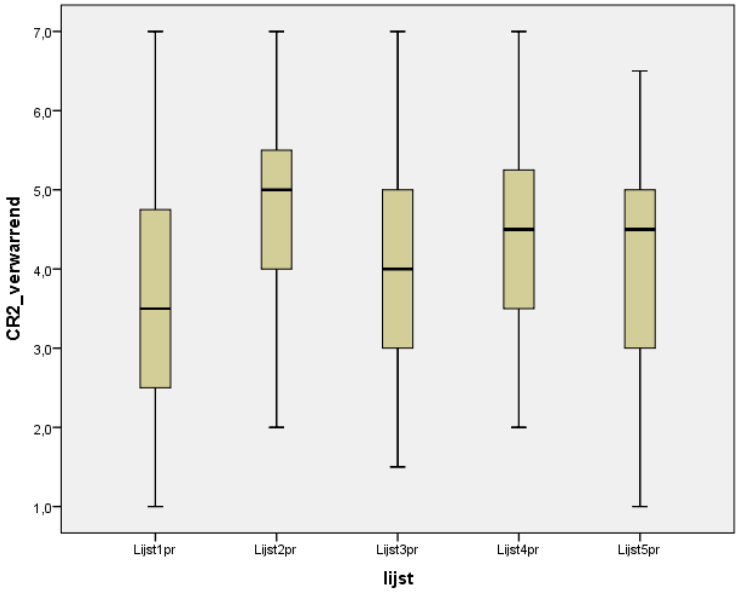
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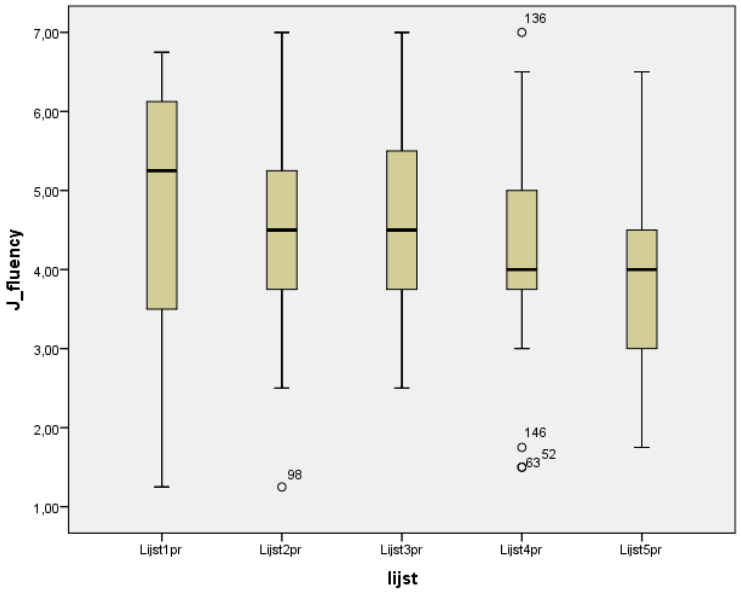
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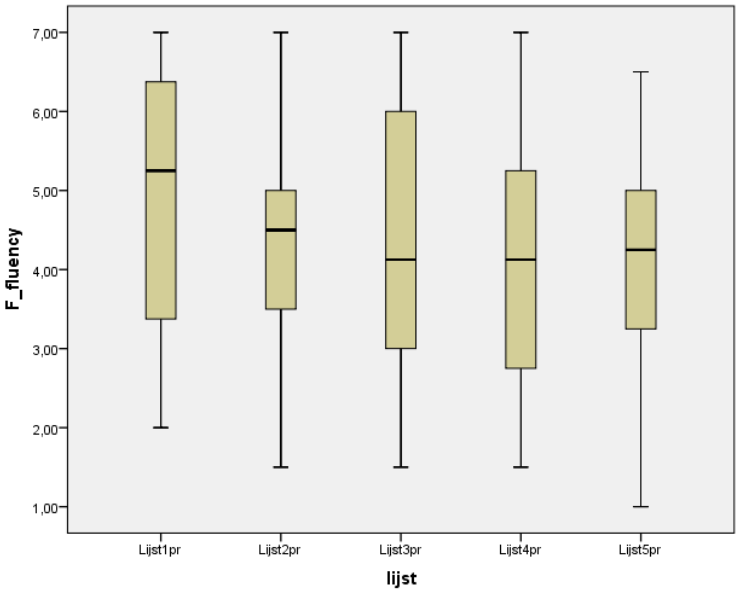
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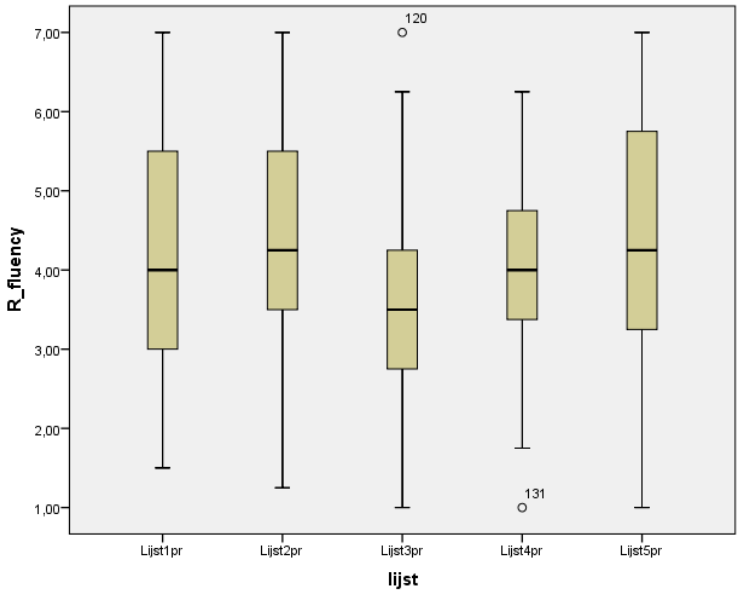
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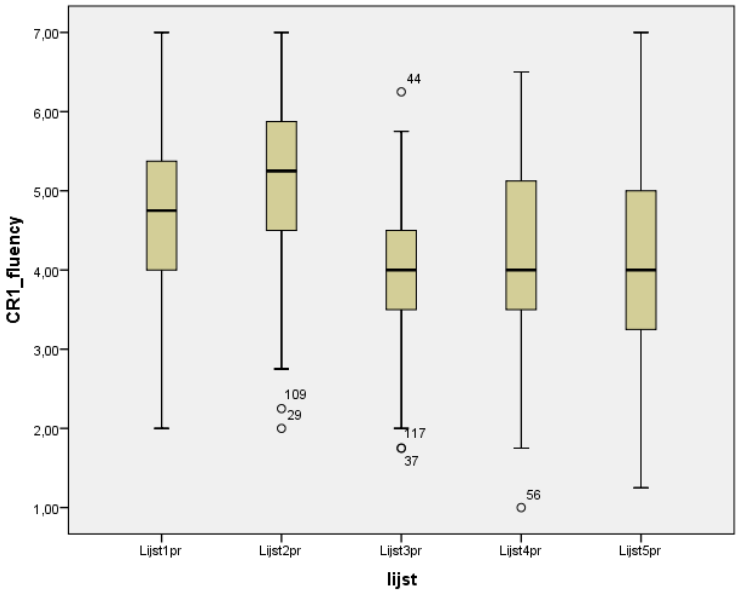
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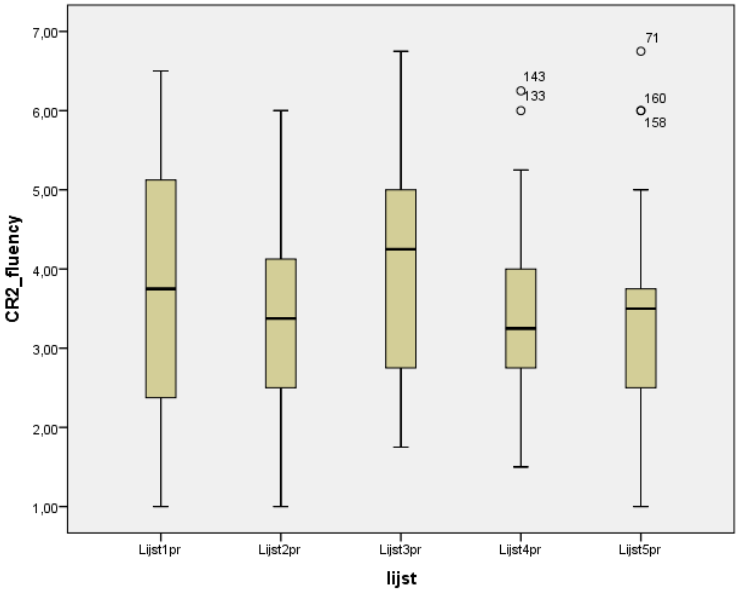
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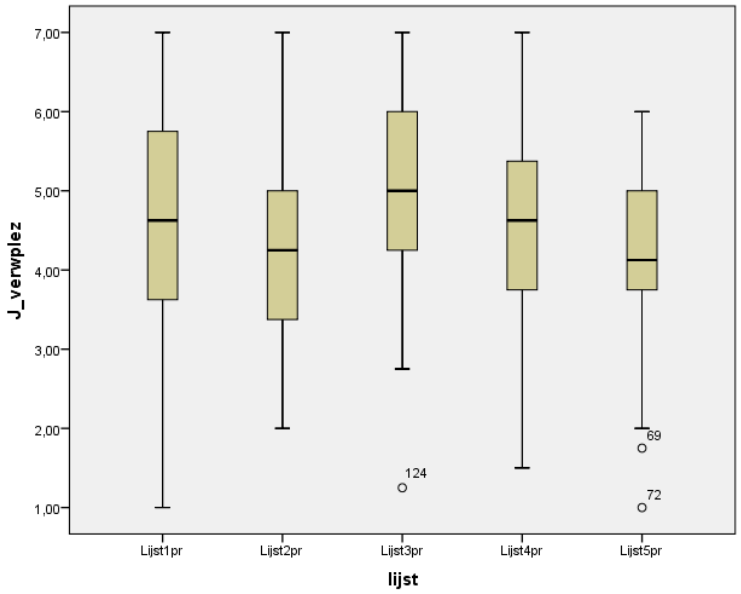
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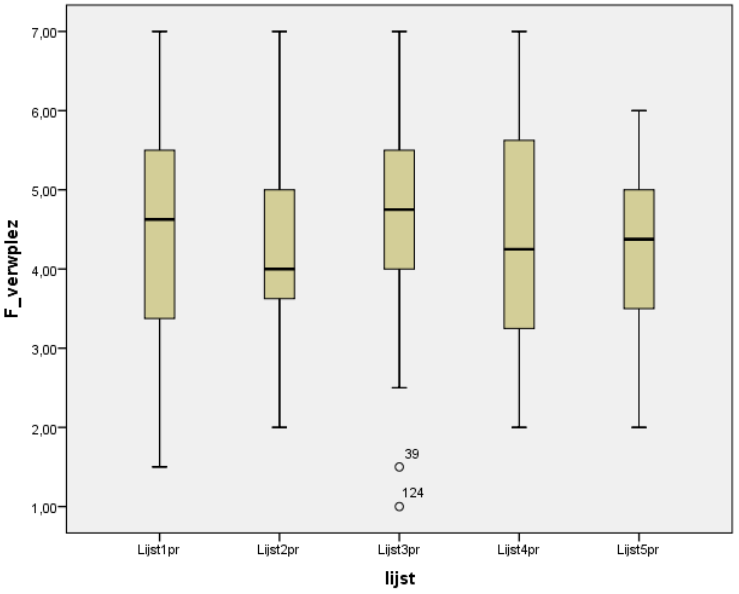
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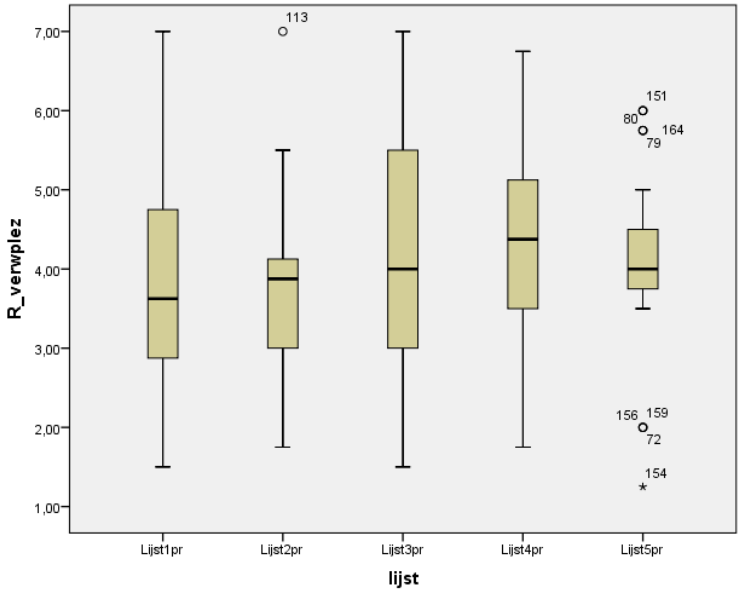
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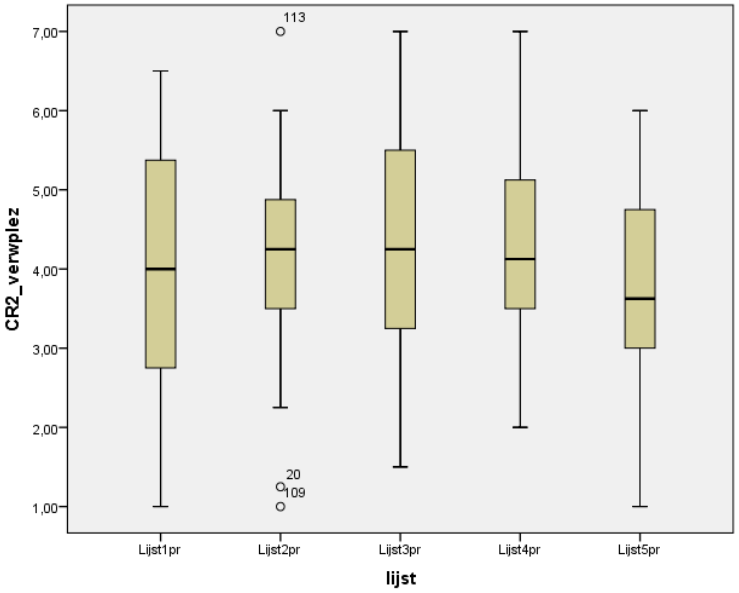
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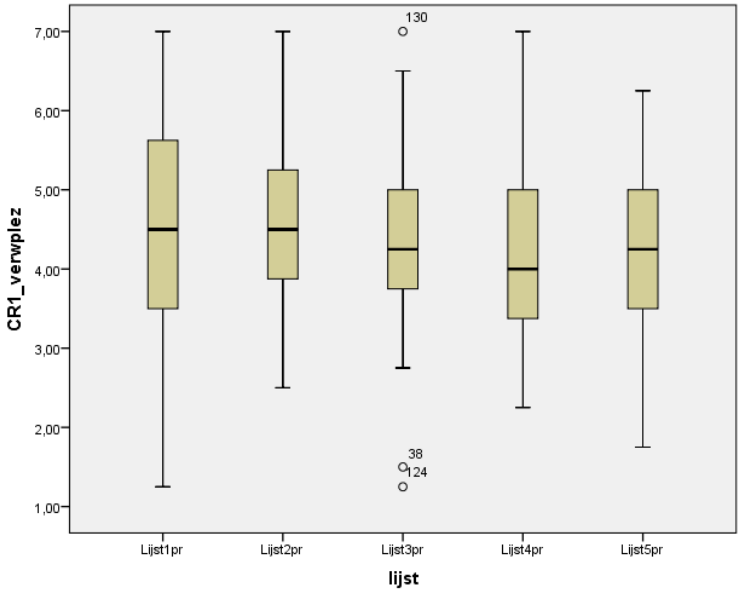
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Lijst3pr
Lijst4pr
Lijst5pr
lijst

Appendix 3

Overview of Effects in Mediation Analysis

Table 1. Effects of differences in metaphor structure on pleasure with fluency as a mediator in 100 ms condition

		b	*p*	95% BCa CI
Fusion vs. Juxtaposition	Total	-.02	.902	[-.32, .28]
	Direct	-.01	.95	[-.33, .31]
	Path a	.50	.007	[.14, .87]
	Path b	-.02	.868	[-.20, .17]
	Indirect	-.01		[-.12, .11]
Replacement vs. Juxtaposition	Total	.11	.467	[-.19, .41]
	Direct	.27	.085	[-.04, .57]
	Path a	-.70	.003	[-1.15, -.26]
	Path b	.22	.003	[.08, .37]
	Indirect	-.16		[-.33, -.03]
Target replacement vs.	Total	-.41	.000	[-.61, -.20]
Juxtaposition	Direct	-.41	.000	[-.61, -.20]
	Path a	-.05	.800	[-.44, .34]
	Path b	.12	.057	[-.004, .23]
	Indirect	-.01		[-.07, .04]
Context replacement vs.	Total	-.35	.011	[-.62, -.08]
Juxtaposition	Direct	-.44	.002	[-.71, -.16]
	Path a	.54	.010	[.13, .94]
	Path b	.16	.032	[.01, .30]
	Indirect	.08		[-.01, .18]
Replacement vs. Fusion	Total	.13	.400	[-.17, .43]
	Direct	.25	.180	[-.12, .60]
	Path a	-1.21	.000	[-1.62, -.79]
	Path b	.10	.244	[-.07, .26]
	Indirect	-.12		[-.31, 12]
Target replacement vs. Fusion	Total	-.40	.008	[-.69, -.10]
	Direct	-.30	.047	[-.60, -.004]
	Path a	-.55	.002	[-.90, -.20]
	Path b	.17	.062	[-.01, .35]
	Indirect	-.09		[-.24, .03]
Context replacement vs. Fusion	Total	-.33	.028	[-.63, -.04]
	Direct	-.34	.021	[-.62, -.05]
	Path a	.03	.862	[-.35, .42]
	Path b	.08	.334	[-.08, 24]
	Indirect	.00		[-.05, .05]
Target replacement vs.	Total	-.52	.002	[-.86, -.19]
Replacement	Direct	-.76	.000	[-1.09, -.43]
	Path a	.65	.001	[.29, 1.02]
	Path b	.36	.000	[.18, .55]
	Indirect	.24		[.06, .50]
Context replacement vs.	Total	-.46	.002	[-.74, -.18]
Replacement	Direct	-.77	.000	[-1.08, -.45]
	Path a	1.24	.000	[.83, 1.65]
	Path b	.24	.001	[.10, .39]
	Indirect	.30		[.10, .53]
Context replacement vs. Target	Total	.06	.647	[-.21, .33]
replacement	Direct	-.02	.887	[-.30, .26]
	Path a	.59	.004	[.19, .98]
	Path b	.14	.069	[-.01, .29]
	Indirect	.08		[-.01, .23]

Table 2. Effects of differences in metaphor structure on interest with fluency and processing pleasure as mediators in 5000 ms condition

		b	*p*	95% BCa CI
Fusion vs. Juxtaposition	Total	-.63	.001	[-.97, -.29]
	Direct	-.46	.006	[-.79, -.14]
	Path a_1	-.45	.019	[-.64, -.06]
	Path b_1	.45	.000	[.21, .69]
	Path a_2	.01	.932	[-.18, .20]
	Path b_2	.25	.189	[-.13, .63]
	Path a3	.14	.042	[.01, .28]
	Indirect1	-.16		[-.37, -.02]
	Indirect2	.00		[-.06, .07]
	Indirect3	-.01		[-.05, .00]
Replacement vs. Juxtaposition	Total	.65	.000	[.34, .96]
	Direct	.27	.179	[-.13, .68]
	Path a_1	1.41	.000	[1.04, 1.78]
	Path b_1	.15	.118	[-.04, .33]
	Path a_2	.42	.02	[.06, .79]
	Path b_2	.26	.041	[.01, .50]
	Path a_3	.17	.046	[.00, .34]
	Indirect1	.21		[-.13, .46]
	Indirect2	.11		[-.01, .23]
	Indirect3	.06		[-.02, .28]
Target replacement vs.	Total	-.28	.081	[-.59, .03]
Juxtaposition	Direct	-.37	.015	[-.66, -.07]
	Path a_1	.15	.330	[-.16, .47]
	Path b_1	.35		[.14, .56]
	Path a_2	.14	.119	[-.04, .33]
	Path b_2	.22	.217	[-.13, .58]
	Path a_3	.14	.037	[.01, .27]
	Indirect1	.05		[-.05, .18]
	Indirect2	.03		[-.02, .12]
	Indirect3	.00		[-.01, .03]
Context replacement vs.	Total	-.03	.850	[-.35, .29]
Juxtaposition	Direct	-.54	.003	[-.89, -.19]
	Path a_1	1.12	.000	[.78, 1.45]
	Path b_1	.35	.001	[.15, .54]
	Path a_2	.14	.242	[-.10, .37]
	Path b_2	.42	.014	[.09, .75]
	Path a_3	.15	.024	[.02, .27]
	Indirect1	.39		[.09, .65]
	Indirect2	.06		[-.07, .16]
	Indirect3	.07		[.00, .20]
Replacement vs. Fusion	Total	1.28	.000	[.95, 1.61]
	Direct	.36	.069	[-.03, .75]
	Path a_1	1.76	.000	[1.38, 2.14]
	Path b_1	.34	.000	[.17, .51]
	Path a_2	.30	.117	[-.08, .67]
	Path b_2	.46	.000	[.22, .69]
	Path a_3	.23	.003	[.08, .39]
	Indirect1	.59		[.29, .95]
	Indirect2	.13		[.00, .31]
	Indirect3	.19		[.05, .39]
Target replacement vs. Fusion	Total	.35	.006	[.11, .59]
	Direct	.25	.060	[-.01, .51]
	Path a_1	.50	.002	[.20, .81]

	Path b_1	.08	.386	[-.10, .27]
	Path a_2	.13	.132	[-.04, .29]
	Path b_2	.28	.116	[-.07, .62]
	Path a_3	.16	.006	[.05, .27]
	Indirect1	.04		[-.06, .14]
	Indirect2	.04		[.00, .12]
	Indirect3	.02		[.00, .07]
Context replacement vs. Fusion	Total	.60	.000	[.30, .90]
	Direct	.10	.599	[.30, .90]
	Path a_1	1.47	.000	[1.14, 1.80]
	Path b_1	.24	.020	[.04, .43]
	Path a_2	-.13	.397	[-.44, .17]
	Path b_2	.44	.002	[.17, .71]
	Path a_3	.32	.000	[.18, .47]
	Indirect1	.35		[.05, .66]
	Indirect2	-.06		[-.22, .06]
	Indirect3	.21		[.07, .42]
Target replacement vs. Replacement	Total	-.93	.000	[-1.21, -.64]
	Direct	-.60	.001	[-.92, -.27]
	Path a_1	-1.26	.000	[-1.62, -.89]
	Path b_1	.10	.247	[-.07, .27]
	Path a_2	-.11	.487	[-.43, .21]
	Path b_2	.41	.001	[.18, .64]
	Path a_3	.31	.000	[.16, .46]
	Indirect1	-.13		[-.36, .13]
	Indirect2	-.05		[-.15, .06]
	Indirect3	-.16		[-.35, -.05]
Context replacement vs. Replacement	Total	-.68	.000	[-.95, -.41]
	Direct	-.54	.000	[-.81, -.26]
	Path a_1	-.29	.105	[-.65, .06]
	Path b_1	-.01	.907	[-.18, .16]
	Path a_2	-.29	.018	[-.54, -.05]
	Path b_2	.40	.002	[.15, .66]
	Path a_3	.24	.002	[.09, .39]
	Indirect1	.00		[-.06, .07]
	Indirect2	-.12		[-.27, -.02]
	Indirect3	-.03		[-.08, .00]
Context replacement vs. Target replacement	Total	.25	.034	[.02, .47]
	Direct	.19	.163	[-.08, .45]
	Path a_1	.96	.000	[.62, 1.31]
	Path b_1	.03	.737	[-.13, .18]
	Path a_2	-.09	.491	[-.35, .17]
	Path b_2	.27	.023	[.04, .50]
	Path a_3	.23	.001	[.09, .37]
	Indirect1	.03		[-.12, .18]
	Indirect2	-.02		[-.12, .04]
	Indirect3	.06		[-.09, .22]

Table 3. Effects of differences in metaphor structure on boredom with processing pleasure as a mediator in 5000 ms condition

		b	*p*	95% BCa CI
Fusion vs. Juxtaposition	Total	.68	.002	[.25, 1.11]
	Direct	.67	.003	[.24, 1.09]
	Path a	-.04	.652	[-.23, .14]
	Path b	-.34	.182	[-.85, .16]
	Indirect	.01		[-.09, .13]
Replacement vs. Juxtaposition	Total	-.60	.004	[-1.00, -.19]
	Direct	-.52	.024	[-.98, -.07]
	Path a	.67	.000	[.36, .97]
	Path b	-.11	.492	[-.42, .20]
	Indirect	-.07		[-.29, .15]
Target replacement vs. Juxtaposition	Total	.71	.000	[.35, 1.07]
	Direct	.76	.000	[.39, 1.13]
	Path a	.17	.081	[-.02, .35]
	Path b	-.29	.183	[-.73, .14]
	Indirect	-.05		[-.18, .02]
Context replacement vs. Juxtaposition	Total	.36	.069	[-.03, .75]
	Direct	.44	.034	[.03, .85]
	Path a	.30	.005	[.09, .51]
	Path b	-.27	.199	[-.69, .15]
	Indirect	-.08		[-.25, .02]
Replacement vs. Fusion	Total	-1.28	.000	[-1.64, -.91]
	Direct	-.92	.000	[-1.31, -.52]
	Path a	.71	.000	[.43, .99]
	Path b	-.51	.001	[-.79, -.23]
	Indirect	-.36		[-.66, -.07]
Target replacement vs. Fusion	Total	.03	.847	[-.28, .34]
	Direct	.12	.424	[-.18, .43]
	Path a	.21	.014	[.04, .37]
	Path b	-.46	.025	[-.85, -.06]
	Indirect	-.09		[-.22, -.01]
Context replacement vs. Fusion	Total	-.32	.097	[-.70, .06]
	Direct	-.18	.356	[-.56, .20]
	Path a	.34	.007	[.10, .59]
	Path b	-.41	.014	[-.73, -.09]
	Indirect	-.14		[-.33, .00]
Target replacement vs. Replacement	Total	1.31	.000	[1.00, 1.61]
	Direct	1.15	.000	[.83, 1.46]
	Path a	-.50	.001	[-.78, -.22]
	Path b	-.32	.009	[-.56, -.08]
	Indirect	.16		[.04, .32]
Context replacement vs. Replacement	Total	.96	.000	[.61, 1.31]
	Direct	.92	.000	[.55, 1.29]
	Path a	-.36	.005	[-.62, -.11]
	Path b	-.10	.529	[-.42, .22]
	Indirect	.04		[-.08, .18]
Context replacement vs. Target replacement	Total	-.35	.035	[-.67, -.03]
	Direct	-.32	.056	[-.64, .01]
	Path a	.14	.256	[-.10, .37]
	Path b	-.25	.107	[-.55, .05]
	Indirect	-.03		[-.13, .04]

Table 4. Effects of differences in metaphor structure on confusion with fluency as a mediator in 5000 ms condition

		b	*p*	95% BCa CI
Fusion vs. Juxtaposition	Total	.27	.148	[-.10, .63]
	Direct	-.01	.947	[-.31, .28]
	Path a	-.35	.019	[-.64, -.06]
	Path b	-.79	.000	[-1.00, -.57]
	Indirect	.27		[.05, .50]
Replacement vs. Juxtaposition	Total	-1.01	.000	[-1.36, -.65]
	Direct	-.25	.217	[-.65, .15]
	Path a	1.41	.000	[1.04, 1.78]
	Path b	-.54	.000	[-.72, -.36]
	Indirect	-.76		[-1.12, -.43]
Target replacement vs. Juxtaposition	Total	-.19	.320	[-.56, .18]
	Direct	-.07	.631	[-.36, .22]
	Path a	.15	.330	[-.16, .47]
	Path b	-.76	.000	[-.96, -.55]
	Indirect	-.12		[-.35, .12]
Context replacement vs. Juxtaposition	Total	-.86	.000	[-1.24, -.47]
	Direct	-.03	.888	[-.41, .35]
	Path a	1.12	.000	[.78, 1.45]
	Path b	-.74	.000	[-.94, -.54]
	Indirect	-.83		[-1.20, -.51]
Replacement vs. Fusion	Total	-1.27	.000	[-1.67, -.88]
	Direct	-.17	.483	[-.63, .30]
	Path a	1.76	.000	[1.38, 2.14]
	Path b	-.63	.000	[-.82, -.44]
	Indirect	-1.11		[-1.57, -.65]
Target replacement vs. Fusion	Total	-.45	.009	[-.79, -.12]
	Direct	-.07	.573	[-.34, .19]
	Path a	.50	.002	[.20, .81]
	Path b	-.75	.000	[-.93, -.57]
	Indirect	-.38		[-.63, -.15]
Context replacement vs. Fusion	Total	-1.12	.000	[-1.48, -.76]
	Direct	-.08	.679	[-.46, .30]
	Path a	1.47	.000	[1.14, 1.80]
	Path b	-.71	.000	[-.89, -.52]
	Indirect	-1.04		[-1.45, -.69]
Target replacement vs. Fusion	Total	.82	.000	[.45, 1.19]
	Direct	.13	.528	[-.27, .52]
	Path a	-1.26	.000	[-1.62, -.89]
	Path b	-.55	.000	[-.74, -.36]
	Indirect	.69		[.40, 1.03]
Context replacement vs. Fusion	Total	.15	.411	[-.21, .51]
	Direct	-.01	.962	[-.32, .31]
	Path a	-.29	.105	[-.65, .06]
	Path b	-.54	.000	[-.74, -.35]
	Indirect	.16		[-.03, .37]
Context replacement vs. Target replacement	Total	-.67	.002	[-1.07, -.26]
	Direct	.14	.412	[-.20, .48]
	Path a	.96	.000	[.62, 1.31]
	Path b	-.84	.000	[-1.02, -.66]
	Indirect	-.81		[-1.16, -.50]