The Effect of Rhetorical Shadows and Processing Time

on Cognitive Elaboration and the Persuasiveness of Ads

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Abstract

Various visual rhetorical figures are documented, but very little is known about the effectiveness of different visual structures, in particular, rhetorical shadows. This research investigated the effects of rhetorical shadow ads compared to more conventional *visual structures* as juxtaposition and verbal anchoring on *cognitive elaboration*, and *persuasiveness*. The second aim of this study was to investigate whether different *processing times* influenced the presumably positive effects of rhetorical shadows. The results of the experiment confirmed that rhetorical shadows created a stronger relationship between the elements in the image and that the shadow version indeed outperformed the juxtaposition and the verbal-anchoring version on *cognitive elaboration*, *ad attitude*, *source credibility*, and *brand attitude*. In addition, support was found for the mediation of the relationship between the rhetorical shadow structure and persuasiveness by *cognitive elaboration.* A short *Processing time* (2 sec. vs 6 sec.) did not deteriorate the effectiveness of the rhetorical shadow, and therefore, the rhetorical shadow is believed to be a strong persuasive tool.

Introduction

"The use of shadows in advertising is an effective element. It can say or do so many things without really even saying or doing anything." Adrian Martinez, an art director from Toronto wrote this statement on his advertising blog in 2014, and it simply but effectively describes a rhetorical shadow. Roughly speaking this research focuses on whether his statement is correct or not.

Figure 1 sheds the first light on the appearance of a rhetorical shadow ad. The image shows a hand holding a cigarette that casts a shadow on the wall. However, this shadow does not correspond to the hand holding the cigarette. The shadow looks more like a hand holding a gun. As a viewer of this image you should link the cigarette to the gun and come up with the resolution: smoking kills. This thesis will examine whether rhetorical shadows outperform other visual structures on persuasiveness and cognitive elaboration under different processing times.

Figure 1 An anti-smoking ad
(Found at http://www.adsoftheworld.com/media/print/gun_7)

<center>**Theoretical Framework**</center>

Use of Shadows

Cast shadows, which are dark areas on a surface because the light is cut off by an interposed object (Mamassian, Knill, & Kersten, 1998), are commonly used in advertising. Shadows unveil visual information about a light source, the shape, size and location of the objects causing the shadow and about the surface where the shadow is displayed (Dee & Santos, 2011). The first systematic analysis of the uses of shadows in visual artifacts like paintings and drawings is offered by Stoichita (1997). In his view, the depiction of shadows in visual arts serves two purposes. The first purpose is to give an accurate representation of reality because shadows give depth to scenes and give information about the light source. An image is not true to nature without light and shadow since objects and their surrounding area lack depth without shadows. The second purpose Stoichita mentions is that shadows, as contributors to meaningful depictions of reality, can be used to portray hidden connotations. This research is focused on two types of underlying meaning; the shadow as 'true identity', and the shadow that simulates a transition. These hidden connotations are accomplished through the use of impossible shadows.

Possible or impossible shadows?

Shadows are so integrated into our visual system that we often do not realize that they give us a lot of information about the objects and the light source in the environment. But not every scene with depicted shadows is so easy to explain. When a shadow is truncated from the object that is producing it, the object must be floating in the air. In addition, the light source could cause special shadows, such as very long and distorted shadows at sunset. This is an example of the Shadow Correspondence Problem (SCP): "Given objects and perceived

shadows in one scene, how can shadows be unambiguously anchored to their casters?" (Mamassian, 2014; Dee & Santos, 2011). The human visual system solves this puzzle by employing the contents of the shadow and compare it to their knowledge of cast shadows. Schilperoord & van Weelden (to appear) state that the SCP can be regarded as a basic cognitive model of our knowledge of cast shadows and that it provides necessary and sufficient conditions for a shadow to occur and the causal relations that hold among its constituents.

However, sometimes the SCP is impossible to solve because a shadow is ambiguously anchored to its caster: an impossible shadow. Schilperoord & van Weelden (to appear) (hereafter referred to as SvW) call these ambiguous shadow depictions *shadow incongruities.* Ambiguous images, which contain 'something odd' (Forceville (1996, 109) are called incongruent images (cf. Callister & Stern 2008; Kaplan 2005; Michelon et al., 2003; Schilperoord & Maes 2009; Schilperoord 2017). Incongruent images due to shadows arise when the principles of shadow perception are violated. Figure 1 is an example of a shadow incongruity, since the caster, a hand holding a cigarette, cannot depict a hand holding a gun. Simply, because a gun has a different shape than a cigarette. Therefore, the caster and the shadow do not correspond to our knowledge about cast shadows: a shadow incongruity.

From incongruent shadow to rhetorical shadow

Rhetoric is defined as the framing of a message with the ultimate goal of persuading its receiver (Scott, 1994). Deviation from expectation, from an audience's 'sense of what properly goes with what', is at the heart of all rhetorical figuration (Burke, 1954, 74, see also Kaplan, 2005; Maes & Schilperoord, 2008; McQuarrie & Mick, 1999). Incongruent shadows do deviate from knowledge, but an image must be experienced as meaningful to serve a rhetorical purpose. Meaning construal is a crucial stage in this process (SvW, to appear). The

principle of relevance by Sperber and Wilson (1986) states the requirement for meaning construal: the act of transmitting a message conveys not only that what is said (or shown) has meaning, but in addition is worth the cognitive effort needed to distract the message's meaning. The principle predicts that the recipient will assume that a signal is deliberately placed to communicate a message, and therefore, he will search for meaning in any signal. In particular, this is the case in advertising because the goal of an ad is to persuade the viewer. Moreover, people see a lot of ads and become experienced in dealing with them because the purpose of these messages is known. Therefore, it is likely that they feel invited to appreciate shadow incongruities and put effort into resolving their meaning (SvW, to appear).

The last requirement for an incongruent shadow to become a rhetorical tool is *incongruity resolution:* explaining an incongruity's presence by distracting some relevant meaning from it (cf. Forabosco, 2008; Schilperoord, *in press*).[1] If a resolution by the viewer of the ad matches the communicator's intended message, a resolution is accurate. Two aspects are important in the resolution process: the recipient has to identify the topic of the message, and thereafter, the recipient has to come up with a relevant way of relating the topic to the incongruity (SvW, to appear).

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[1] Extended examination of incongruity resolutions are offered in Callister & Stern, 2008; Forceville, 1996, 2008; Jakesch *et al.*, 2013; Kaplan, 2005; Michelon *et al.*, 2003; Schilperoord, *in press*; Yus, 2009.
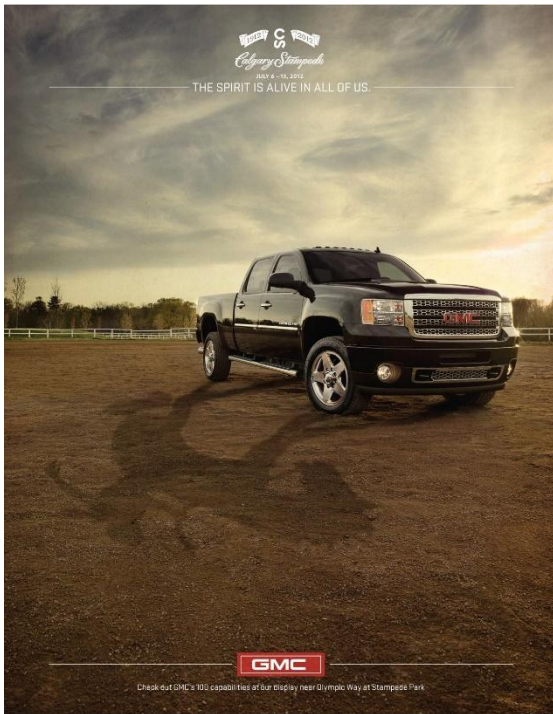
Figure 2 An advertisement for a GMC truck
(Found at http://adsoftheworld.com/media/print/gmc_shadow)

Figure 2 shows an image where the cast shadow of a truck is displayed as a wild horse with a rider. This is a deviation from expectation because there should be a shadow in the shape of the truck. In the case of the GMC advertisement, the shadow and its caster are anchored (the truck and the shadow are connected to each other), but they differ in shape. This ambiguous image raises attention and calls for problem-solving- 'why is the shadow of the truck replaced by a shadow of a horse with a rider?' GMC left some hints in this campaign. The message contains the words "Calgary Stampede" and "The spirit is in all of us". Calgary Stampede is a rodeo festival in Canada that calls itself "The Greatest Outdoor Show on Earth" (Calgary Stampede). With this information, it is possible to solve this rhetoric puzzle. The GMC truck is like a rodeo horse and you are the rider. So even you as a recipient of this advertisement can ride a rodeo by driving this GMC truck because the truck is assumedly as strong and powerful as a rodeo horse. The resolution of the GMC advertisement is probably accurate because, as discussed above, the topic of the message is identified (a

powerful GMC truck), and the incongruity, which is the rodeo riding shadow, is connected to the topic in terms of an analogy (driving a GMC truck is like riding a rodeo).

The shadow used in the GMC advertisement is an example of a rhetorical shadow because it meets three requirements. First, it is an aberration from reality, and therefore, an incongruent shadow. Second, the incongruity was acknowledged as deliberate and processed according to the *principle of relevance*. And last, an accurate resolution to the incongruity was found (SvW, to appear).

Types of rhetorical shadows

Having defined what is meant by a rhetorical shadow, I will now move on to discuss their appearance and form. Based on a corpus-analysis SvW have identified different categories of rhetorical shadows. The first category that they describe is 'the revealing shadow' that is also called a Type I rhetorical shadow. They state that Type I incongruities distort the shadow's shape to the effect that it comes to represent an entirely distinct object. In addition, the resolution of Type I incongruities calls for a relation between the caster and the shadow. Specifically, it concerns the shadow revealing the caster's 'true nature' (SvW, to appear). The examples of Figure 1, and 2 belong to this category. They both reveal the true nature of the object that is casting the shadow. Yet, the two differ in effect. The shadow in Figure 1 reveals the negative and dangerous nature of the cigarette, and the shadow in Figure 2 reveals the strong and wild nature of the GMC truck.

The second category SvW describe is Type II: 'the shadow as the caster's other self'. They state that: "Type II incongruities differ from the first type in that caster and shadow represent the same object but represent this object in different 'qualities', 'roles,' or 'manifestations'. Type II incongruities can be resolved by construing a relation of transition

between two states of an object which are represented by caster and shadow." Figure 3 is an example of a Type II rhetorical shadow. The image shows a yawning person who probably just woke up. His shadow, on the contrary, seems to fit the shape of an athletic weightlifter. The viewer should be able to come to the resolution that the boy wants to be or will become an athlete. The causal force to enable this transition is the topic of the message: Gatorade energy drinks. With Gatorade, the boy has the energy to get up, go to the gym, and become an athlete. SvW call this temporal 'before-after' transitions.

The two types of rhetorical shadows mentioned above will be used in this study. SvW described one more type in their article, but this category is not investigated further in this research.[2] So far the theoretical part of this thesis has focused on the definition of rhetorical shadows and the different types. The following section will discuss the theoretical background of visual structures of ads and their persuasiveness.

Figure 3 An advertisement for Gatorade energy drink
(Found at http://theinspirationroom.com/daily/2008/gatorade-in-you-in-guatemala/)

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[2] Schilperoord & van Weelden (to appear) state that: "Type III (the indexical shadow) incongruities use a depiction of a shadow as an index to signal that one the constituents, object or source, constitutes an incongruity. The general format of the resolution is to construe the incongruent entity as representing or suggesting some quality the product/topic is claimed to possess or to bring about."

Visual structures

Philips and McQuarrie (2004) define visual structures as the graphic depiction of the two elements in a rhetorical image. The placement of the two pictorial entities in one image depends on the chosen structure. The fundament of the structures for visual rhetoric is that each structure invites readers to find a connection between the two entities in the image (cf. Phillips & McQuarrie, 2004; Van Weelden, 2013). Interestingly, the visual structure of the ad can affect the interpretation of the message of an advertisement (cf. Philips & McQuarrie, 2004; Scott, 1994).

Philips and McQuarrie's typology, which described visual structures in advertising for the aims of visual rhetoric, consists of three 'templates': fusion, replacement, and juxtaposition. Fusion is a template where two entities merge to create one hybrid element. Replacement is the template that is created by inserting a separate visual entity in order to fill in the absence of the initial image. For example, a happy customer (absent) in a milk ad can be substituted by a smiley face (present) made from cereal. Juxtaposition places two elements side by side in one image. However, the rhetorical shadow that is emphasized in this study cannot be unambiguously categorized within any of these templates since it groups two visual entities in one image by shadow projection.

Very little is known about the persuasiveness of different visual structures, in particular, rhetorical shadows. According to Chrysospathi (2017), it is an innovative visual structure that has not been documented in any typology yet. To date, only Chrysospathi (2017) investigated the effect of the rhetorical shadow visual structure and used juxtaposition as alternative structure. This research adopted the juxtaposition as the alternative structure and added a new one as well. In this new structure, one of the entities is substituted by an

explanatory text: verbal anchoring. Figure 4 shows an overview of the three structures that were used in this study.

Figure 4 Original PowerBar advertisement alongside manipulated versions. Left to right: rhetorical shadow (original), juxtaposition, and verbal anchoring condition. (The original was found at https://adsoftheworld.com/media/print/nestle_shadow)

Figure 4 shows three versions of a Powerbar advertisement that tries to communicate that you need to eat this power bar to get new energy whenever you are tired. The first version is an example of a Type II rhetorical shadow, yet all versions imply the transition from tired to energetic. The two alternative structures were chosen for the following reasons. By all means, they are comparable because all structures can be used to establish a connection between two elements in the image. In addition, the structures differ in complexity. Philips and McQuarrie (2004) argue that the easier it is to identify two different elements in the image, the less consumer processing is needed because the identity of the two elements is fairly clear. Therefore, they state that juxtaposition is not a very complex structure, and that fusion and replacement become more complex (Philips & McQuarrie, 2004). The rhetorical shadow is obviously much more subtle than the juxtaposition because the second element is depicted as a shadow. It has more resemblance to a fusion or a replacement template and is, therefore, considered more complex. The verbal anchoring structure was chosen to function as the assumedly least complex structure since it contains a verbal instead of a visual element. Because the verbal and the visual elements are fundamentally different, it is likely that the identity of the two elements is fairly clear. Lastly, the two alternative structures are more

frequently used than the rhetorical shadow, which makes them interesting material for comparison.

To examine the effectiveness of different visual structures, research could focus on the common aim of all structures: provoke a connection between the two entities in the image. The visual structure that creates a stronger relationship between the entities can be considered more effective rhetorically, and therefore, more persuasive as well.

Relational Strength

The strength of the entity-relation within the image can be used as an indicator of the effectiveness of the ad. SvW argued that a rhetorical shadow creates a strong relation of identity between the two entities in the image because a shadow is inextricably linked to the entity (Schilperoord & van Weelden, to appear). Chrysospathi (2017) investigated this statement and compared the rhetorical shadow structure with juxtaposition, which was hypothesized to create a weaker relationship than the rhetorical shadow. It was claimed that juxtaposition creates a relationship of similarity rather than identity. Chrysospathi (2017) found in a questionnaire based experiment that rhetorical shadows indeed created a stronger relationship between two objects than juxtaposition did. The relational strength of the verbal anchoring ads is something that is not examined in this context. In this case, the article of Yus (2009) may be of value. He claimed that the comprehension of verbal versus visual and multimodal (verbally and visually) metaphors involved similar mental procedures because an interpretation of metaphors entailed identical adjustments of conceptual information of texts and images. This might suggest that the interpretation procedures for the juxtaposition and the verbal-anchoring version might be similar, which in turn could result in similar relational strength scores as well. Therefore, it is hypothesized that the rhetorical shadow creates a stronger relationship than juxtaposition and the verbal-anchoring version.

H_{1a}: Rhetorical shadows create a stronger relationship than juxtapositions and verbal-anchored ads.

Chrysospathi (2017) also investigated which type of relationship was created by a rhetorical shadow or a juxtaposition. She found some support for the theory of Svw (to appear) that shadows were perceived more as a relation of identity instead of similarity. A relation of similarity was chosen more for juxtaposition ads. Furthermore, this research used besides Type I (revelation of true identity) also Type II rhetorical shadows, which are supposed to be a relation of transition. The following hypotheses emerged from this:

H_2: Type I ads are more likely to be perceived as a relation of identity in contrast to Type II ads that are more likely to be perceived as a relation of transition.

H_3: Rhetorical shadows are more likely to be perceived as actual identities/transitions in contrast to juxtapositions and verbal-anchored ads that are more likely to be perceived as similarities.

Persuasiveness

If shadows indeed create a stronger relationship and are a more effective rhetorical tool, then rhetorical shadows are more persuasive than juxtaposition and verbal anchoring as well. The incongruity of the rhetorical shadow can contribute to the overall persuasiveness of the ad, but only when the interpretation of the incongruity matches the message that the advertiser wishes to convey (Huhmann, 2007).

To empirically examine the persuasiveness of an ad, three persuasive goals were chosen and tested. First of all, *attitude towards the ad* which basically represents the likeability of the ad in the eyes of the viewer. Several indications were found in favor of the likeability of the rhetorical shadow structure. Chrysospathi (2017) found that rhetorical

shadow ads were more aesthetically pleasing to the eyes of the participants than juxtapositions. In addition, because complexity, within limits, is pleasurably arousing, complex structures will also be associated with greater ad liking (Berlyne, 1971; McQuarrie & Mick, 1992; Peracchio & Meyers-Levy, 1994). Moreover, ads that contain incongruities are believed to be original (Heckler & Childers, 1992; Scott, 1994). Originality has many different definitions. Although 'independently created' seems to be the broadest definition, the most applicable terms to define originality in this context are: freshness, novelty, and creativeness. According to Kover (1995), original advertisements draw more attention, and therefore, are more effective than standard unoriginal advertisements.

Source credibility is another persuasive goal advertisers have and it relates to the acceptance of the message. Advertisers are not satisfied by ads that are just likable, they want their ads to be credible and trustworthy too. Since in the proposed theory rhetorical shadows should be more persuasive, and knowing that source credibility has an impact on persuasiveness (Pornpitakpan, 2004), the most likely outcome would be that the source credibility for rhetorical shadows is higher. Besides, viewers may be more likely to consider the most unified image the most credible. Juxtaposition and verbal anchoring are assumed to be found less unified because the two different entities are not integrated into one image, instead are posed next to each other. Moreover, rhetorical shadows are believed to create a stronger relationship which suggests that the message is trusted (Chrysospathi, 2017).

Finally, the attitude towards the advertised brand: *brand attitude.* It is perhaps the most important goal of advertisers to positively influence the attitude toward the brand with a single ad. Attitude towards the ad is found to be related to brand attitude (MacKenzie, Lutz, & Belch, 1986). Since ad attitude and brand attitude are believed to be related, and several sources indicated that rhetorical shadows are likely to elicit more positive ad attitudes than the

other structures, it is assumed that brand attitude follows the same pattern. The following hypotheses were formulated:

H4a: Rhetorical shadows elicit more positive ad attitudes than juxtapositions and verbal-anchored ads.

H5a: Rhetorical shadows are perceived as more credible sources than juxtapositions and verbal anchored ads.

H6a: Rhetorical shadows elicit more positive brand attitudes than juxtapositions and verbal anchored ads.

Cognitive Elaboration

Cognitive elaboration relates to whether and to what extent the audience's' responses to the message involve thinking and active processing. Considering that it is crucial that the interpretation of the incongruity matches the intended message of the advertiser (Huhmann, 2007), and that incongruities stimulate cognitive elaboration processes to solve the puzzle of the ad without directing it as nonsense (Forabosco, 2008; Ritchie, 1999), cognitive elaboration is believed to be a key factor in the persuasion process. In addition, the process of resolving incongruities through elaboration determines how a person interprets the incongruity (Forabosco, 2008). Therefore, it can be argued that persuasiveness of rhetorical shadows is dependent on, and can be explained by cognitive elaboration.

Petty and Cacioppo (1986) support that reasoning by means of the Elaboration Likelihood Model. They suppose that 'the central route to persuasion', which requires the motivation and ability to cognitively process the ad, provides stronger and more persistent persuasion than the 'peripheral route'. In that route, recipients do not actively process the image or its arguments but rely on positive or negative cues in the persuasion context.

It is important to note that the complexity of the visual structure affects the required cognitive processing of the viewer of the ad. Phillips and McQuarrie (2004) stated that more complex visual structures result in more cognitive elaboration due to comprehension efforts. Therefore, the rhetorical shadow, as the most complex structure, is likely to elicit the most cognitive elaboration in the viewers 'minds. Following hypotheses emerged from this section about cognitive elaboration:

H_{7a}: Rhetorical shadows produce more cognitive elaboration in the viewers' minds than juxtapositions and verbal-anchored ads.

H_8: Stronger persuasiveness of rhetorical shadows in contrast to juxtapositions and verbal-anchored ads can be explained by the produced cognitive elaboration of viewers (as a mediator).

Processing time

"Considering we're on the move when we read billboards, we don't have a lot of time to take them in. Six seconds has been touted as the industry average for reading a billboard. A boring billboard will be ignored. A smart billboard will grab the attention and leave a lasting impression. A billboard that's trying to be too clever, well, it will get lost on the audience. As a rule, you don't want billboards to make people scratch their heads and wonder what is going on. Complex visual metaphors are no good here. They say advertising should be like a puzzle to solve, it gives the audience a sense of fulfillment to know they figured it out. But billboards should be much simpler than that."

Paul Suggett, creative director of Starz Entertainment, wrote this in a blog article on www.thebalance.com in 2017. An interesting statement from an experienced advertising and content creator. A key aspect of persuading people is that the message needs to fit the medium

and the audience. Especially with more indirect messages based on visual rhetoric without verbal anchoring it is important that the reader of the ad can discover the true meaning of the ad. Phillips (2000) stated that too much complexity could reduce comprehension of the ad, so the outcome of ad liking associated with more complex visual figures is particularly likely to be subject to moderating factors. Processing time could possibly be one of those factors.

There are studies that found that resolving incongruities required additional attention of the reader (Berlyne, 1971; Mandler, 1982). In addition, complex rhetorical shadow structures are expected to require more cognitive processing of the recipient than less complex structures (Phillips & McQuarrie, 2004). The rhetorical shadow is expected to be more effective and persuasive, as is hypothesized before, but perhaps the effects can only be found if the viewer has enough time to process the ads. In other words, the persuasive effect of the subtle rhetorical shadows might vanish when *processing time* is as short as a typical 'passing notion'. The past thirty years have seen increasingly rapid advances in the field of advertising due to the rise of the internet and various multimedia applications. However, the effects of processing time on the persuasiveness of ads remain fairly unclear.

A Microsoft insights report in 2015, argued that we, as human beings, had an average attention span of just 8 seconds. The shocking headline was that even a goldfish had a longer attention span than we with a respectable 9 seconds (McSpadden, 2015, May 15). If 8 seconds is the average attention span nowadays, it is very probable that an advertisement is not capable of grabbing that full eight seconds of attention from people. Although the reliability and validity of the research can be questioned, the limited duration of our attention span due to many new stimuli of the multimedia landscape is generally believed to be accurate. Advertising company Dutch Cowboys (2016, June 13) wrote in a blog article that attention is a very important aspect of advertising and content creation as of today. They even suggest that an average Facebook user spends just 1.5 seconds looking at a post. Whether this is based

on data analysis is not known since no source is given for the statement, but it does not give an implausible picture of reality. This supports the idea that in real life ads are likely to be processed under shorter processing times than may be required for complex visual structures.

Moore, Hausknecht, and Thamodaran studied the effects of time compression of broadcasts on persuasiveness in 1986. In that research, broadcasts were played faster than normal to reduce the timeframe of the ad. Although this research used broadcasts instead of ads, this could give some insight in the consequences of a shorter processing time since the same information is presented in a shorter time frame, which results in less time to process the message. Moore, Hausknecht, and Thamodaran found support for the theory that time compression influenced persuasiveness of an appeal by disrupting cognitive elaboration (Moore, Hausknecht, & Thamodaran, 1986).

Therefore it is hypothesized that the rhetorical shadow structure will have a decreased cognitive elaboration and persuasiveness when processing time is limited. Processing time is expected to be a moderating variable, as shown in the model of Figure 5. Based on the model the following hypotheses were formulated:
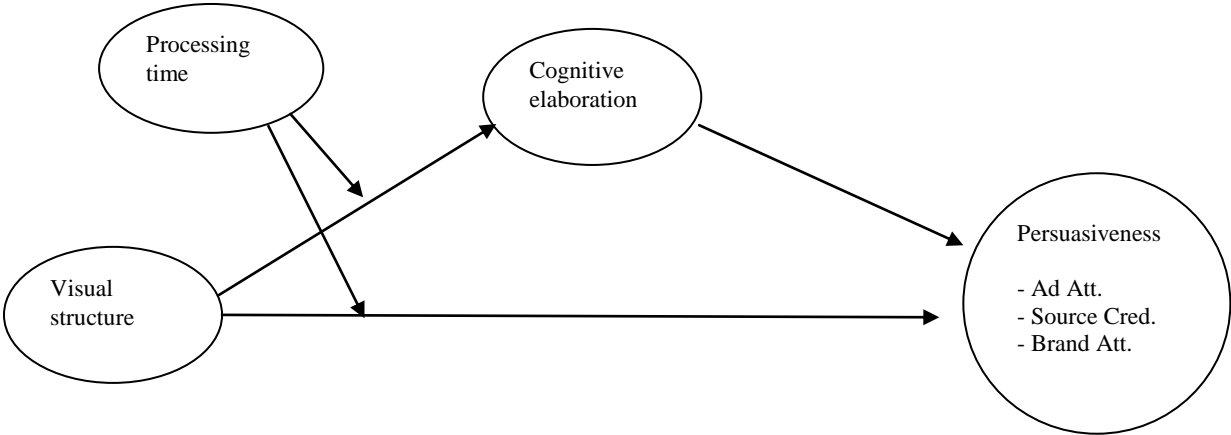

Figure 5 Conceptual model of the effect of visual structure of the ad and processing time on cognitive elaboration and persuasiveness

H_{1b}: When processing time is short, rhetorical shadows in particular create a weaker relationship than when processing time is longer.

H_{4b}: When processing time is short, rhetorical shadows in particular elicit a less positive ad attitude than when processing time is longer.

H_{5b}: When processing time is short, rhetorical shadows in particular are perceived as less credible than when processing time is longer.

H_{6b}: When processing time is short, rhetorical shadows in particular elicit a less positive brand attitude than when processing time is longer.

H_{7b}: When processing time is short, rhetorical shadows in particular produce less cognitive elaboration in the viewers' minds than when processing time is longer.

Overview of research questions and hypotheses

The first intention of this research is to provide an iteration and extension to the research of Chrysospathi (2017), who found that shadows, in comparison with juxtaposition, create a stronger relationship between two objects. This implies that the rhetorical shadow is a more effective rhetorical tool, and therefore, should be a more persuasive visual structure as well. This study set out to test the effectiveness, in terms of *persuasiveness*, of rhetorical shadows against more conventional visual structures such as juxtaposition and verbal anchoring. In addition, this study seeks to examine whether *cognitive elaboration* is a mediator that can explain the relationship between visual structures and persuasiveness. Lastly, the goal is to explore the influence of different *processing times* on rhetorical shadow ads in contrast to the other structures.

Based on the literature presented so far, the expectations are that rhetorical shadows will outperform the other visual structures in terms of *relational strength, cognitive elaboration, and persuasiveness. Cognitive elaboration* is expected to have a mediating effect between visual structure and persuasiveness, and *processing time* is assumed to have a moderating effect for rhetorical shadows on cognitive elaboration and persuasiveness.

Method

Participants

In total 61 men and 159 women voluntarily participated in the experimental study through the Qualtrics online survey software. All of the participants were aged between 15 and 80, with an average age of 31.5 (*SD* = 13.4*).* The majority of the participants (45.9%) completed higher secondary education (HAVO/VWO in The Netherlands) or higher vocational education (HBO in the Netherlands). The second largest group (29.5%) was highly educated with a University degree or higher. The last group (24.5%) was relatively low educated with an intermediate vocational education degree (MBO in The Netherlands) or lower.

A convenience sampling method was used. Participants were approached via social media channels, email or phone to take part in the study. There were no specific requirements to be allowed to participate in the study since everybody is somehow familiar with advertising. However, basic knowledge of the advertised products and quick reading ability is needed to be able to discover the meaning of the advertisements. Therefore, only persons above the age of twelve were used in this research. To reach the goal of a diverse sample, a snowball sampling method was used. Participants were asked to share the survey with their acquaintances in order to reach people with other characteristics. In addition, the questionnaire was shared in a few Facebook groups as well to increase the potential number of participants.

Research design

A 3x2 incomplete mixed design was used to investigate whether the visual structure of the advertisement and processing time affected cognitive elaboration and persuasiveness of the advertisement. 'Incomplete' is related to the three lists with ads that were constructed. Table 1 shows in what order the different lists (X, Y, and Z) showed the ads to the participants.

Table 1
Experimental lists

	Rhetorical Shadow	Juxtaposition	Verbal Anchoring
Ad. 1 Powerbar	X	Y	Z
Ad. 2 Lego	Z	X	Y
Ad. 3 Body&Fit	Y	Z	X
Ad. 4 GMC	X	Y	Z
Ad. 5 Gatorade	Z	X	Y
Ad. 6 Motorola	Y	Z	X

Visual structure was used as a within-subject factor and had three experimental conditions: rhetorical shadow, juxtaposition, and verbal anchoring. As can be seen from Table 1, each participant saw all visual structures two times. Moreover, the participant saw two different rhetorical shadows (Type I, and Type II), which countered participants' recognition of the structure of the ad.

Processing time was used as a between-subject factor. To manipulate the participant's maximum processing time for the advertisements, two conditions were created: a 2 seconds and 6 seconds time window. The two processing durations were selected for their assumed internal and ecological validity. The lower limit should match processing similar to 'passing

notion', which is believed to be between one to two seconds. It is reminiscent of passing a poster on the street or scrolling through ads on Facebook. Since in 1 second view time tests the identification of the elements of the ad plus the brand seemed to be hardly possible, there was chosen to set the lower limit to 2 seconds view time. This was believed to be both very short and valid since the participant has at least a chance to observe the elements and the brand of the ad. 6 seconds processing time was chosen as the alternative since it offers three times as much time to process the image. This difference was considered to vary enough from the lower boundary, but still, it was a realistic view time for an ad that draws your attention. Participants were randomly assigned to see all the ads in the short or longer processing time condition. Participants then were randomly assigned to one of three lists of six advertisements that included all three visual structures.

Materials

Six existing advertisements were selected. Subsequently, three variants of each advertisement were constructed: a shadow version, a juxtapose version and a verbal-anchoring version. Examples of a set of three can be seen in Figure 4 and 6.
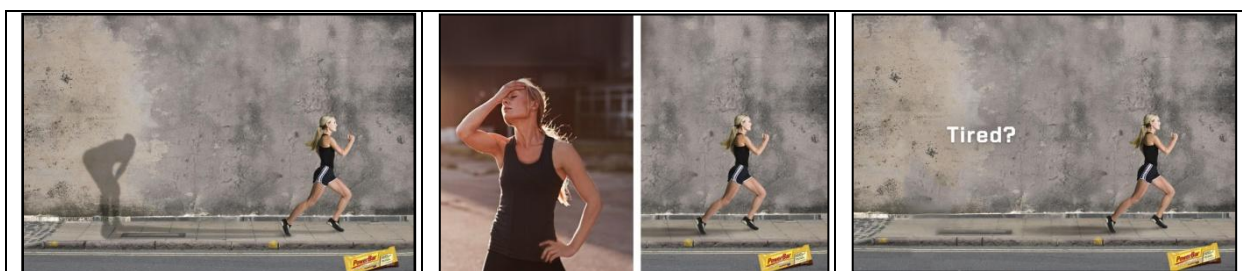

Figure 4 Original PowerBar advertisement alongside manipulated versions. Left to right: rhetorical shadow (original), juxtaposition, and verbal anchoring condition. (Original was found at https://adsoftheworld.com/media/print/nestle_shadow)
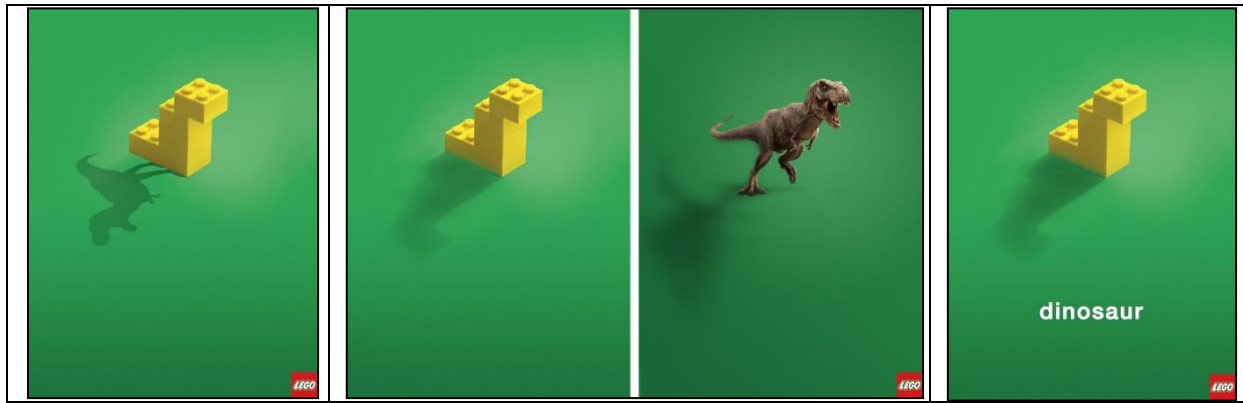
Figure 6 Original Lego advertisement alongside manipulated versions. Left to right: rhetorical shadow (original), juxtaposition, and verbal anchoring condition.
(Original was found at http://adsoftheworld.com/media/print/lego_dino)

Figure 4 was shown again to illustrate the constructed materials. In Figure 6 above an advertisement of Lego is shown. In both advertisements, the rhetorical shadow version is the original and is kept intact. If taglines were present, they were deleted to equalize the advertisements. The two other versions were created using Adobe Photoshop. To create the juxtapose- and verbal-anchoring versions of the advertisement, the incongruent shadow in the original version was removed and replaced by an image of the tired girl taking a break (see figure 4b) or by a verbal element representing the same meaning - the word 'tired' in this case (see figure 4c). Similarly, in Figure 6 the shadow in the form of a dinosaur was removed and replaced by an actual image of a dinosaur in the juxtapose version (see figure 6b) and by the word 'dinosaur' in the verbal-anchoring version (see figure 6c). By using this approach was ensured that the two elements of the alternative structures did communicate the same meaning as the shadow in the original image.

The ads were adjusted to meet the specific requirements of the experiment; the images contain no verbal arguments but do have a visible logo of the advertised brand. Three ads with a rhetorical shadow type I (like Figure 6) and three ads with a rhetorical shadow type II (like Figure 4) were selected for this research. The other two advertisements of Type II rhetorical shadow came from a Gatorade campaign in Uruguay. Because I did not want to use Gatorade

as the brand topic of the ad twice, I decided to transform one of them into a Body&Fit campaign.

As can be seen, the elements of the image are kept identical as much as possible in order to control for confounding variables that might affect the participants' responses. To clarify, the verbal text or other objects that substituted the rhetorical shadow in the other two conditions were kept as basic as possible to carry the same meaning as the shadow. In addition, the logo was placed in a similar position and was of the same size in all three conditions of each advertisement. Besides, in the juxtaposition condition was chosen for a white line between the two objects to equalize the juxtaposition condition in Type I (identity) and Type II (transition) rhetorical shadow advertisements. Furthermore, care was taken to ensure the ecological validity of each condition of an advertisement. Namely, different fonts which were aesthetically in line with the advertisement were used for the verbal anchoring condition. The six different brands that were used in the advertisements were: Lego, GMC (General Motors Truck Company), Motorola, PowerBar, Body&Fit, and Gatorade.

Manipulation check

A meaningfulness item was included in the questionnaire which was used as a manipulation check to assess whether the manipulated versions of the ads were as meaningful as the original. On a 5-point semantic differential scale, it was asked whether the ad was either meaningful or not meaningful. A repeated measures ANOVA revealed an effect of *visual structure* on *meaningfulness* $F(2, 180) = 8.70$, $p < .001$, $\eta2 = .09$. Advertisements based on a rhetorical shadow ($M = 3.54$, $SE = 0.07$, 95% CI [3.40, 3.67]) were perceived as more meaningful than the juxtapose version ($M = 3.16$, $SE = 0.07$, 95% CI [3.03, 3.30]) and the verbal-anchoring version ($M = 3.19$, $SE = 0.07$, 95% CI [3.06, 3.33]). On the one hand, it can be concluded that the constructed alternative structures are not perceived as equally

meaningful as the rhetorical shadow. On the other hand, it can be argued that there is not a very large difference. The averages range from 3.16 to 3.54, so none of the structures is perceived as not meaningful. Moreover, considering the differences in appearance and the expected difference in relational strength, the found difference in meaningfulness was not totally unexpected. After all, the relationship between the elements in the ad relates to the meaning of the advertisement.

Instruments

Table 2
Factors and items to measure these factors

Factors	Items	Source
Relational Strength	*Relational strength* was measured with two items scored on a 5-point Likert scale. The statements "I understand why the product is connected to this object/person", and "I think the relation between the product and object/person is strong" measured the relational strength of the elements in the ad. The mean score on *Relational Strength* was determined by averaging the item-scores for each participant. The reliability of the items was good for all ads (Cronbach's $\alpha > .75$).	The measure is adopted from Chrysospathi (2017) and Holmes (2008). A few words in these items were slightly adjusted to meet the specific needs of this study.
Type of relationship that is perceived	A single question: 'Which sentence do you think fits best the gist of the ad?' measured the perceived type of relationship. The participant had to choose between four describing sentences formatted as follows, *"X is like Y"*, *"X is Y"*, *"X will become like Y"*, and *"X will become Y".* In one advertisement is the past simple used to describe the transition of the ad, as *"X was like Y"* and *"X was Y".* For example, "The energetic woman is like a tired woman" was one of the options for the ad of Figure 4.	The measure is adopted from Chrysospathi (2017) as well but slightly adjusted to make the item suitable for both Type I and Type II advertisements. As a result, the possible answers to the question needed to be extended. The extended answer options gave the possibility to determine a distinction in perception between a Type I (similarity) and Type II (transition) rhetorical shadow advertisement.

Ad Attitude	The attitude towards the ad was measured on three 5-point semantic differential scales ("The ad was…" good/bad, pleasant/unpleasant, and appealing/unappealing), and three 5-point Likert scales ranging from "agree" to "disagree" ("The ad is original", "The ad is well designed", and "The ad is creative.") The mean score on *Ad Attitude* was determined by averaging the item-scores for each participant. The reliability of the items was high for all ads (Cronbach's $\alpha > .89$).	The semantic differential scale is adopted from Jeong (2008). Unlike Jeong, was decided to omit the favorable/unfavorable item, because it was believed to be less useful for this specific visual structured ads. In addition, three aesthetic appreciation/creativity items were added to include some visual appeals.
Source credibility	Source credibility was measured with two 5-point semantic differential scales ("The ad was… credible/not credible, and trustworthy/not trustworthy). The mean score on *Source Credibility* was determined by averaging the item-scores for each participant. The reliability of the items was good for all ads (Cronbach's $\alpha > .80$).	The measure is adopted from Jeong (2008).
Brand attitude	*Brand attitude* was measured with three 5-point semantic differential scales: good/bad, pleasant/unpleasant, and appealing/unappealing. The mean score on *Brand Attitude* was determined by averaging the item-scores for each participant. The reliability of the items was high for all ads (Cronbach's $\alpha > .87$).	The measure is adopted from Jeong (2008).

| *Cognitive elaboration* | *Cognitive elaboration* was measured with two 5-point Likert scales. Subjects were asked agreement with the statements "I had many thoughts in response to the advertisement" and "The advertisement elicited lots of thinking". The pole labels of the scale were 'disagree' and 'agree'.

 The mean score on *Cognitive Elaboration* was determined by averaging the item-scores for each participant. The reliability of the items was adequate for 5 out of 6 ads (Cronbach's α > .67). Considering that the measure of *Cognitive Elaboration* consisted of two items only, the measure was deemed reliable as well. The complete results of the reliability analysis are listed in Table 3. | The measure is adopted from Jeong (2008). In contrast to Jeong, was chosen for response options on a 5-point Likert scale instead of seven since most participants were likely to participate on mobile screens on which space is limited. In addition, omitting two response options should not bias the results since Dawes (2008) found that 5- and 7-point Likert scales produced the same means when they were rescaled. |

Table 3
Overview of the Reliability of the Measures

Measure	Cronbach's α					
	Ad. 1	Ad. 2	Ad. 3	Ad. 4	Ad. 5	Ad. 6
Cognitive Elaboration	.51	.76	.67	.79	.81	.77
Source Credibility	.80	.87	.78	.91	.87	.82
Ad Attitude	.89	.94	.91	.94	.93	.91
Brand Attitude	.89	.94	.87	.95	.95	.89
Relational strength	.75	.88	.77	.86	.86	.85

Procedure

To sample data, an online questionnaire via the Qualtrics survey platform was used. Participants were asked to participate via social media channels, email or phone to take part in the study. People had to click on a link that brought them to the Qualtrics questionnaire.

Participants were able to select their language of choice since the questionnaire was fully translated into Dutch. At the first page, an introductory text was shown which informed the participants about the nature of the research and the duration of the questionnaire.

Participants were asked demographic questions; i.e. gender, age, and education level. Participants were then randomly assigned to a time processing condition (2 or 6 seconds per advertisement). Subsequently, each participant was randomly assigned to one of the three lists. Before the advertisements were shown, participants were told that they were about to see a series of advertisements for a particular time period and that they were supposed to answer questions about each advertisement afterward. Before each advertisement, an additional notification was added to make the participant aware of the fact that on the next page the advertisement will be shown. This way was tried to ensure the participants' attention for every advertisement. Each participant saw six advertisements of which were in three different conditions (two rhetorical shadows, two juxtapositions, and two verbal-anchored ads).

After each advertisement, the participants were asked to fill in a sequence of questions. To begin with, whether the ad was meaningful, trustworthy, and credible. Then they were shown a couple statements: "I had many thoughts in response to the ad", "The ad elicited lots of thinking", "I understand why the product is connected to this object/person", "I think the relation between the product and object/person is strong", "The ad is original", "The ad is well designed", and "The ad is creative". Last, their attitude towards the ad and the brand was asked.

Afterward, in the final part of the questionnaire participants saw each advertisement once again to answer one final question: "Which sentence do you think fits best the gist of the ad?" The four response options were consequently, *"X is like Y"*, *"X is Y"*, *"X will become*

like Y", and *"X will become Y"*. This question was purposely held back to prevent participants from getting biased.

Planned analyses

Hypothesis 1a, and 1b – *Whether rhetorical shadows create a stronger relationship than juxtaposition and the verbal-anchoring version, and whether this effect might be moderated by processing time* – was analyzed by performing a mixed ANOVA.

Hypothesis 2, and 3 – *Whether Rhetorical shadows are more likely to be perceived as a relation of identity, and whether the viewer distinguished Type I from Type II ads* – was analyzed by performing a chi-square test.

Hypothesis 4a to 6b – Whether *Rhetorical shadows elicit more positive ad attitudes, are perceived as more credible, elicit more positive brand attitudes than the other structures, and whether this might be moderated by processing time* – was analyzed by performing multiple mixed ANOVA'S.

Hypothesis 7a, and 7b – *Whether Rhetorical shadows produce more cognitive elaboration in the viewers' minds than juxtaposition and the verbal-anchoring version, and whether this might be moderated by processing time* – was analyzed by performing a mixed ANOVA.

Hypothesis 8 – *Whether stronger persuasiveness of rhetorical shadows in contrast to juxtaposition and the verbal-anchoring version can be explained by the produced cognitive elaboration of viewers (as a mediator)* – was analyzed by performing a Hayes PROCESS (Model 4) mediation analysis (Hayes, 2013)

Results

Relational Strength

To test Hypothesis 1a and 1b a mixed ANOVA was performed, with the ads' *relational strength* as the within-subject factor, and v*isual structure* and *processing time* as the between-subject factors. The assumptions of normality and homogeneity of variance were assessed and acted upon if they were violated.[3] The means and standard deviations of *relational strength* are listed in Table 4.

Table 4
Means and Standard Deviations of Relational strength per condition and advertisement
(minimal score = 1, maximum score = 5)

	Rhetorical shadow M (SD)		Juxtaposition M (SD)		Verbal Anchoring M (SD)	
	2 sec.	6 sec.	2 sec.	6 sec.	2 sec.	6 sec.
Relational Strength	3.52 (0.59)	3.70 (0.36)	3.38 (0.49)	3.26 (0.51)	3.25 (0.46)	3.33 (0.47)

A main effect of *visual structure* on *relational strength* was found $F(2, 180) = 8.30$, $p < .001$, $\eta 2 = .084$. Advertisements based on a rhetorical shadow (M = 3.61, SE = 0.06, 95% CI [3.49, 3.73]) produced a stronger relationship than juxtapositions (*M* = 3.32, *SE* = 0.06, 95% CI [3.20, 3.44]), and the verbal-anchoring version (*M* = 3.29, *SE* = 0.06, 95% CI [3.17, 3.41]). Planned contrasts yielded support for Hypothesis 1a: rhetorical shadows created a stronger relationship than juxtapositions *Mdif* = 0.29, *p* = .003, 95% CI [0.08, 0.50] and the verbal-anchoring version *Mdif* = 0.32, *p* = .001, 95% CI [0.11, 0.53].

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[3] The assumption of normality was violated based on one z-score for kurtosis and skewness, so 95% confidence intervals were reported. For all advertisements Levene's test was not significant, so the assumption of homogeneity of variance was not violated.

The ANOVA did not yield a main effect of *processing time* on *relational strength* $F(1, 180) = 0.41$, $p = .52$. In addition, no significant interaction was found between *visual structure* and *processing time* $F(2, 180) = 1.57$, $p = .21$. In other words, the effect of different *visual structures* on *relational strength* is not influenced by the *processing time* of the ad. Therefore, Hypothesis 1b is not supported.

Inspection of the individual ads revealed that all six ads in the rhetorical shadow version were perceived to create a stronger relationship in the 6 seconds condition than in the 2 seconds condition. Although every ad showed this behavior, the differences were too small to reach statistical significance for the interaction.

Type of Relationship between the Two Objects

Identity (Type I) or Transition (Type II)

In order to examine whether people perceived the difference in relationship of a Type I (identity) and a Type II (transition) advertisement a chi-square test was conducted with *type of the ad* (Type I or II) as the independent variable and *type of relationship* (relation of identity or relation of transition) as the dependent variable.

Table 5
Cross Table of the counts of the type of relationship to type of the ad (between brackets are the expected counts)

Type Ad	Type of relationship		Total
	Relation of Identity X is (like) Y	Relation of Transition X will become (like) Y	
Type I	500 (314.7)	160 (345.3)	660 (660)
Type II	129 (314.3)	530 (344.7)	659 (659)
Total	629 (629)	690 (690)	1319 (1319)

Of the 1319 seen ads, 660 were Type I, and 659 were of Type II. 629 ads were perceived as a relation of identity (466 of an X is like Y; 163 of an X is Y), and 690 were perceived as a relation of transition (299 of an X will become Y; 391 of an X will become Y). There was a significant association between *the type of ad* and whether the ad was perceived as a relation of identity or transition, $\chi^2(1) = 417.23$, $p < .001$. 75.8% ($N = 500$) of Type I ads were seen as a relationship of identity, but only 19.6% ($N = 129$) of Type II ads were seen as an identity relationship. On the contrary, only 24.2% ($N = 160$) of the Type I ads against 80.4% (N = 530) of the Type II ads were perceived as a relation of transition. The odds of a Type I ad to be perceived as a relation of identity were 12.84 times higher than those of Type II ad to be perceived as a relation of identity. These results support Hypothesis 2 that Type I ads are indeed more likely to be perceived as a relation of identity in contrast to Type II ads that are more likely to be perceived as a relation of transition.

Similar or Actual Identity/Transition

In order to examine whether people were more likely to perceive a rhetorical shadow as a relation of identity instead of a similarity, compared to the juxtapose-version and the verbal-anchoring version, a chi-square test was conducted. *Visual structure* of the ad was used as independent variable and *type of relationship* (relation of identity or relation of similarity) as the dependent variable. For this analysis, only the answers belonging to the 'correct' type of relationship were used (500 instances for Type I and 530 instances for Type II, see table 6).

Table 6
Cross Table of the counts of the type of relationship to visual structure of the Type I ads (between brackets are the expected counts)

	Type of relationship		
Type I ads Visual structure	Similarity X is like Y	Identity X is Y	Total
Rhetorical Shadow	129 (128.4)	45 (45.6)	174 (174)
Juxtaposition	139 (125.5)	31 (44.5)	170 (170)
Verbal anchoring	101 (115.1)	55 (40.9)	156 (156)
Total	369 (369)	131 (131)	500 (500)

There was a significant association between the *visual structure of Type I ads* and whether the ad was perceived as a similarity or an actual identity, $\chi^2(2) = 12.21$, $p = .002$. Unfortunately, the association was not in a way that was hypothesized. In contrast to what was predicted, it was the verbal-anchoring version and not the rhetorical shadow that was interpreted as a relation of identity more than expected (55 vs. 40.9 against 45 vs. 45.6).

Table 7

Cross Table of the counts of the type of relationship to visual structure of the Type II ads
(between brackets are the expected counts)

	Type of relationship		
Type II ads Visual structure	Similar transition X will become like Y	Actual transition X will become Y	Total
Rhetorical Shadow	78 (69.3)	92 (100.7)	170 (170)
Juxtaposition	56 (76.2)	131 (110.8)	187 (187)
Verbal anchoring	82 (70.5)	91 (102.5)	173 (173)
Total	216 (216)	314 (314)	530 (530)

There was also a significant association between the *visual structure of Type II ads* and whether the ad was perceived as a similar transition or an actual transition, $\chi^2(2) = 14.06$, $p = .001$. For these ads, the juxtaposition was interpreted as actual transition more than expected (131 vs. 110.8). The rhetorical shadow and verbal-anchoring version were interpreted as an actual transition less than expected (92 vs. 100.7, and 91 vs. 102.5). All in all, rhetorical shadows are not more likely to be perceived as actual identities or transitions, and therefore, Hypothesis 3 is not supported.

Persuasiveness

The means and standard deviations of *ad attitude*, *source credibility*, and *brand attitude* are listed in Table 8.

Table 8
Means and Standard Deviations of all the dependent variables per condition
(minimal score = 1, maximum score = 5)

	Rhetorical shadow *M* (*SD*)		Juxtaposition *M* (*SD*)		Verbal Anchoring *M* (*SD*)	
	2 sec.	6 sec.	2 sec.	6 sec.	2 sec.	6 sec.
Ad Attitude	3.53	3.76	3.17	2.99	3.03	3.10
	(0.46)	(0.27)	(0.38)	(0.44)	(0.38)	(0.35)
Source Credibility	3.26	3.43	3.09	3.05	3.20	3.12
	(0.57)	(0.32)	(0.43)	(0.49)	(0.39)	(0.38)
Brand Attitude	3.25	3.37	3.08	3.01	3.05	3.16
	(0.44)	(0.41)	(0.52)	(0.43)	(0.40)	(0.47)

Advertisement Attitude

To test Hypothesis 4a and 4b, a mixed ANOVA with the *attitudes toward the ads* as within-subject factors was performed. *Visual structure* and *processing time* remained the between-subject factors in this analysis. The assumptions of normality and homogeneity of variance were assessed and acted upon if they were violated.[4]

A main effect of *visual structure* on *ad attitude* was found $F(2, 180) = 46.31$, $p < .001$, $\eta2 = .340$. This represented a large effect size. Advertisements based on a rhetorical shadow (M = 3.65, SE = 0.05, 95% CI [3.55, 3.74]) elicited more positive attitudes than juxtapositions (*M* = 3.08, *SE* = 0.05, 95% CI [2.98, 3.18]), and ads with verbal anchoring (*M* = 3.06, *SE* =

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[4] The assumption of normality was violated based on one z-score for skewness, so the 95% confidence intervals were reported. For advertisement three Levene's test was significant ($F(5,180) = 3.77$, $p = .003$), suggesting that the assumption of homogeneity of variance was violated. Since the ANOVA is less robust against the violation of the assumption of homogeneity of variances, it should be noted that the p-value may be somewhat biased.

0.05, 95% CI [2.97, 3.16]). Contrasts supported Hypothesis 4a, in which rhetorical shadows elicit more positive attitudes than juxtapositions $Mdif = 0.57$, $p < .001$, 95% CI [0.40, 0.73] and verbal-anchored ads $Mdif = 0.58$, $p < .001$, 95% CI [0.42, 0.74].

The ANOVA did not reveal a main effect of *processing time* on *ad attitude* $F(1, 180) = 0.42$, $p = .518$. However, an interaction effect between *visual structure* and *processing time* was found $F(2, 180) = 4.35$, $p = .014$, $\eta2 = .046$. The interaction effect is illustrated in Figure 7.
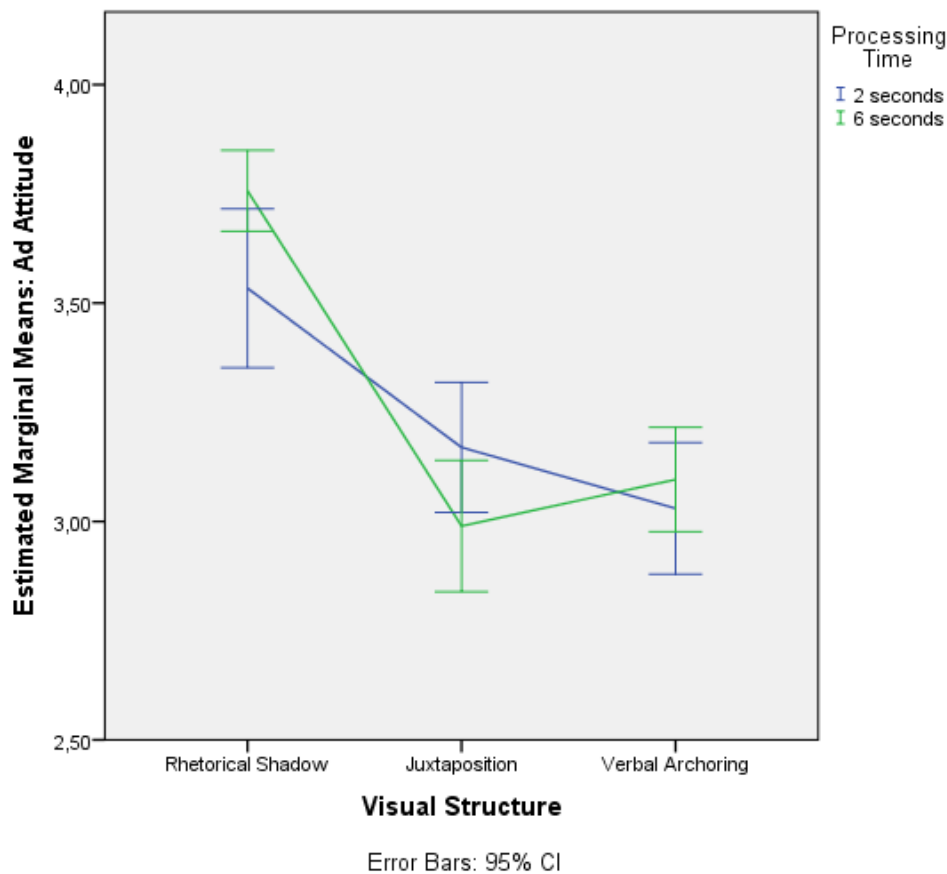
Figure 7. Mean ad attitude as a function of processing time and visual structure.

Where the *verbal anchoring version* elicited stable attitudes whether *processing time* was 2 seconds ($M = 3.03$, $SE = 0.07$, 95% CI [2.89, 3.17]) or 6 seconds ($M = 3.10$, $SE = 0.06$, 95% CI [2.97, 3.22]), *juxtapositions* and *rhetorical shadows* showed differences between

processing times. Surprisingly, for *juxtapositions* the *ad attitude* was more positive when *processing time* was 2 seconds ($M = 3.17$, $SE = 0.07$, 95% CI [3.03, 3.31]) than with a 6 seconds processing time ($M = 2.99$, $SE = 0.06$, 95% CI [2.86, 3.12]). However, in line with Hypotheses 4b, *rhetorical shadows* elicited a more positive *ad attitude* when *processing time* was longer (2 seconds: $M = 3.53$, $SE = 0.07$, 95% CI [3.39, 3.68]; 6 seconds: $M = 3.76$, $SE = 0.06$, 95% CI [3.63, 3.88]). In other words, *rhetorical shadows* were rated less positive when *processing time* was short. Aside from the unexpected difference for the *juxtapositions*, the effect of *rhetorical shadows* and the stability of the *verbal anchoring version* were according to Hypothesis 4b, which is, therefore, partly supported. Yet, it should be noted that the 95% confidence intervals of the *rhetorical shadow version* for both *processing times* do slightly overlap, which might indicate that this finding is not generalizable.

Inspection of the individual ads revealed that five out of six ads in the rhetorical shadow version elicited more positive *ad attitudes* in the 6 seconds condition than in the 2 seconds condition. Only the second ad showed an opposite effect since the rhetorical shadow was perceived slightly more credible in the 2 seconds condition. As a result, the 95% confidence intervals may be overlapping due to this conflicting ad.

Source Credibility

To test Hypothesis 5a and 5b, a mixed ANOVA was performed with the ads' *source credibility* as the within-subject factor, and v*isual structure* and *processing time* as the between-subject factors. The assumptions of normality and homogeneity of variance were

assessed and acted upon if they were violated.[5] The means and standard deviations of *source credibility* are listed in Table 8.

The ANOVA revealed a main effect of *visual structure* on *source credibility* $F(2, 180)$ = 7.11, *p* = .002, η2 = .07. Advertisements based on a rhetorical shadow (M = 3.34, SE = 0.56, 95% CI [3.23, 3.45]), juxtaposition (*M* = 3.07, *SE* = 0.56, 95% CI [2.96, 3.18]), and verbal anchoring (*M* = 3.16, *SE* = 0.56, 95% CI [3.05, 3.27]) did significantly differ in perceived *source credibility* by participants. Contrasts showed that the *rhetorical shadow version* was perceived significantly more credible than the *juxtapose-version (Mdif* = 0.27, *p* = .002, 95% CI [0.83, 0.46]), but not significantly more than the *verbal-anchoring version (Mdif* = 0.19, *p* < 0.058, 95% CI [-0.01, 0.38]). These results partly support Hypothesis 5a. *Rhetorical shadows* indeed were perceived as more credible sources than *juxtapositions,* but did not reach a significant difference with the *verbal-anchoring version*.

The ANOVA did not yield a main effect of *processing time* on *source credibility* $F(1, 180)$ = 0.09, *p* = .77. In addition, no significant interaction was found between *visual structure* and *processing time* $F(2, 180)$ = 1.47, *p* = .23. In other words, the effect of different *visual structures* on the perceived *source credibility* is not influenced by the *processing time* of the ad. Therefore, Hypothesis 5b is not supported.

Inspection of the individual ads revealed that five out of six ads in the rhetorical shadow version were perceived more credible in the 6 seconds condition than in the 2 seconds condition. Only the first ad showed an opposite effect since the rhetorical shadow was perceived more credible in the 2 seconds condition. As a result, the interaction did not reach statistical significance for *source credibility.*

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[5] The assumption of normality was violated based on one of the z-scores for kurtosis, so 95% confidence intervals were reported. For all advertisements Levene's test was not significant, so the assumption of homogeneity of variance was not violated.

Brand Attitude

To test hypothesis 6a and 6b, a mixed ANOVA was conducted with *processing time* and *visual structure of the ad* as between-subject factors, and *brand attitude* for the six advertisements as within-subject factors. The assumptions of normality and homogeneity of variance were assessed and acted upon if they were violated.[6] Descriptive statistics regarding *brand attitude* are listed in Table 8.

A main effect of *visual structure* on *brand attitude* was found $F(2, 180) = 7.07$, $p = .003$, $\eta2 = .062$. Advertisements based on a rhetorical shadow (M = 3.31, SE = 0.06, 95% CI [3.20, 4.42]) elicited more positive *brand attitudes* than juxtapositions ($M = 3.04$, $SE = 0.06$, 95% CI [2.93, 3.16]), and the verbal-anchoring version ($M = 3.10$, $SE = 0.06$, 95% CI [2.99, 3.22]). Contrasts supported Hypothesis 6a: rhetorical shadows elicit more positive *brand attitudes* than juxtapositions $Mdif = 0.27$, $p = .004$, 95% CI [0.07, 0.46] and the verbal-anchoring version $Mdif = 0.21$, $p = .034$, 95% CI [0.12, 0.40].

The ANOVA did not yield a main effect of *processing time* on *brand attitude* $F(1, 180) = 0.66$, $p = .42$. In addition, no significant interaction was found between *visual structure* and *processing time* $F(2, 180) = 0.79$, $p = .46$. In other words, the effect of different *visual structures* on *brand attitude* is not influenced by the *processing time* of the ad. Therefore, Hypothesis 6b is not supported.

Inspection of the individual ads revealed that four out of six ads in the rhetorical shadow version elicited more positive *brand attitudes* in the 6 seconds condition than in the 2 seconds condition. The first two ads showed an opposite effect.

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[6] The assumption of normality was violated based on the z-scores for skewness and kurtosis, so 95% confidence intervals were reported. For all advertisements Levene's test was not significant, so the assumption of homogeneity of variance was not violated.

Cognitive Elaboration

To test hypothesis 7a and 7b, a mixed ANOVA was conducted with *processing time* and *visual structure of the ad* as between-subject factors, and the six advertisements' *cognitive elaboration* as within-subject factors. The assumptions of normality and homogeneity of variance were assessed and acted upon if they were violated.[7] Descriptive statistics regarding *cognitive elaboration* are listed in Table 9.

Table 9
Means and Standard Deviations of Cognitive Elaboration per condition and advertisement
(minimal score = 1, maximum score = 5)

	Rhetorical shadow M (SD)		Juxtaposition M (SD)		Verbal Anchoring M (SD)	
	2 sec.	6 sec.	2 sec.	6 sec.	2 sec.	6 sec.
Cognitive Elaboration	3.33 (0.47)	3.48 (0.45)	3.28 (0.47)	3.31 (0.44)	2.94 (0.35)	3.04 (0.51)

From these means can be observed that rhetorical shadows and juxtapositions produced slightly more elaboration than the verbal anchoring version.

The ANOVA revealed a main effect of *visual structure* on *cognitive elaboration* $F(2, 180) = 13.48$, $p < .001$, $\eta2 = .13$. Advertisements based on a rhetorical shadow (M = 3.41, SE = 0.58, 95% CI [3.29, 3.52]), juxtaposition (*M* = 3.29, *SE* = 0.58, 95% CI [3.18, 3.41]), and verbal anchoring (*M* = 2.99, *SE* = 0.58, 95% CI [2.88, 3.11]) did significantly differ in produced *cognitive elaboration* in the viewers' minds. Contrasts showed that the *rhetorical shadow version* produces significantly more elaboration than the *verbal-anchoring version*

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[7] The assumption of normality was violated based on one z-score for skewness and kurtosis, so the 95% confidence intervals were reported. For advertisement two Levene's test was significant (F(5,180) = 2.64, p = .025), suggesting that the assumption of homogeneity of variance was violated for that advertisement. Since the ANOVA is less robust against the violation of the assumption of homogeneity of variances, it should be noted that the p-value may be somewhat biased.

(Mdif = 0.41, *p <* .001, 95% CI [0.21, 0.61]), but not significantly more than *the juxtapose version (Mdif =* 0.11, *p <* 0.53, 95% CI [-0.09, 0.31]), The *juxtapose version* also produced significantly more elaboration than the *verbal-anchoring version (Mdif =* 0.30, *p =* .001, 95% CI [0.10, 0.50]) These results partly support Hypothesis 7a. *Rhetorical shadows* indeed produced more elaboration than the *verbal-anchoring version* but do not differ significantly from *juxtapositions* in produced *cognitive elaboration*.

The ANOVA did not yield a main effect of *processing time* on *cognitive elaboration* $F(1, 180) = 2.36$, *p =* .17. In addition, no significant interaction was found between *visual structure* and *processing time* $F(2, 180) = 0.26$, *p =* .77. In other words, the effect of different *visual structures* on the produced *cognitive elaboration* is not influenced by the *processing time* of the ad. Therefore, Hypothesis 7b is not supported.

Inspection of the individual ads revealed that four out of six ads in the rhetorical shadow version produced more *cognitive elaboration* in the 6 seconds condition than in the 2 seconds condition. The second and fourth ad showed an opposite effect.

Mediation

To investigate whether a difference in persuasiveness for rhetorical shadows in contrast to the other visual structures is explained by *cognitive elaboration*, a mediation analysis was performed using the procedures developed by Preacher and Hayes (Hayes, 2013). In this analysis, visual structure (used as dichotomous variable: (0) Other visual structure versus (1) rhetorical shadow) was entered as a predictor to persuasiveness, and *cognitive elaboration was* entered as mediator.

Ad attitude

Total indirect effect = 0.11, 95% BCa CI [0.05, 0.20]

$b = 0.27, p < .001$

Cognitive Elaboration

$b = 0.42, p < .001$

Rhetorical shadow

Ad Attitude

Direct effect = 0.48, 95% BCa CI [0.37, 0.59]
Total effect = 0.59, 95% BCa CI [0.47, 0.71]
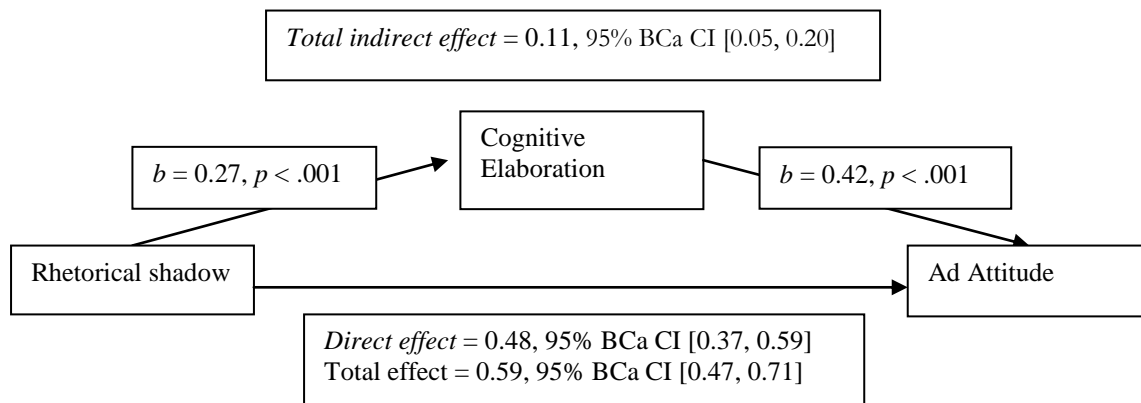
Figure 8. Mediation model with corresponding direct and indirect effects on *ad attitude*

As can be seen in the figure, the use of a rhetorical shadow was indeed related to *cognitive elaboration*, and *cognitive elaboration* was also related to *ad attitude*. There was a significant total effect of the rhetorical shadow version on ad attitude ($b = 0.59$, $SE = 0.06$, $p < .001$), indicating that the rhetorical shadow version elicited more positive ad attitudes. The mediator contributed to this total effect because the direct effect was smaller $b = 0.48$, $SE = 0.05$, $p < .001$. The indirect effect was significant ($b = 0.11$, $SE = 0.04$, 95% BCa CI [0.05, 0.20]). The completely standardized indirect effect was ($b = .11$, $SE = 0.03$, 95% BCa CI [0.05, 0.19]), which represents a medium effect. Given the results, we can conclude that

cognitive elaboration explains a part of the link between the rhetorical shadow *visual structure* and the *ad attitude*.
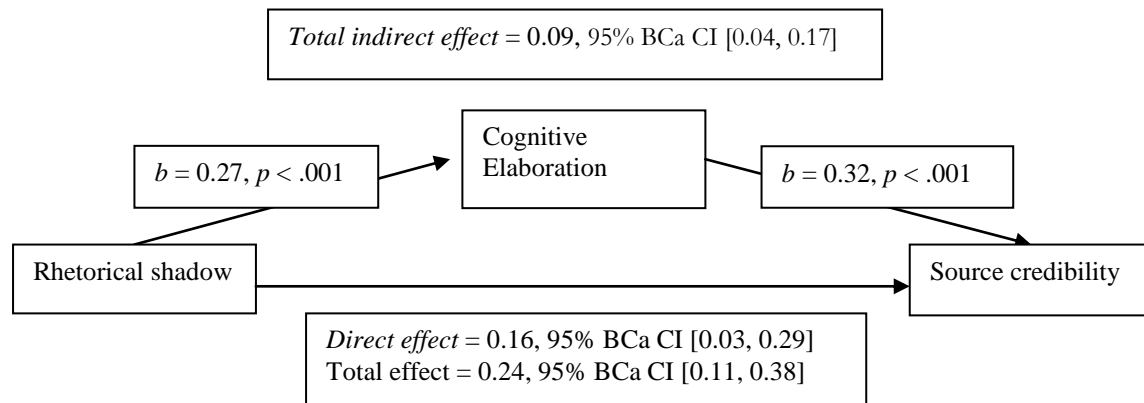
Source Credibility

Figure 9. Mediation model with corresponding direct and indirect effects on *source credibility*

This model shows that *Cognitive elaboration* was also related to *source credibility*. There was a significant total effect of the rhetorical shadow version on *source credibility* ($b = 0.24$, $SE = 0.07$, $p < .001$), indicating that the rhetorical shadow version was perceived as more credible. The mediator contributed to this total effect because the direct effect was smaller $b = 0.16$, $SE = 0.07$, $p = .018$. The total indirect effect was significant ($b = 0.09$, $SE = 0.03$, 95% BCa CI [0.04, 0.17]). The completely standardized indirect effect was ($b = .09$, $SE = 0.03$, 95% BCa CI [0.04, 0.17]), which represents a medium effect. Given the results, we can conclude that *cognitive elaboration* explains a part of the link between the rhetorical shadow *visual structure* and the *source credibility*.
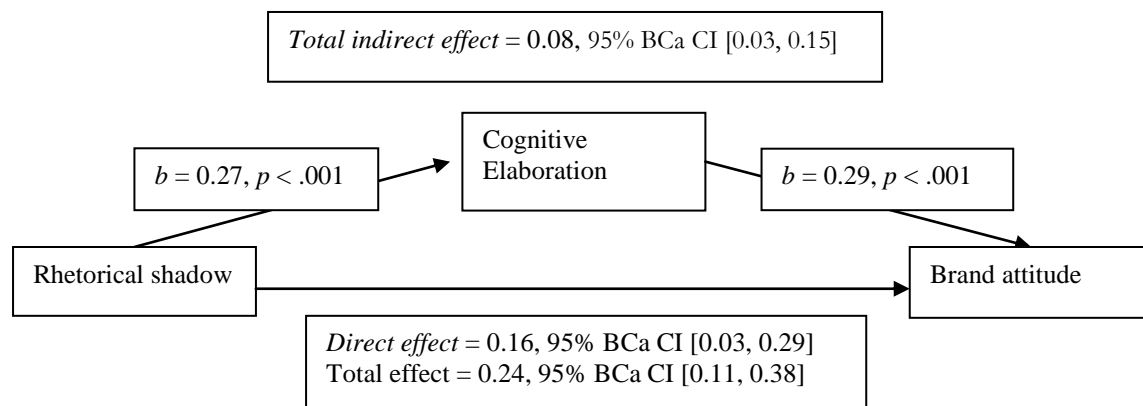
Brand attitude

Figure 10. Mediation model with corresponding direct and indirect effects on *brand attitude*

This model shows that *Cognitive elaboration* was also related to *brand attitude*. There was a significant total effect of the rhetorical shadow version on *brand attitude* ($b = 0.24$, *SE* $= 0.07$, $p < .001$), indicating that the rhetorical shadow version elicited more positive brand attitudes. The mediator contributed to this total effect because the direct effect was smaller $b = 0.16$, *SE* $= 0.07$, $p = .018$. The total indirect effect was significant ($b = 0.08$, *SE* $= 0.03$, 95% BCa CI [0.03, 0.15]). The completely standardized indirect effect was ($b = .08$, *SE* $= 0.03$, 95% BCa CI [0.03, 0.15]), which represents a somewhat small effect. Given the results, we can conclude that *cognitive elaboration* explains a part of the link between the rhetorical shadow *visual structure* and the *brand attitude*.

Taken together the results for *ad attitude, source credibility,* and *brand attitude*, Hypothesis 8 is supported. Differences in persuasiveness for different *visual structures* can be partly explained by the produced *cognitive elaboration* of the viewer.

General conclusion and Discussion

Advertising is all around us nowadays and marketers are on an ongoing quest to find creative ways to persuade people to use their products or services. The use of rhetorical shadows is one of those because according to theory, shadow projection can create a strong relationship between two elements in a single picture. To begin with, the *relational strength* of the rhetorical shadow was re-assessed. Hereafter, this study set out to investigate whether rhetorical shadows produce more *cognitive elaboration* and are more *persuasive* than other visual structures. The third aim of this research was to determine whether *processing time* might influence the effect of *visual structure* on *cognitive* elaboration and *persuasiveness.* Lastly, the mediation of the relationship between *visual structure* and *persuasiveness* by *cognitive elaboration* was examined.

First of all, this study has shown that rhetorical shadows produced more *cognitive elaboration* than juxtapositions and the verbal-anchoring version; the latter two types being the more frequently used structures. This is in line with the theory that incongruities stimulate *cognitive elaboration* (Forabosco, 2008; Ritchie, 1999). However, the results do not support the assumption that the produced *cognitive elaboration* for rhetorical shadows might be significantly lower when processing time is short (2 seconds) than when processing time is longer (6 seconds). In other words, *processing time* did not influence the relationship between *visual structure* and *cognitive elaboration*. Even though *processing time* of the ad is quite short, people indicate to have produced just as many thoughts related to the ad as for a longer *processing time.* This seems to be in conflict with the theory that limited processing time disrupts cognitive elaboration (Moore, Hausknecht, & Thamodaran, 1986). However, it can be argued that two seconds *processing time* for these ads might not be limited enough to disrupt *cognitive elaboration. Figure* 6 illustrates the results of the study with reference to the model.
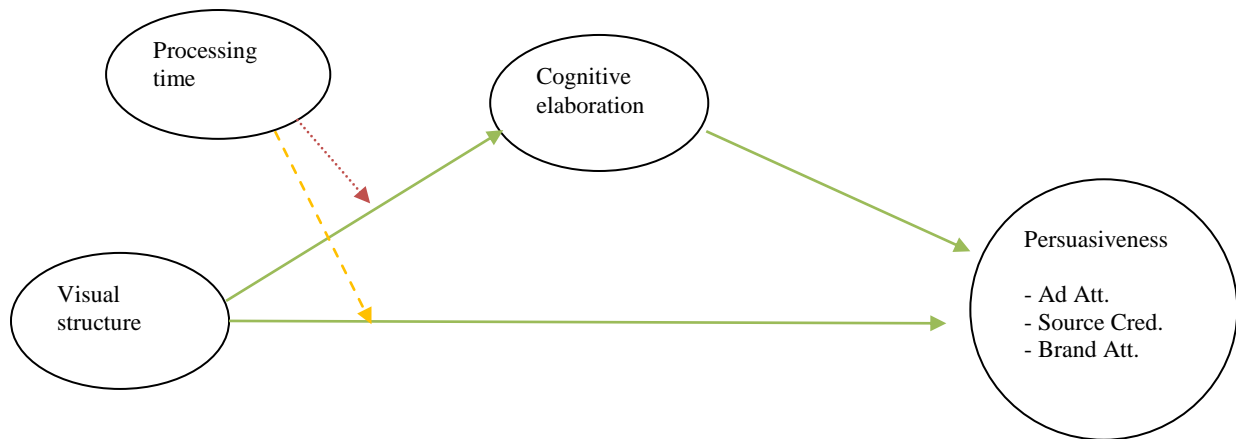
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Figure 6. Conceptual model with supported (green/solid), partly supported (yellow/striped) and not supported relationships (red/dotted).

This paper also examined the actual persuasiveness of the ad in terms of *ad attitude, source credibility,* and *brand attitude.* The results were in line with the hypotheses, indicating that rhetorical shadows elicit more positive ad- and brand attitudes, and were perceived more credible. Thus, it can be concluded that a rhetorical shadow is more persuasive than juxtaposition and verbal anchoring. This is in line with the finding that rhetorical shadows create a stronger relationship (Chrysospathi, 2017). Because they create a stronger relationship, they are more effective in conveying the message of the ad. Subsequently, they should be more persuasive as well. Only for *ad attitude,* the results showed that *processing time* influenced the effect. Rhetorical shadows were rated more positively when *processing* time was longer. For *source credibility* and *brand attitude,* this was not the case. Therefore, the hypothesis concerning *processing time* as a moderator of the effect of *visual structure* on *persuasiveness* was not supported. Moreover, the persuasive effect of rhetorical shadows did not vanish when *processing time* was short.

The effect of *cognitive elaboration* is clearly supported by the current findings. As a mediating factor, *cognitive elaboration* significantly explained a part of the relationship between *visual structure* (rhetorical shadow vs. other structures) and all three measures of

persuasiveness. This is in line with the existing theory that stated that more complex visual structures result in more cognitive elaboration due to increased comprehension efforts (Phillips & McQuarrie, 2004). In addition, the findings lend additional support for the central route of the Elaboration Likelihood Model (Petty & Cacioppo, 1986) since active *cognitive elaboration* led to stronger persuasion.

Lastly, *relational strength* was assessed in the current research to replicate the findings of Chrysospathi (2017). Results showed that a rhetorical shadow indeed produced a stronger relationship than juxtaposition and verbal anchoring, indicating that rhetorical shadows constitute a more effective visual structure to convey the message. The *relational strength* and the *persuasiveness* of rhetorical shadows are superior to the other visual structures.

Participants did clearly recognize the difference in meaning of Type I and Type II advertisements. In line with the theory, Type I advertisements were predominantly associated with a relation of identity, whereas Type II advertisements were mostly associated with a relation of transition. The distinction between the two types made by Schilperoord and van Weelden (to appear), is therefore empirically supported.

However, the participants did not consider the relationship of rhetorical shadows as one of an actual identity or actual transition. In contrast to Chrysospathi (2017), the number of people who stated that shadows create a relation of actual identity did not exceed the expectations. On the contrary, in the current research participants mostly associated the verbal-anchoring version of Type I as actual identity. Furthermore, a juxtaposition of Type II was most frequently perceived as an actual transition. This is not in line with what the theory proposes; i.e. that shadows invite recipients to construct a relation of identity between two concepts (Schilperoord & van Weelden, to appear).

Theoretical implications

This research contributes to our knowledge of visual structures as persuasive devices and in particular of rhetorical shadows. Overall, this study strengthens the idea that rhetorical shadows create stronger relationships between elements than juxtaposition and verbal anchoring do. In addition, rhetorical shadows produce more *cognitive elaboration* and are more *persuasive* than juxtapositions and verbal anchoring. The findings also support the idea that the effect of rhetorical shadows on persuasiveness is partly explained by *cognitive elaboration* as a mediator. Taken together, these findings suggest that incongruity, a feature that sets rhetorical shadows apart from the other visual structures examined in this study, invites cognitive elaboration and enhances persuasiveness.

However, the results with regard to the effect of *processing time* in combination with different visual structures raise questions about the processing of shadow projections. The findings suggest that two seconds *processing time* already suffice to evoke *cognitive elaboration*. In other words, two seconds is enough time for people to generate thoughts about the ad they just saw. At least, according to their own testimonies. Because this study has been unable to demonstrate that rhetorical shadows create a relation of identity instead of one of similarity, questions regarding the interpretation of shadow projections remain unanswered.

Practical implications

The advertising industry and marketing practitioners can take advantage of this empirical study. The use of shadow projection is an innovative way to create a stronger relationship between two visual entities and increase the persuasiveness of an ad by means of *ad attitude, source credibility, and brand attitude.* As a result of these findings, advertisers could strategically decide to create more advertisements using a rhetorical shadow template.

Following this idea, advertisers could use this rhetoric to create a strong relationship between two concepts: the topic and the desired predicate. Furthermore, the claim that is made is based on a strong relationship-creating visual template that will have a positive effect on persuasiveness. Another advantage for advertising practitioners, the effectiveness of rhetorical shadows did not significantly decrease under a short *processing time*. Rhetorical shadows remained more effective than juxtapositions and verbal anchoring for both *processing times*. Therefore, rhetorical shadow ads can be used without doubts considering *processing time* of the viewers. Overall, the rhetorical shadow has been shown to be a strong persuasive tool for advertisers.

Limitations and Future Research

The most important limitation of this study lies in the fact that participants get to see multiple advertisements with different brands, colors, and topics. Inevitably, the used ads did individually affect the outcomes because some of the ads behaved in a different way than others. In other words, if one or two of the ads were left out, the effects could have been stronger or, for that matter, vanish. In addition, different viewers may come up with different interpretations of the same ad; some of these are similar to the one intended but others are not. Be all this as it may, people's actual understanding of ads using rhetorical shadows was not assessed. It would be interesting to assess the effects of rhetorical shadows in a qualitative study where the understanding of the participants is examined as well. This could contribute to our knowledge of understanding rhetorical shadows, which is of importance to the persuasiveness of ads as well.

Another limitation of this study could be that well-known brands were used. Prior experiences and attitudes might have affected the responses of the participants. Nevertheless, effects were found on *brand attitude,* so prior experiences with the brand possibly did not

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affect the findings that much. Since the study was limited to just two *processing times* (2 or 6 seconds), it is unknown whether e.g. just one second or unlimited processing time could have influenced the effects. This study found that two seconds is already enough time for the viewers to report that they generated thoughts about the ad (*cognitive elaboration*). A possible explanation for this could be that people paid full attention to the ads because they participated in a questionnaire and were asked to do so. When you are asked to pay attention to an ad, you may be more alert and tend to generate thoughts on why you should pay attention. In addition, participants knew in advance that they had to answer questions about the ads afterward. Therefore, the motivation to process the ad was probably higher in this experimental condition than in reality. Both Phillips and McQuarrie (2004) and Petty and Cacioppo (1986) stated that the motivation to process could be a moderating factor to persuasion. Furthermore, a learning effect might have affected the self-reported *cognitive elaboration* because the participants saw six advertisements in a row. After the first ad, the participants may have been more aware of their own generation of thoughts because they had already seen the questions they had to answer. Further empirical research might explore the influence of *processing time* in a different way. Considerably more work will need to be done to determine whether processing time is of influence in visual rhetoric in advertisements.

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Link:
https://tilburghumanities.eu.qualtrics.com/jfe/preview/SV_3a4JUiEH2nQky1f?Q_CHL=preview

A. Demographics (Gender, Age, Education level)

1. I am a...
    o   Male
    o   Female

2. What is your age?

3. What is the highest degree or level of education you have completed?
    o   Elementary School
    o   Pre-vocational education
    o   Intermediate vocational education
    o   Higher secondary education
    o   Higher vocational education / Associate's degree (University of Applied Sciences)
    o   Bachelor's degree of science (University)
    o   Master's degree
    o   Ph.D. degree

B. 6x Ad (Source credibility, Cognitive elaboration, Ad attitude, Brand attitude)
Extra variables: Perceived Meaning, Aptness of 2nd object given product/topic, Perceived strength of relation between objects

ATTENTION: Ready for the ad?

On the next page you will see the ad briefly, so pay attention. Good luck!
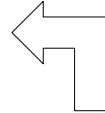
4. The ad was... (5 point scale)

- Not meaningful – Meaningful
- Not credible – Credible
- Not trustworthy – Trustworthy

5. To what extent do you agree with the following statements?
   (strongly agree – strongly disagree, 5 point scale)

- I had many thoughts in response to the ad
- The ad elicited lots of thinking
- I understand why the product is connected to this object/person
- I think the relation between the product and object/person is strong
- The ad is original
- The ad is well designed
- The ad is creative

6. I think the ad was... (5 point scale)

- Bad – Good
- Unpleasant – Pleasant
- Unappealing – Appealing

7. I think the brand of the ad was... (5 point scale)

- Bad – Good
- Unpleasant – Pleasant
- Unappealing – Appealing
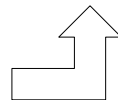
C. 6x Ontology or relation and the difference between Type I or II advertisement

8. Which sentence do you think fits best the gist of the ad?
    o The energetic woman **is like** a tired woman
    o The energetic woman **is** a tired woman
    o The energetic woman **was like** a tired woman
    o The energetic woman **was** a tired woman

9. Which sentence do you think fits best the gist of the ad?
    o The Lego brick **is like** a dinosaur
    o The Lego brick **is** a dinosaur
    o The Lego brick **will become like** a dinosaur
    o The Lego brick **will become** a dinosaur

10. Which sentence do you think fits best the gist of the ad?
    o The lazy boy **is like** an athlete
    o The lazy boy **is** an athlete
    o The lazy boy **will become like** an athlete
    o The lazy boy **will become** an athlete

11. Which sentence do you think fits best the gist of the ad?
    o The truck **is like** a rodeo horse
    o The truck **is** a rodeo horse
    o The truck **will become like** a rodeo horse
    o The truck **will become** a rodeo horse

12. Which sentence do you think fits best the gist of the ad?
    o The man on the scooter **is like** an energetic cyclist
    o The man on the scooter **is** an energetic cyclist
    o The man on the scooter **will become like** an energetic cyclist
    o The man on the scooter **will become** an energetic cyclist

13. Which sentence do you think fits best the gist of the ad?
    o The mobile phone **is like** an SLR camera
    o The mobile phone **is** an SLR camera
    o The mobile phone **will become like** an SLR camera
    o The mobile phone **will become** an SLR camera

Appendix II: Stimuli

Ad 1: Powerbar (Type II: Rhetorical Shadow, Juxtaposition, Verbal Anchoring)
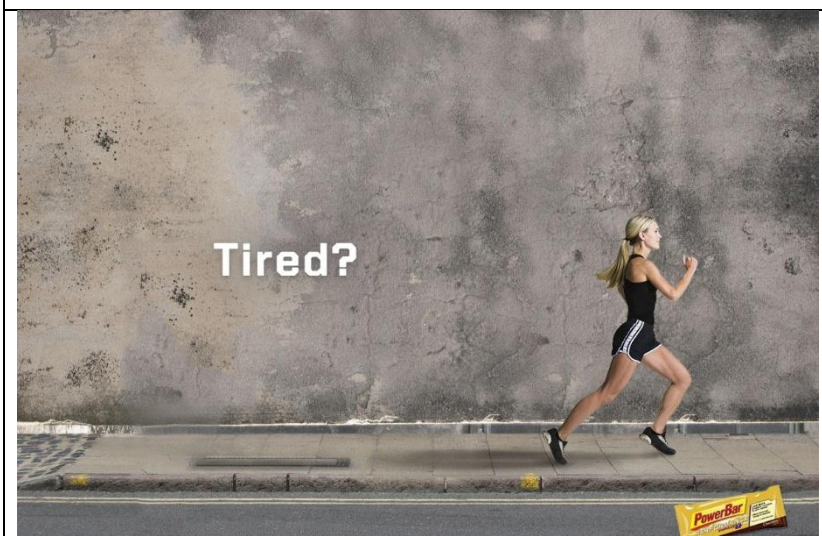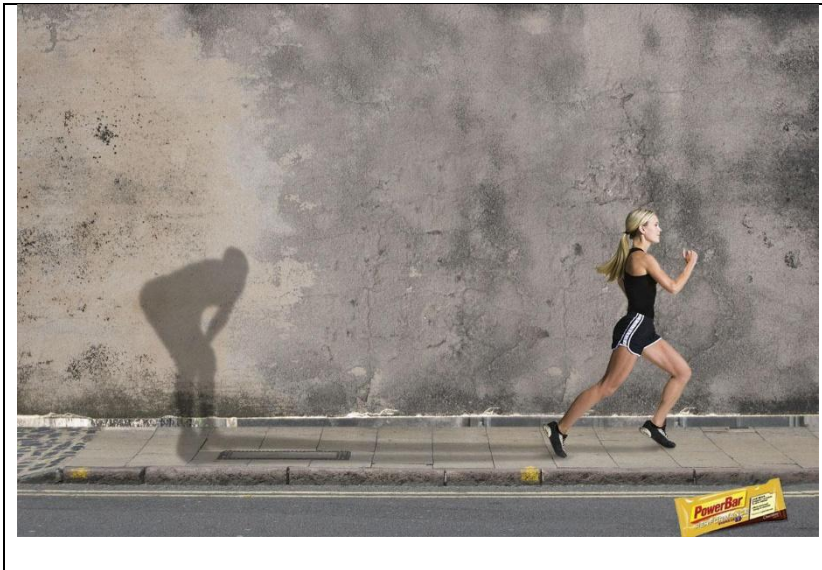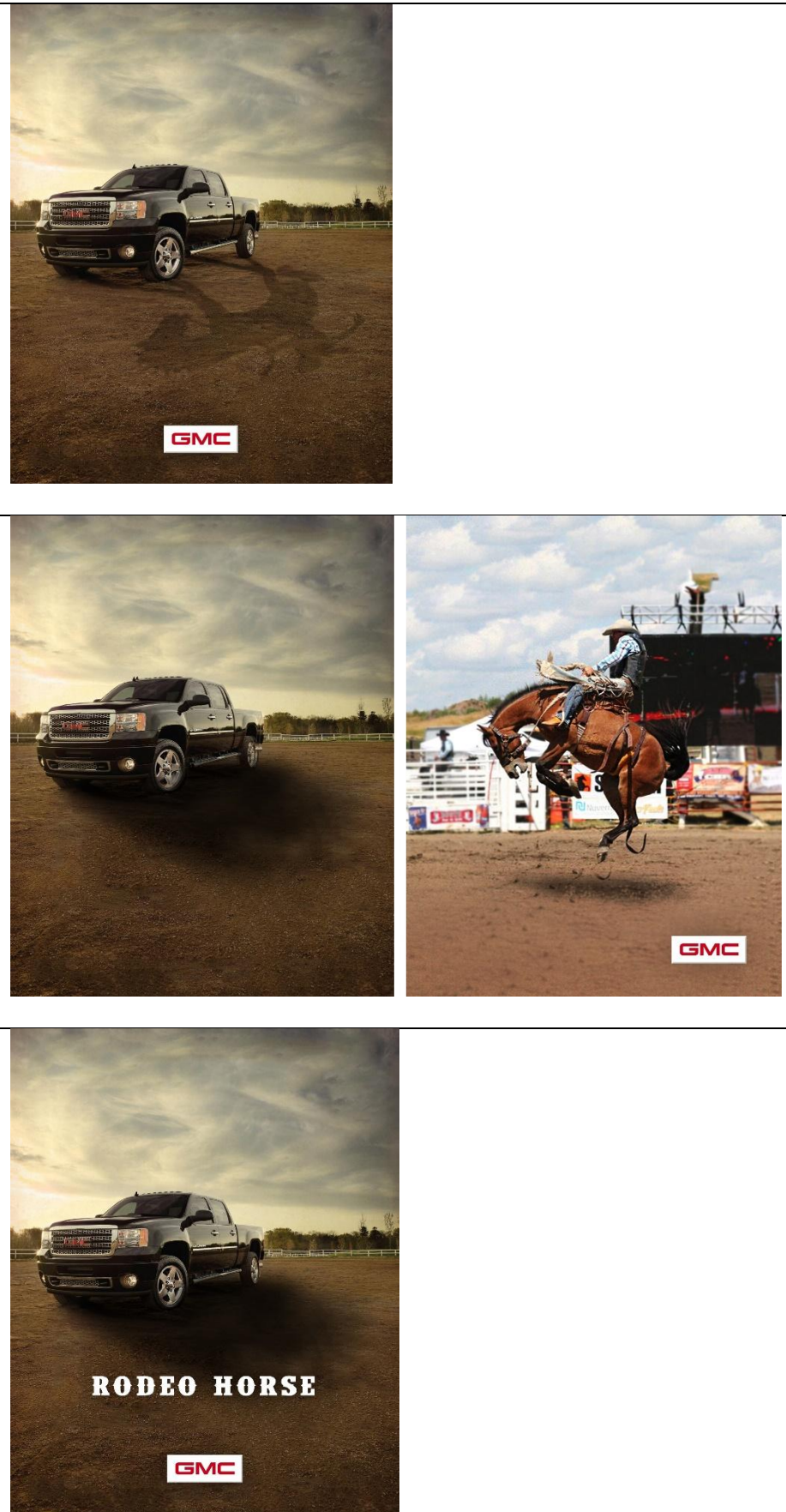
Ad 2: Lego (Type I: Rhetorical Shadow, Juxtaposition, Verbal Anchoring)
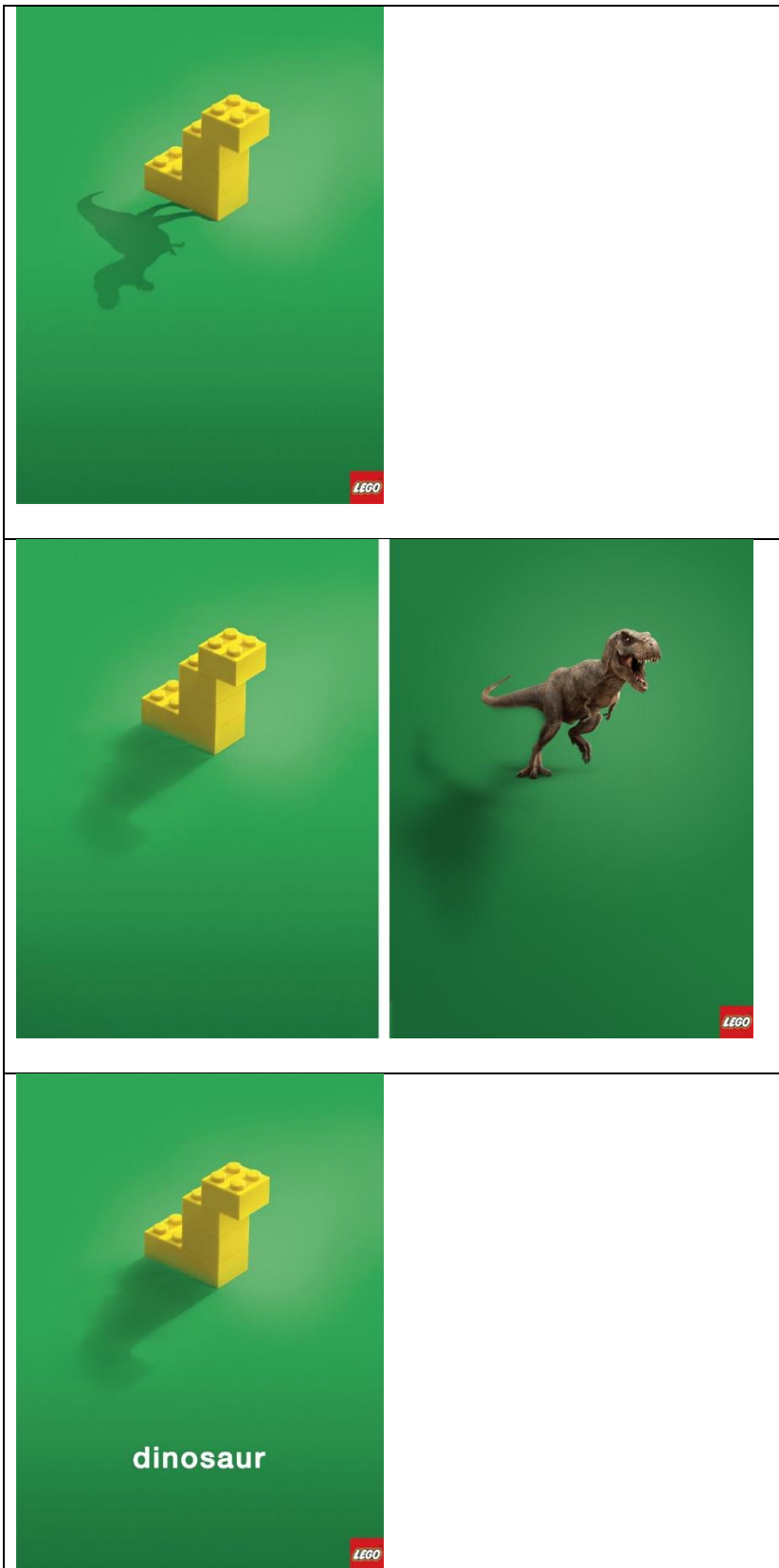
Ad 3: Body&Fit (Type II: Rhetorical Shadow, Juxtaposition, Verbal Anchoring)

Ad 4: GMC (Type I: Rhetorical Shadow, Juxtaposition, Verbal Anchoring)

Ad 5: Gatorade (Type II: Rhetorical Shadow, Juxtaposition, Verbal Anchoring)

Ad 6: Motorola (Type I: Rhetorical Shadow, Juxtaposition, Verbal Anchoring)