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Gendering conversational humor in advertising: an evolutionary explanation of the effects of spontaneous versus canned humor

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ABSTRACT

In this paper, we rely on evolutionary psychology to examine how the use of spontaneous versus canned humor affects response to advertising among male and female consumers. The results of three experimental studies indicate that response to advertising varies as a function of the type of humor employed and the gender of the message recipient: women's responses to spontaneous humor are more positive than to canned humor, while men's responses are unaffected by humor type. The interactive effect is mediated by the perceived humorousness of the ad, and the message recipient's interest in pursuing romantic activities increases the effect on perceived humorousness. These results contribute to advertising research by providing an evolutionary explanation for gender-specific responses to humorous advertising.

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Introduction

Humor represents an important and widely adopted advertising tool. In 2003, 2004, and 2005, the top 10 Super Bowl commercials utilized humor (Gulas and Weinberger 2006), and the percentage of award-winning advertisements incorporating humor increased from 21% in the 1920s to 66% in the 2000s (Weinberger et al. 2015). While the literature provides strong evidence that humor in advertising is a very effective tool for influencing consumers, its effectiveness varies across consumer groups. In particular, men and women differ in their receptiveness and responses to humorous advertising, as has been shown in the extant literature (Weinberger and Gulas 1992; Whipple and Courtney 1981).

The interactions between humor and gender in prior studies indicate gender-specific responses to humor conditions. However, findings from these studies are contradictory. Some papers report that men respond more positively to humorous ads, in comparison to women (Lammers et al. 1983; Madden and Weinberger 1982; Madden

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and Weinberger 1984; Whipple and Courtney 1980). In contrast, Eisend et al. (2014) indicated that humorous ads produce a greater increase in the attitudinal measures of advertising response for women than for men. In contrast to these results, Eisend (2007) did not find any gender differences in a meta-analytic study of humorous effects in advertising.

In the current study, we provide an explanation for gender-specific responses to humor in advertising. We focus on conversational humor (eg wittiness, sarcasm), which is the most frequent cause of laughter in natural social interactions, as opposed to unintentional humor (eg physical or linguistic accidents that provoke laughter or mirth) (Martin and Kuiper 1999). We draw on evolutionary psychology and suggest that gender-specific differences in responses to conversational humor depend on the use of different humor types and their function as an indicator of mental fitness and a signal of good genes. More specifically, we argue that ads containing canned humor (ie 'prepackaged humorous anecdotes that people memorize and pass on to one another', Martin 2007, 11) are a bad signal, while spontaneous humor that occurs more naturally during the course of a social interaction increases women's reactions toward it.

The study contributes to advertising research by suggesting that differences in humor types can explain gender-specific responses to conversational humor in advertising. It further substantiates the application and usefulness of an evolutionary explanation for humor effects in advertising, an explanation that was largely neglected in prior research on humor in advertising (Eisend 2018). The paper further contributes to advertising practice in that the results aid in designing advertisements that address the humor preferences of the targeted gender.

Theoretical background

Effects of spontaneous *humor* as an evolutionary signal

Evolutionary psychology represents a meta-framework for the study of human behaviour, postulating that the human mind has evolved to provide solutions to recurring adaptive problems (Cary 2000; Cosmides and Tooby 2000; Martel 2013). At the heart of it is the distinction between proximate and ultimate levels of explanation (Confer et al. 2010; Kenrick et al. 2010a). Proximate causes imply causal explanations that are relatively up-close and have immediate influences – what people are presently feeling and thinking. They give answer to the question of how a phenomenon is happening. Ultimate causes involve functional explanations that are considered more distant and consumers are oftentimes unaware of them (Barrett and Kurzban 2006). They give answer to the question of why a phenomenon is happening by exploring its adaptive utility. An essential observation of evolutionary psychologists is that behaviour always has both proximate and ultimate causes. Hence, in order to provide a full explanation of a behaviour, scholars need to investigate both causes (Tinbergen 1963). Yet, most research in the fields of consumer studies and the social sciences has been conducted at the proximate level (Saad 2017). According to Griskevicius and Kenrick (2013), while innumerable motives can explain behaviour at the proximate level, there is a much smaller set of motives that behaviour might serve at the ultimate level. These motives

are related to distinct domains, such as disease avoidance, mate acquisition, and kin care (Kenrick et al. 2010b). Due to its meta nature, evolutionary psychology represents a very broad and complex field of research, where individual studies focus on one or two domains. For instance, Griskevicius et al. (2006) examined self-protection and mate acquisition. In line with previous research, we concentrate on mate acquisition.

While in some domains gender-specific behavioural adaptations are not expected, in other domains biological differences in the two genders might lead to such adaptations (Vyncke et al. 2009). For example, in the mating domain, females are expected to be more discriminating in their choice of mate since they provide a greater minimally required parental investment (eg potential pregnancy and child care, Baumeister and Vohs (2004) and Trivers (1972). When evaluating prospective mates, females pay increased attention to cues that signal fitness and good genes (Buss and Schmitt 1993; Darwin 1871). According to Miller (2007), humor, among other human capacities, has evolved through mate choice as a costly and reliable mental fitness indicator and signal of good genes. The ability to produce humor has been argued to be genetically embedded in humans (Caron 2002; Gervais and Wilson 2005), and has been demonstrated to be heritable (Vernon et al. 2008) and related to intelligence and good mental health (Greengross and Miller 2011; Howrigan and MacDonald 2008). Males are expected to use humor to display good genes to females who are in the evaluator role, since suboptimal mating exacts a higher cost from women (Bressler and Balshine 2006; Bressler et al. 2006; Wilbur and Campbell 2011).

Yet, in order for humor to serve as an honest indicator of mental fitness and good genes, it needs to be hard to fake (Klasios 2013). In this way, a female can discriminate between potential mates that honestly signal good genes and those that do not possess the preferred traits. Hence, when examining conversational humor, one can differentiate between humor of the spontaneous type and humor of the canned type (Martin 2007). Spontaneous humor fulfils the criteria for indicating good genes in that it requires a great amount of cognitive energy by employing 'language skills, theory-of-mind, symbolism, abstract thinking, and social perception' and is considered 'humankind's most complex cognitive attribute' (Polimeni and Reiss 2006, 348). Canned humor, on the other hand, does not require a lot of cognitive energy, since it only involves the mere memorization of jokes (eg that have been told by others) and their subsequent repetition. Canned humor does not require the attributes, described by Polimeni and Reiss (2006), that allow an individual to come up with spot-on jokes that fit the context.

The arguments thus far suggest that women might react toward spontaneous humor more positively (ie show more positive attitudes toward a humorous ad) than toward canned humor. Since men are less discriminating in their choice of mate, preferences for and responses to the two humor types might be less pronounced. The evolutionary account suggests that women's primary response to humor as a fitness indicator and signal of good genes is the differential evaluation of humor (Greengross and Miller 2011). This leads to other evaluations, such as evaluation of the ads in an advertising context. Advertising research further suggests that humor evaluation is positively related to the response to ads and, in turn, to brands (Eisend 2009).

Perceived humor has been highlighted in a plethora of studies as an important mediator in humorous advertising processing (Rauwers et al. 2018; Yoon 2016; Yoon and Kim 2014; Yoon and Lee 2018). We therefore include perceived humor as a mediator in the present research and suggest that: response to ads containing either humor type depends on the gender-specific evaluation of the humorousness of the ad: women (compared to men) find spontaneous humor more humorous than canned humor and respond accordingly. Given these arguments, we hypothesize that in advertisements depicting mating situations:

H1: Gender and humor type interact to affect response to advertising such that ads containing spontaneous humor compared to ads containing canned humor produce a greater increase in response to advertising for women compared to men.

H2: The interactive effect of gender and humor type on response to advertising is mediated by perceived humorousness of the ad.

Pursuing romantic activities as a moderator of the effect of spontaneous *humor*

A central tenet of evolutionary psychology is that the problems the human mind has evolved to solve can be mapped to fundamental motivational systems that help in solving each challenge. An evolutionary system can be activated by internal cues (eg hormonal fluctuations) or external cues (eg exposure to stimuli). When such a system is active, it shapes preferences and decision-making processes (Griskevicius and Kenrick 2013; Rosenberg and Tunney 2008). For example, by priming consumers with motivation either for self-protection or for pursuing a romantic mate, Griskevicius et al. (2006) demonstrated how consumers' choice between car brands shifts. When primed with a self-protection motive, consumers choose the option presented as the choice of the majority of other consumers (ie a 'strength in numbers' response that supports self-protection). When primed with a mating motive, consumers choose the option presented as the choice of a minority of other consumers (ie a 'desire to stand out' response that supports mating success).

If the evolutionary explanation we suggest here holds, the hypothesized interactive effect of gender and humor type on perceived humorousness of the ad as the primary reaction toward humor as an evolutionary signal may be conditional on individual's current interest in pursuing romantic activities. A low interest should represent a boundary condition that suppresses the suggested effect. The suggested interaction effect between humor type and gender appears only when interest in pursuing romantic activities is high.

H3: The interactive effect of gender and humor type on perceived humorousness of the ad is moderated by interest in pursuing romantic activities such that the likelihood for the interaction effect between gender and humor type (ie women's perception of humor, compared to men's, is higher for spontaneous humor versus canned humor) increases with interest in pursuing romantic activities.

Figure 1 depicts the conceptual model that underlies our research.

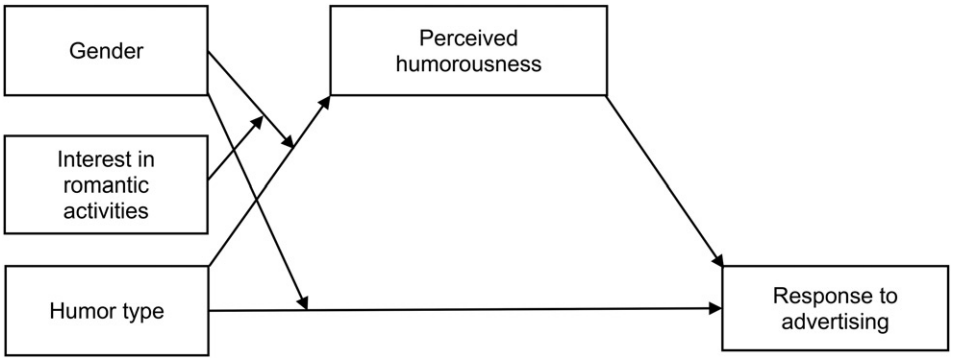


Figure 1. Conceptual model.

The role of the source of *humor*

According to evolutionary psychology, men are less discriminating and more likely to approach opposite-sex individuals (Trivers 1972). Verbal humor, as one way in which one signals one's mating value (ie good genes), is more likely to come from a male rather than a female source. This premise has found support in advertising research, where Eisend et al. (2014), by means of a content analysis, demonstrated that in humorous advertisements men are more likely to be the source of humor compared to women. Prior research has also indicated that the gender of the source of humor can impact response measures, such as credibility (Bryant et al. 1980). However, it remains unclear how often male and female sources of humor in advertising make use of spontaneous and canned humor types. Moreover, it is unclear whether consumers can differentiate between humor types, when the same joke (either spontaneous or canned) is delivered by a male or a female source. If evolutionary psychology applies, then the distinction between canned and spontaneous humor should only be relevant as a fitness indicator and signal of good genes when the source of humor is male. Because we do not know whether perception of humor type (whether someone recognizes that a joke is canned vs. spontaneous) differs across the source of humor (gender of the joke teller) and gender of recipients, we formulate the following research question:

RQ: Does the perception of humor type differ across the source of humor and gender of recipients?

The answer to the research question should provide further evidence for the evolutionary account and specify the underlying mechanism that explains the effects of spontaneous versus canned humor in advertising.

Overview of the present research

To test the hypotheses and answer the research question, we conducted three experimental studies. Study 1 addresses the research question and the first and second hypotheses using a three-factor between-subject experimental design with humor type (spontaneous vs. canned vs. no humor) and source of humor (female vs. male) as manipulated factors, and gender (female vs. male) as a measured factor. Study 2

replicates the results of study 1 related to the male source and introduces interest in pursuing romantic activities as another moderator and potential boundary condition for the hypothesized interactive effect of gender and humor type on perceived humorousness. Study 2 follows a three-factor between-subject experimental design with humor type (spontaneous vs. canned) as a manipulated factor, and gender (female vs. male) and interest in pursuing romantic activities as measured factors. To provide further support for our hypotheses, study 3 follows and replicates the experimental design of study 2 with different advertising stimuli (Judd et al. 2017; Wells and Windschitl 1999). Following prior research, participants' age in the three studies was restricted to 50 years old, because our paper focuses on consumers that can adequately engage in reproductive behaviours (Buss and Schmitt 1993; Kawamoto 2015; Kenrick et al. 1995).

Study 1

Participants

A total of 289 participants (49% female, mean age of 32.23 years) were recruited through Amazon's Mechanical Turk (MTurk) platform and were randomly assigned to one of six experimental conditions.

Design and procedure

The study had a 3 (humor type: spontaneous vs. canned vs. no humor) × 2 (source of humor: female vs. male) × 2 (gender: female vs. male) between-subject design. Humor type and source of humor were manipulated through the use of six ad storyboards created for the purpose of the study. An existing ad for Carls beer was used and modified to reflect the six conditions (see Figure 2). A beverage was chosen as a product category, since humor is predominately employed for low-risk, less expensive products rather than for high-end products (Scharrer et al. 2006). Humor type was manipulated by altering the joke that was used, while source of humor was manipulated by changing the gender of the character who tells the joke. All other elements remained the same.

Measures

Response to advertising was operationalized through a five-item, seven-point attitude toward the ad scale ($\alpha = .96$), borrowed from Mitchell and Olson (1981). A one-item, seven-point semantic measure with endpoints 'canned' and 'spontaneous' was used to assess perceived humor type. A three-item, seven-point scale of perceived humorousness of the ad was borrowed from Cline et al. (2003) ($\alpha = .97$).

Results

The results of an analysis of variance (ANOVA) with the scale measuring perceived humorousness of the ad as the dependent variable and humor type as the fixed factor revealed a statistically significant positive effect of humor type on perceived humorousness of the ad ($M_{canned} = 4.24$; $M_{spontaneous} = 4.14$; $M_{no\ humor} = 3.49$; $F(2, 286) = 4.24$; $p = .02$). Post-hoc analysis (Levene's test $F = 1.86$, $p = .16$) with the Tukey test

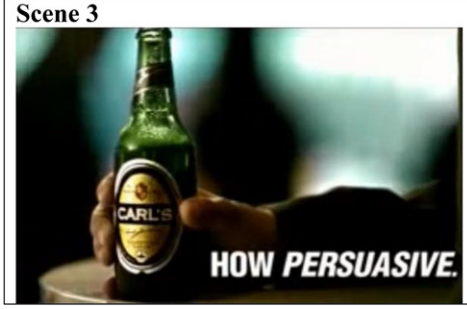
Male source	Female source
Scene 1  A man in a bar notices an attractive woman. The man approaches the woman.	**Scene 1**  A woman in a bar notices an attractive man. The woman approaches the man.
Scene 2  a) Canned humor: The man says: ´Tell me, do you believe in love at first sight, or should I walk by again?´ b) Spontaneous humor: The woman says: ´I gotta warn ya, every man I've ever gone out with has been ruined.´ The man says: ´Well, that's what they get for messing with my girl.´ c) No humor: The man says: ´I saw you across the room and knew I had to meet you. What's your name?´	**Scene 2**  a) Canned humor: The woman says: ´Tell me, do you believe in love at first sight, or should I walk by again?´ b) Spontaneous humor: The man says: ´I gotta warn ya, every woman I've ever gone out with has been ruined.´ The woman says: ´Well, that's what they get for messing with my boy.´ c) No humor: The woman says: ´I saw you across the room and knew I had to meet you. What's your name?´
Scene 3 	**Scene 3** 

Figure 2. Experimental stimuli (study 1 and study 2). Source: Authors.

indicated that the spontaneous humor ad is more humorous than the nonhumorous ad ($p = .05$), that the canned humor ad is more humorous than the nonhumorous ad ($p = .02$), and that the spontaneous humor and canned humor ads did not differ in

perceived humorousness ($p = .93$). Since the paper focuses on differences between humor types, in the following we restrict the analysis to the two humorous conditions and drop the nonhumorous condition.

Next, we applied a $2 \times 2 \times 2$ ANOVA to the semantic perceived humor type measure with endpoints 'canned' and 'spontaneous' as a dependent variable, and humor type (spontaneous vs. canned), gender (female vs. male), and source of humor (female vs. male) as fixed factors. The analysis revealed a main effect of humor type ($M_{canned} = 3.12$; $M_{spontaneous} = 3.64$; $F(1, 184) = 3.70$; $p = .05$) that confirms the humor type manipulation and an interaction effect of humor type and source of humor ($F(1, 184) = 4.08$; $p = .04$). There were no other main or interaction effects. Pairwise comparisons with a Bonferroni correction demonstrated that participants could only differentiate between the two humor types when the source of humor in the advertisement was male ($M_{canned;\ male\ source} = 3.04$; $M_{spontaneous;\ male\ source} = 4.09$; $F(1, 98) = 8.11$; $p < .01$; see Figure 3), but not when the source of humor was female ($M_{canned;\ female\ source} = 3.21$; $M_{spontaneous;\ female\ source} = 3.18$; $F(1, 86) < .01$; $p = .95$). This result answers our research question and specifies the underlying mechanisms of the evolutionary psychology approach: both female and male consumers distinguish between the two humor types, which provide different signals for good genes only if the source of humor is male. Thus, in the following we restrict the analysis to male sources and drop the stimuli with female sources. An additional analysis including source of humor as an independent variable can be found in Table A1 in the Appendix.

To test H1, participants' responses to the advertisements were analyzed using a 2×2 ANOVA with gender (G), humor type (H), their two-way interaction as independent variables, and attitude toward the ad as a dependent variable. The analysis revealed no main effects, but did support the predicted gender by humor type interaction on attitude toward the ad ($F(1, 98) = 7.54$; $p < .01$). We found that for women, ads containing spontaneous humor compared to ads containing canned humor increased attitude toward the ad ($M_{spontaneous;\ female} = 4.89$; $M_{canned;\ female} = 3.72$; $t\ [43] = 2.42$, $p = .02$; see Figure 4). For men, there was no difference in attitude toward the ad between ads containing spontaneous humor and ads containing canned humor ($M_{spontaneous;\ male} = 4.21$; $M_{canned;\ male} = 4.80$; $t\ [55] = 1.39$, $p = .17$). Thus, H1 is supported.

To test H2, participants' responses to the advertisements were analyzed using Hayes' (2013) PROCESS Model 8 (moderated mediation) with 5000 percentile bootstrapped samples with gender (G), humor type (H), and their two-way interaction as independent variables. Perceived humorousness of the ad served as a mediator variable and attitude toward the ad served as a dependent variable. The analysis revealed main effects of humor and gender that are qualified by the predicted interaction of gender by humor type on perceived humorousness. Perceived humorousness fully mediated the two-way interaction for attitude toward the ad (moderated mediation index = 1.33, boot SE = .54, 95% boot CI [.31, 2.42]; see also Table 1). Thus, H2 is supported. We conducted an additional analysis in which we included the conditions where the source of humor is female (the condition where participants could not differentiate between the two humor types). The results did not support the interaction of gender by humor type on perceived humorousness, which is in line with our predictions (see Table A1 in the Appendix).

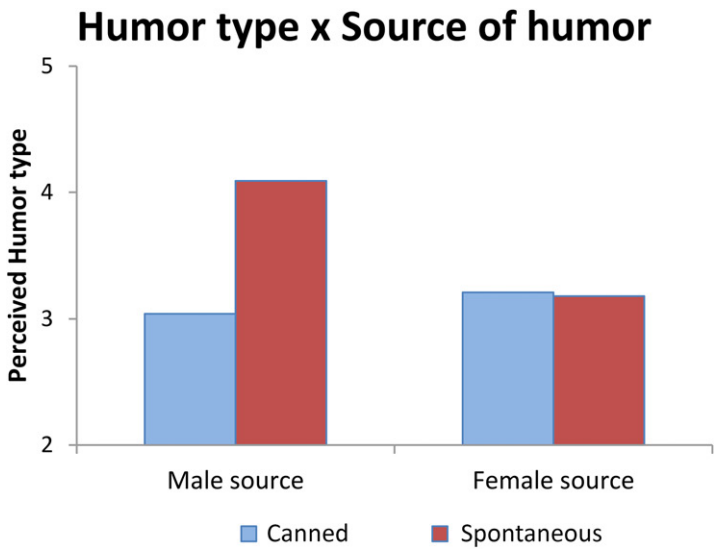


Figure 3. Interaction effect of source of humor and humor type for perceived humor type (study 1).

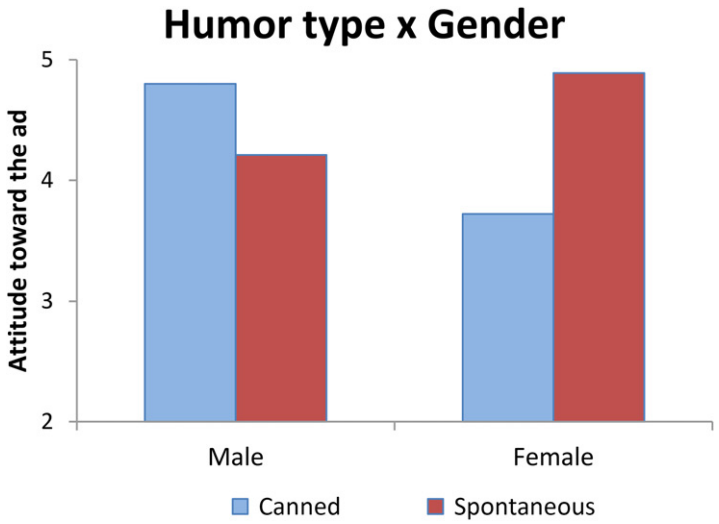


Figure 4. Interaction effect of gender and humor type for attitude toward the ad (study 1).

Study 2

Participants

A total of 257 participants (52% female, mean age of 33.37 years) were recruited through Amazon's MTurk platform and were randomly assigned to one of two experimental conditions.

Design and procedure

Study 2 follows a three-factor between-subject experimental research design with humor type (spontaneous vs. canned) as a manipulated factor, gender (female vs.

Table 1. Tests of moderated mediation (study 1; $n = 102$).

	Perceived humorousness			Attitude toward the ad		
Independent variables	Unstandardized coefficient	Standard error	t	Unstandardized coefficient	Standard error	t
Constant	8.51	1.80	4.73**	2.17	.93	2.34*
Humor type (H)	−2.45	1.15	−2.14*	−.59	.55	−1.09
Gender (G)	−3.06	1.19	−2.58*	−.66	.57	−1.16
H × G	1.87	.75	2.49*	.42	.36	1.17
Perceived humorousness	–		–	.71	.05	15.13**

$+p < .1$;
$^{*}p < .05$;
$^{**}p < .01$.

male), and interest in pursuing romantic activities (a continuous variable) as measured factors. Humor type was manipulated as in study 1, using the male source only.

Measures

In order to bolster the implications of our research, study 2 included additional dependent variables related to advertising response. Besides attitude toward the ad ($\alpha = .95$), we measured attitude toward the brand on a four-item, seven-point scale ($\alpha = .92$) and purchase intention on a one-item, seven-point scale where participants indicated the likelihood of purchasing the product on an instrument with endpoints 'very unlikely' and 'very likely'. The scales assessing response to advertising were borrowed from Mitchell and Olson (1981). The perceived humorousness of the ad ($\alpha = .97$) and perceived humor type measures from study 1 were also employed.

To test the moderating effect of interest in pursuing romantic activities, as suggested in H3, the study used a measure from Lee et al. (2017) that assesses interest in pursuing romantic activities on a one-item, seven-point scale with the statement 'How currently motivated are you to pursue romantic/sexual activities?' and endpoints 'not at all' and 'extremely'. The item was embedded within several filler items inquiring about subjects' motivation to pursue a wide range of activities (eg academic activities, charitable activities, artistic activities).

Results

Consistent with H1 and H2 and replicating study 1 results, participants' responses to the advertisements were analyzed using ANOVA with gender (G), humor type (H), and their two-way interaction as independent variables, and attitude toward the ad as a dependent variable. The analysis revealed a main effect of humor type ($F(1, 253) = 4.03$; $p = .05$), qualified by the predicted gender by humor type interaction ($F(1, 253) = 10.62$; $p < .01$). Post-hoc analysis shows that for women, ads containing spontaneous humor compared to ads containing canned humor increased attitude toward the ad ($M_{\text{spontaneous; female}} = 4.64$; $M_{\text{canned; female}} = 3.65$; $t\ [133] = 4.09$, $p < .01$; see Table 2). For men, there were no differences in attitude toward the ad for ads containing spontaneous humor and ads containing canned humor ($M_{\text{spontaneous; male}} = 4.09$; $M_{\text{canned; male}} = 4.32$; $t\ [120] = .81$, $p = .42$).

The same analysis was performed for attitude toward the brand and purchase intention. It revealed no main effects. The gender by humor type interaction was significant for attitude toward the brand and marginally significant for purchase intention

Table 2. Interaction effect of gender and humor type (study 2; $n = 257$); means and standard deviations.

	Gender					
	Male			Female		
	Humor type			Humor type		
Dependent variable	Canned	Spontaneous	*t*	Canned	Spontaneous	*t*
Attitude toward the ad	4.32 (.20)	4.09 (.21)	.81	3.65 (.17)	4.64 (.17)	4.09**
Attitude toward the brand	4.35 (.17)	4.04 (.18)	1.26	4.09 (.14)	4.57 (.15)	2.36*
Purchase intention	3.46 (.25)	3.14 (.24)	.35	2.64 (.19)	3.16 (.22)	1.71+

+$p < .1$;
*$p < .05$;
**$p < .01$.

(attitude toward the brand: $F(1, 253) = 6.21$; $p = .01$; purchase intention: $F(1, 253) = 3.38$; $p = .07$). Post-hoc analysis showed that for women, ads containing spontaneous humor compared to ads containing canned humor led to a significant increase in attitude toward the brand ($M_{spontaneous;\ female} = 4.57$; $M_{canned;\ female} = 4.09$; $t\ [133] = 2.36$, $p = .02$; see Table 2) and to a marginally significant increase for purchase intention ($M_{spontaneous;\ female} = 3.16$; $M_{canned;\ female} = 2.64$; $t\ [133] = 1.71$, $p = .09$; see Table 2). For men, there were no differences for ads containing spontaneous humor and ads containing canned humor (attitude toward the brand: $M_{spontaneous;\ male} = 4.04$; $M_{canned;\ male} = 4.35$; $t\ [120] = 1.26$, $p = .21$; purchase intention: $M_{spontaneous;\ male} = 3.14$; $M_{canned;\ male} = 3.46$; $t\ [120] = .93$, $p = .35$).

In addition to replicating and extending the findings of study 1, study 2 assessed the moderating effect of interest in pursuing romantic activities. To test H3, participants' responses to the advertisements were analyzed using Hayes' (2013) PROCESS Model 12 (moderated mediation) with 5000 percentile bootstrapped samples with humor type (H), gender (G), interest in pursuing romantic activities (R), and their interactions as independent variables. Perceived humorousness of the ad served as a mediator variable for the three-way interaction effect. We ran four separate models to assess the moderated mediation. We first ran a model that tested the main effect of humor type, gender, and interest in pursuing romantic activities, as well as their two-way and three-way interaction effects on perceived humor. We then ran the same model for the three advertising response variables and added perceived humor as a mediator. The analysis revealed a marginal main effect of interest in pursuing romantic activities, a marginal significant interaction of gender by interest in pursuing romantic activities, as well as the predicted three-way interaction of humor type by gender by interest in pursuing romantic activities on perceived humorousness of the ad.

A floodlight analysis with the Johnson–Neyman (JN) technique was used to highlight regions in interest in pursuing romantic activities for which the interaction effect of humor type and gender on perceived humorousness was significant (see Table 3). The analysis revealed no significant region for individuals with low levels of interest in pursuing romantic activities. However, the interaction effect emerged for individuals with an interest in pursuing romantic activities above 4.30 (67.70% above the value) (JN point for $p < .05$, $t = 1.96$).

Furthermore, perceived humorousness fully mediated the interaction effect for attitude toward the ad (index of moderated mediation = .30, boot SE = .19, 90% boot CI

Table 3. Floodlight analysis of the interaction effect of gender and humor type for different values of interest in romantic activities (study 2; $n = 257$).

Interest in romantic activities	Unstandardized coefficient	Standard error	LLCI	ULCI	*t*	*p*
1.00	−.52	1.22	−2.93	1.89	−.42	.67
1.30	−.38	1.15	−2.64	1.88	−.33	.73
1.60	−.25	1.07	−2.36	1.87	−.23	.82
1.90	−.11	1.00	−2.07	1.86	−.11	.91
2.20	.03	.92	−1.79	1.85	.03	.97
2.50	.17	.85	−1.51	1.84	.20	.85
2.80	.30	.78	−1.24	1.85	.39	.70
3.10	.44	.72	−.97	1.85	.62	.54
3.40	.58	.65	−.71	1.87	.88	.38
3.70	.72	.60	−.46	1.89	1.20	.23
4.00	.85	.55	−.22	1.93	1.56	.12
4.30	.99	.50	.00	1.98	1.96	.05
4.52	.99	.50	.00	1.98	1.97	.05
4.60	1.13	.47	.20	2.06	2.38	.02
4.90	1.26	.46	.37	2.16	2.78	.01
5.20	1.40	.45	.51	2.29	3.10	.00
5.50	1.54	.46	.62	2.45	3.31	.00
5.80	1.68	.49	.71	2.64	3.41	.00
6.10	1.81	.53	.77	2.86	3.43	.00
6.40	1.95	.58	.81	3.09	3.38	.00
6.70	2.09	.63	.84	3.33	3.30	.00
7.00	2.22	.69	.86	3.59	3.21	.00

[.00, .61]) and purchase intention (index = .25, boot SE = .16, 90% boot CI [.01, .53]), and partially mediated the effect for attitude toward the brand (index = .20, boot SE = .13, 90% boot CI [.00, .42]), as can be seen from the significance level of the three-way interaction effects in Model 2 to Model 4 (see Table 4). The results support H3.

Study 3

Participants

A total of 399 participants (50% female, mean age of 33.72 years) were recruited through Amazon's MTurk platform and were randomly assigned to one of three experimental conditions.

Design and procedure

Study 3 follows a three-factor between-subject experimental research design with humor type (spontaneous vs. canned vs. no humor) as a manipulated factor, gender (female vs. male), and interest in pursuing romantic activities (a continuous variable) as measured factors. Humor type was manipulated through the use of three advertisements created for the purpose of the study. An existing ad for a pick-up truck was used and modified to reflect the three conditions (see Figure 5). All other elements remained the same.

Measures

Study 3 employs the following measures from study 2: attitude toward the ad (α = .96), perceived humorousness of the ad (α = .97), the semantic perceived humor type

Table 4. Tests of moderated mediation (study 2; $n = 257$).

	Model 1			Model 2			Model 3		
	Perceived humorousness			Attitude toward the ad			Attitude toward the brand		
Independent variables	Unstandardized coefficient	Standard error	*t*	Unstandardized coefficient	Standard error	*t*	Unstandardized coefficient	Standard error	*t*
Constant	.33	3.83	.09	3.21	2.04	1.57	.45	2.09	.21
Humor type (H)	1.73	2.53	.68	−1.08	1.35	−.80	1.34	1.38	.97
Gender (G)	2.05	2.28	.90	−.83	1.22	−.68	1.76	1.25	1.41
Interest in romantic activities (R)	1.19	.71	1.67^{+}	−.15	.38	−.40	.49	.39	1.25
H × G	−.98	1.49	−.66	.43	.79	.54	−1.09	.81	−1.34
H × R	−.63	.47	−1.35	.10	.25	.39	−.35	.26	−1.37
G × R	−.78	.43	−1.83^{+}	.02	.23	.07	−.40	.23	−1.69^{+}
H × G × R	.46	.28	1.65^{+}	.00	.15	−.01	.26	.15	1.69^{+}
Perceived humorousness	–		–	.65	.03	21.10**	.44	.03	12.62**

$^{+}p < .1$;
$^{*}p < .05$;
$^{**}p < .01$.

Table 4 (continued.)

	Model 4		
	Purchase intention		
Independent variables	Unstandardized coefficient	Standard error	*t*
Constant	−2.15	3.13	−.69
Humor type (H)	2.02	2.07	.97
Gender (G)	2.14	1.87	1.14
Interest in romantic activities (R)	.80	.59	1.36
H × G	−1.58	1.22	−1.30
H × R	−.47	.39	−1.21
G × R	−.54	.35	−1.55
H × G × R	.33	.23	1.47
Perceived humorousness	.56	.05	10.74**

measure with endpoints 'canned' and 'spontaneous', and the interest in pursuing romantic activities measure.

Results

The results of an analysis of variance (ANOVA) with the scale measuring perceived humorousness of the ad as the dependent variable and humor type as the fixed factor revealed a statistically significant positive effect of humor type on perceived humorousness of the ad ($M_{\text{canned}} = 4.73$; $M_{\text{spontaneous}} = 4.77$; $M_{\text{no humor}} = 4.01$; $F(2, 396) = 6.98$; $p < .01$). Post-hoc analysis (Levene's test $F = 2.57$, $p = .08$) with the Tukey test indicated that the spontaneous humor ad is more humorous than the nonhumorous ad ($p < .01$), that the canned humor ad is more humorous than the nonhumorous ad ($p < .01$), and that the spontaneous humor and canned humor ads did not differ in perceived humorousness ($p = .98$). Since the paper focuses on differences between humor types, in the following we restrict the analysis to the two humorous conditions and drop the nonhumorous condition.

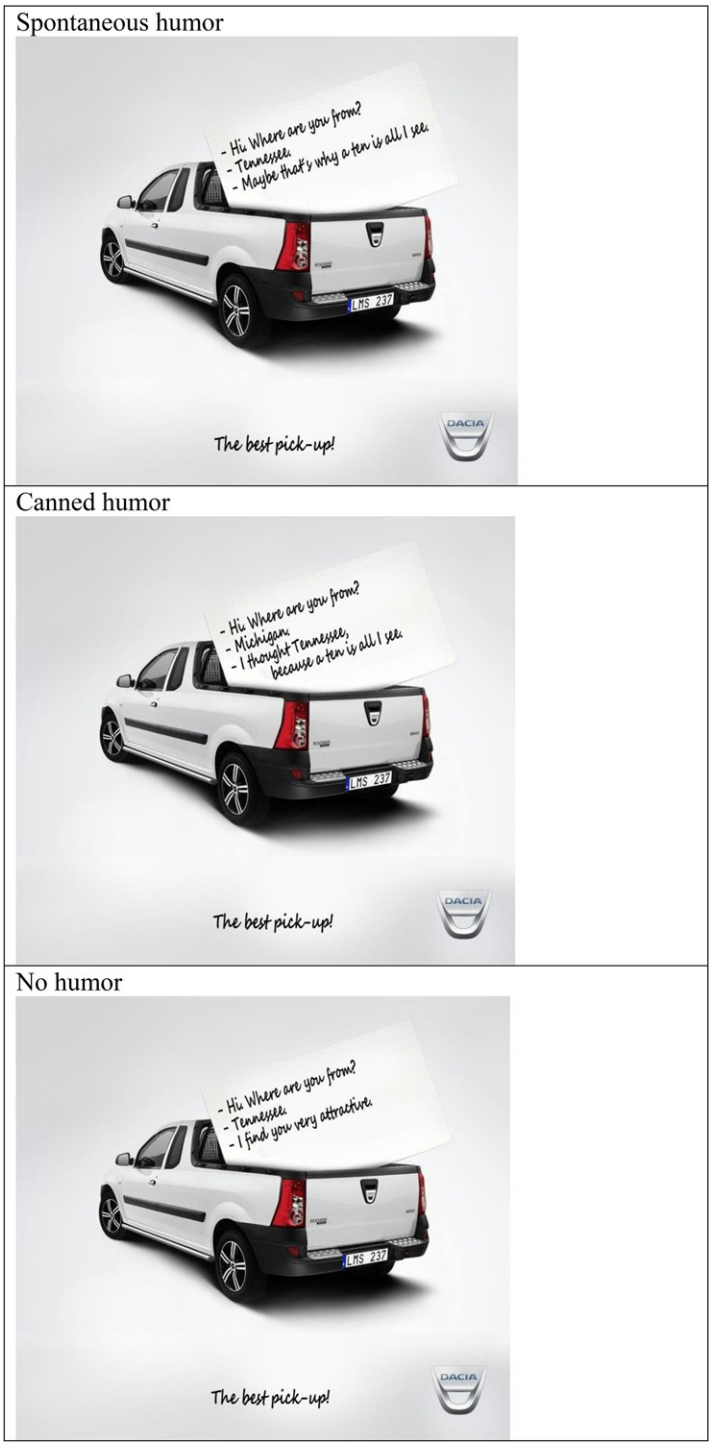


Figure 5. Experimental stimuli (study 3).

Next, we applied an ANOVA to the semantic perceived humor type measure with endpoints 'canned' and 'spontaneous' as a dependent variable, and humor type (spontaneous vs. canned) as a fixed factor. The analysis revealed a main effect of humor type ($M_{canned} = 2.79$; $M_{spontaneous} = 3.32$; $F(1, 264) = 5.30$; $p = .02$) that confirms the humor type manipulation.

Consistent with H1 and H2 and replicating the results from studies 1 and 2, participants' responses to the advertisements were analyzed using ANOVA with gender (G), humor type (H), and their two-way interaction as independent variables, and attitude toward the ad as a dependent variable. The analysis revealed no main effects, but the predicted gender by humor type interaction ($F(1, 262) = 3.93$; $p = .05$). Post-hoc analysis shows that for women, ads containing spontaneous humor compared to ads containing canned humor increased attitude toward the ad ($M_{spontaneous;\ female} = 5.00$; $M_{canned;\ female} = 4.39$; t [138] = 2.47, $p = .02$). For men, there were no differences in attitude toward the ad for ads containing spontaneous humor and ads containing canned humor ($M_{spontaneous;\ male} = 4.51$; $M_{canned;\ male} = 4.68$; t [124] = .55, $p = .58$).

Consistent with H3 about the moderating effect of interest in pursuing romantic activities, we ran the same moderated mediation model as in study 2 with 5000 percentile bootstrapped samples with humor type (H), gender (G), interest in pursuing romantic activities (R), and their interactions as independent variables and attitude toward the ad as a dependent variable. Perceived humorousness of the ad served as a mediator variable for the three-way interaction effect. The analysis revealed a marginal main effect of interest in pursuing romantic activities and a marginal significant interactions of humor type by interest in pursuing romantic activities and of gender by interest in pursuing romantic activities, as well as the predicted three-way interaction of humor type by gender by interest in pursuing romantic activities on perceived humorousness of the ad. Furthermore, perceived humorousness fully mediated the interaction effect for attitude toward the ad (index of moderated mediation = .40, boot SE = .19, 95% boot CI [.03, .76]) (see Table 5).

A floodlight analysis with the JN technique (Spiller et al. 2013) was used to highlight regions in interest in pursuing romantic activities for which the interaction effect of humor type and gender on perceived humorousness was significant (see Table 6). The analysis revealed no significant region for individuals with low levels of interest in pursuing romantic activities. However, the interaction effect emerged for individuals with an interest in pursuing romantic activities above 4.65 (65.41% above the value) (JN point for $p < .05$, $t = 1.96$). The results support H3.

Discussion

The current paper provides two important contributions to advertising research. First, this study underlines and explains the role of gender as a moderating factor for the effects of humor in advertising. Prior research does not elucidate the conditions under which humor does or does not lead to a favourable response for either men or women. By relying on evolutionary psychology, the current paper demonstrates that men and women respond differently to different types of conversational humor in advertising. In particular, we used three studies to show how the use of spontaneous

Table 5. Tests of moderated mediation (study 3; $n = 266$).

	Model 1			Model 2		
	Perceived humorousness			Attitude toward the ad		
Independent variables	Unstandardized coefficient	Standard error	*t*	Unstandardized coefficient	Standard error	*t*
Constant	.28	3.70	.08	1.20	2.07	.58
Humor type (H)	2.42	2.39	1.01	−.46	1.34	−.34
Gender (G)	3.33	2.22	1.50	−.44	1.25	−.36
Interest in romantic activities (R)	1.27	.70	1.83^{+}	−.01	.39	−.03
H × G	−1.79	1.42	−1.26	.44	.80	.55
H × R	−.79	.45	−1.75^{+}	.11	.25	.45
G × R	−.94	.43	−2.20*	.06	.24	.26
H × G × R	.58	.28	2.09*	−.08	.16	−.49
Perceived humorousness	–		–	.69	.03	19.86**

$+p < .1$;
$^{*}p < .05$;
$^{**}p < .01$.

Table 6. Floodlight analysis of the interaction effect of gender and humor type for different values of interest in romantic activities (study 3; $n = 266$).

Interest in romantic activities	Unstandardized coefficient	Standard error	LLCI	ULCI	*t*	*p*
1.00	−1.21	1.16	−3.50	1.08	−1.04	.30
1.30	−1.04	1.09	−3.18	1.11	−.95	.34
1.60	−.87	1.01	−2.86	1.13	−.86	.39
1.90	−.69	.97	−2.54	1.16	−.74	.46
2.20	−.52	.87	−2.23	1.19	−.60	.55
2.50	−.35	.80	−1.92	1.22	−.44	.66
2.80	−.18	.73	−1.61	1.26	−.24	.81
3.10	.00	.67	−1.32	1.31	−.01	1.00
3.40	.17	.61	−1.03	1.37	.28	.78
3.70	.34	.55	−.75	1.43	.62	.54
4.00	.51	.51	−.49	1.52	1.01	.31
4.30	.69	.47	−.25	1.62	1.45	.15
4.52	.86	.45	−.03	1.75	1.90	.06
4.60	.89	.45	.00	1.77	1.97	.05
4.90	1.03	.44	.16	1.91	2.32	.02
5.20	1.20	.45	.31	2.09	2.67	.01
5.50	1.38	.47	.44	2.31	2.91	.00
5.80	1.55	.51	.55	2.55	3.05	.00
6.10	1.72	.55	.63	2.81	3.11	.00
6.40	1.89	.61	.70	3.09	3.13	.00
6.70	2.07	.66	.76	3.38	3.11	.00
7.00	2.24	.73	.81	3.67	3.07	.00

LLCI/ULCI: lower and upper levels of confidence interval.

versus canned humor increases responses to advertising among female consumers. These findings can help explain mixed results on gender-related differences toward humor in advertising in prior research. While an older meta-analysis on humor in advertising did not find any gender differences (Eisend 2007), presumably because studies with different humor types were integrated in the systematic review, a more recent and larger meta-analysis concluded that women respond better to humor than men (Hornik et al. 2016). However, such generalized effects need to be interpreted with caution, as individual studies clearly show that humor type is an important moderator for gender-related responses toward humor in advertising (Cowan and Little 2013; Schwarz et al. 2015; Vijayalakshmi et al. 2015; Weinberger et al. 2017). For

instance, several studies have shown that violent humor does not work well for women (Swani et al. 2013; Yoon and Kim 2014). This would be in line with the arguments suggested in our study because the use of violence is negatively correlated with intelligence, and thus works as a signal for low mental fitness.

The second contribution of the study is to provide empirical support for an explanation based on evolutionary psychology for humor in advertising. While the theoretical framework has been discussed as a useful approach for advertising research from a conceptual point of view (Eisend 2018; Saad 2008), empirical findings are scarce, and if they exist, they do not relate to an advertising context. The idea that humor is a mental fitness indicator in mate selection explains why men appear more often as humor sources in advertising and why women and men react differently toward spontaneous humor that serves as a mental fitness indicator and as a signal for good genes (Greengross and Miller 2011). Interestingly, females could differentiate the humor types only when the source was male and not when the source was female, perhaps because the two genders use different signals of genetic fitness, with humor predominantly being used by males. This could further explain the inability of males to differentiate the humor types when the source was female. Possibly, males evolved to value other signals of genetic fitness in females. Yet, males could differentiate the humor types when the source was male, presumably to evaluate competitors in the process of intrasexual competition over a potential mate (Buss and Schmitt 1993).

Besides the discussed academic contributions, the results of the study are considered of high relevance for advertising practice. Since gender of the target market is easy to determine, advertising managers who plan to incorporate humor in their communication efforts are advised to adopt a humor type that will best resonate with the message recipient's gender. For a female audience, the implementation of spontaneous humor is recommended (ie jokes that are genuine and spot-on). In addition, since moderate to high interest in pursuing romantic activities has been demonstrated to have a positive effect when spontaneous humor is utilized among a female audience, advertising managers might use consumer behaviour to draw inferences about consumer interest in pursuing romantic activities. For example, visits to dating and other websites related to mating, and exposure to television programmes related to mating (eg 'The Bachelor' TV series) might be indicative of moderate to high interest in pursuing romantic activities. An interest in pursuing romantic activities could also be induced by advertising managers through the employment of cues that trigger a mating motivation within the advertisement.

Future research might explore other advertising elements that can serve as honest or fake signals of mental fitness and good genes and thus influence consumers. For instance, physical beauty is a strong signal from an evolutionary perspective, but can be easily manipulated and faked (eg 'Photoshopped') in advertising. A recent study by Yoon and Lee (2018) that adopted evolutionary psychology as a theoretical foundation opens another pathway to future research. The two scholars demonstrated that gender differences in humorous ad processing might be explained by differences in arousal seeking tendencies of the two genders. Future studies building on the present paper and the work of Yoon and Lee (2018) might want to investigate the interplay between the humor types we highlight and arousal effects.

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Appendix

Table A1. Tests of moderated mediation (study 1; $n = 192$; including source of humor).

	Perceived humorousness			Attitude toward the ad		
Independent variables	Unstandardized coefficient	Standard error	*t*	Unstandardized coefficient	Standard error	*t*
Constant	9.60	4.12	2.33*	2.87	2.23	1.29
Humor type (H)	−2.72	2.60	−1.04	−1.03	1.39	−.74
Gender (G)	−4.09	2.71	−1.51	−1.60	1.45	−1.10
Source of humor (S)	−1.09	2.71	−.40	−.16	1.45	−.11
H × G	2.48	1.73	1.43	1.09	.93	1.18
H × S	.26	1.69	.15	.29	.90	.32
G × S	1.04	1.78	.58	.75	.95	.79
H × G × S	−.60	1.14	−.53	−.55	.61	−.90
Perceived humorousness	–		–	.65	.04	16.50**

$+p < .1$;
$*p < .05$;
$**p < .01$.