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Abstract

Antiheroes are characters that share features with both heroes and villains, typified as selfish and rule-breakers, but who end up doing something good for society. In this research, we examined how priming people with antiheroes (vs. heroes) affected their sensation seeking. We reason that antiheroes (vs. heroes) are more associated with temporally close (vs. past and future) events. Given that sensation seeking is related to being focused on the present (vs. past or future), we hypothesised that if people are primed with antiheroes (vs. heroes) they are more likely to seek sensation. Findings from a series of five experimental studies provide insights into the effect of priming with an antihero on people's sensation seeking, providing directions for future research in psychology and practical applications in the areas of marketing strategy and consumer behaviour.

*Keywords*: heroes, antiheroes, person perception, sensation seeking, temporal focus

# The Breaking-bad Effect: Priming with an Antihero Increases Sensation Seeking

Tony Soprano, Lisbeth Salander, Don Draper, Walter White, Beatrix Kiddo, and Deadpool are examples of characters that caught the attention of large TV and movie audiences and who are often labelled as 'antiheroes' (Bender, 2013; Cusumano, 2015). In novels, the antihero concept has been used since Jane Austen's 1814 novel Mansfield Park, with the character of Henry Crawford described as an antihero (Lauber, 1972). Antiheroes are also present in fashion (e.g., VK Nagrani, Rita Ora for Adidas) and the information technology industry (e.g., Anonymous). Antiheroes are neither outright heroes nor villains, and yet, the popularity of these unconventional characters appears to be rising. Research on the concept of the hero has existed since Greek mythology (e.g., the figure of Homer in The Odyssey; Homer, 1921), and has recently received great attention (e.g., Allison & Goethals, 2011, 2013, 2015, 2016; Allison, Goethals, & Kramer, 2016; Dryden, Doherty, & Nicolson, 2010; Franco, Blau, & Zimbardo, 2011; Kinsella, Igou, & Ritchie, 2017; Kinsella, Ritchie, & Igou, 2015a, 2015b). However, there is a dearth of research on antiheroes.

Since the mid-1940s, there has been a trend for artists and audiences to increasingly be compelled by the antihero persona—an individual who is flawed, behaves heroically in some but not all situations, and does not consistently demonstrate heroic characteristics in their interactions with others (Kuyon, 2016; Michael, 2013; Shafer & Raney, 2012). As a result of the WWII atrocities, the Korean War, the Vietnam War, the Cold War, and the Carter-era oil crisis, people were exposed to the worst in human behaviour. Perhaps these incidences cast doubt upon the idealistic view that people had of humans (Kuyon, 2016; Michael, 2013) and led to greater acceptance of a more nuanced view of influential persons comprising both good and bad (Michael, 2013). Accounting for the apparent rise in the popularity of antiheroes in the arts is admittedly a speculative endeavour. However, acknowledging the attention that antihero characters have received in the arts, fashion,

information technology, and television industry, psychological research on the impact of antiheroes on people's judgments and decision making deserves more attention.

Previous research (Jonason, Webster, Schmitt, Li, & Crysel, 2012) has investigated antiheroes through the theoretical perspective of life history theory (LHT; Figueredo et al., 2005, 2006), in order to better understand where such characters fit within that theoretical framework. LHT is an evolutionary theory that, based on their allocation of bio-energetic and material resources for survival, distinguishes organisms into two main life history strategies: the fast (focused on the present) and slow (focused on the future) life history strategies (Figueredo et al., 2005, 2006). Regarding antiheroes (e.g., Batman, James Bond), previous research suggests they are characterized by a fast life strategy (Jonason et al., 2012). In essence, they prefer immediate gratification and rewards, discounting the future to focus on the present. Building on the idea that antiheroes are characterized by a fast life strategy (Jonason, Koenig, & Tost, 2010; Jonason et al., 2012), we argue that people who are primed with antiheroes (vs. heroes) focus more on the present than the past or the future. Consequently, we argue that priming with an antihero increases sensation seeking. Sensation seeking is defined as "the seeking of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for the sake of such experience" (Zuckerman, 994, p. 27).

Our approach to conceptualising the effect of priming with an antihero builds on LHT (Figueredo et al., 2005, 2006) and goes beyond the previous research on LHT by examining the role of priming with an antihero on people's sensation seeking. Extending previous research that showed the effect of influential people—such as heroes, leaders, and role models—on behaviour (Kinsella et al., 2015a, 2015b), we argue that it is plausible that antiheroes also influence their audience in meaningful ways.

**Antiheroes, the Life History Theory, and the Focus on the Present**

As mentioned, LHT has its roots in evolutionary theory (e.g., Wilson, 1975). It focuses on *why* and *how* species differ in the amount of energies allocated to continued survival and reproduction. LHT suggests two specific life strategies: fast life strategy (investment of resources and energies into the present and a quick maturation process) and slow life strategy (investment of resources and energies into the future and a slow maturation process; Jonason et al., 2012).

LHT suggests that humans generally have a slower life strategy, although some adopt a faster one. The strategy adopted likely depends on the resources and difficulties they experienced during childhood (Griskevicius, Tybur, Delton, & Robertson, 2011). That is, LHT is correlated with a series of behavioural patterns of people. Previous research suggests that people's fast (vs. slow) life history strategy is correlated with making short-term (vs. long-term) plans (Figueredo, Vásquez, Brumbach, & Schneider, 2007; Gladden, Figueredo, & Jacobs, 2009), engaging more in risk-taking activities (e.g., gambling and breaking rules; Figueredo et al., 2005), being less (vs. more) able to predict what will happen in the future (i.e., they lack foresight and anticipation; Figueredo et al., 2007), and being more (vs. less) prone to engage in the abuse of alcohol, illegal drugs (Figueredo et al., 2006), and cigarettes (Jones & Figueredo, 2007). All these findings support the fact that people with a fast life strategy focus more on the present (vs. past or future). Moreover, these examples state the importance of LHT and life strategies on individual behaviour.

Drawing upon LHT, we argue that priming people with an antihero affects their sensation seeking. Indeed, we are not the first researchers who have identified LHT as a useful lens for examining the behaviour and influence of priming with an antihero on people. For instance, Jonason and colleagues (2010, 2012) have investigated the connection of characters who are high in narcissism, psychopathy, and Machiavellianism—referred to as

the Dark Triad—to LHT. These traits are representative of popular conceptions of antiheroes, and relatedly, antiheroes are characterized by a fast life strategy. Antiheroes (e.g., Batman) live in an aggressive, impulsive manner characterized by a disregard for laws and hence live according to a fast life strategy. Although prior findings suggest the possibility of a link between antiheroes and the adoption of a fast life strategy, these are primarily correlational or theoretical in nature. Our research is the first to empirically test and demonstrate the relationship between priming with an antihero and people's sensation seeking. Building on the research that showed a relationship between antiheroes and a fast life strategy (Jonason et al., 2010, 2012), we empirically tested a causal relationship between priming with an antihero, present temporal focus, and sensation seeking.

**Antiheroes and Sensation Seeking**

Previous research has investigated how social figures can affect the behaviour and the perceptions of other people (e.g., Hughes & Trafimow, 2011, 2015). Recent research has demonstrated that when people simply look at an image of a hero, they can be influenced psychologically, at least temporarily by it (Masters & Mishra, 2019). Specifically, research suggests that priming with heroes in product packages brings to mind a sense of safety and protectiveness related to the product with the hero label (Masters & Mishra, 2019). The authors showed that merely looking at the image of a hero or a villain attached to the label of a product could actually affect consumers' perceptions of the product and thus their purchase intentions.

Seeing someone focusing on the present (vs. the past and future) is likely to shift other people's temporal focus to the present (Shipp, Edwards, & Lambert, 2009). In line with this finding, we argue that when primed with an antihero, people's temporal focus will shift to the present, leading them to engage in present-oriented behaviour such as risk-taking and thrill-seeking activities, which maximize their pleasure sensations, namely sensation seeking.

Consequently, we suggest that sensation seeking may be affected when people are primed with antihero characters.

## The Present Research

We examined whether priming with an antihero (vs. hero) has an effect on people's temporal focus and sensation seeking. To explore these questions, we conducted a series of five online and lab experiments. Specifically, we hypothesised that priming with an antihero (vs. hero) (i) increases sensation seeking of people ($H_1$), (ii) increases the present temporal focus of people ($H_2$), and (iii) the increase in the present temporal focus mediates the effect of priming with an antihero on sensation seeking ($H_3$).

In Studies 1a and 1b, we tested our prediction that priming with an antihero (vs. hero, control) increases sensation seeking ($H_1$) and puts people in present (vs. past or future) temporal focus ($H_2$). In Study 2, we tested the hypothesised effects on sensation seeking and temporal focus by means of an online experimental study. In this study we also examined whether the effects of the antihero (vs. hero) priming on sensation seeking would be mediated by the temporal focus. Finally, in Studies 3 and 4, we tested the effect of priming with an antihero (vs. hero) on sensation seeking and the mediating effect of present temporal focus using a real behavioural context ($H_3$)[1].

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[1] Unless noted otherwise, we ran the analyses in SPSS Statistics 23 and 25 IBM software. We reported effect sizes with partial eta-squared, Cohen's *d*, and the effect-size correlation *r* (referred to as *r* for the rest of the manuscript), where $r = d / \sqrt{(d^2 + 4)}$, as suggested by Becker (2000).
Across the studies, we reported all variables collected and all conditions included in the study designs. No participants who completed our studies were excluded from the analyses unless otherwise noted for reasons identified prior to conducting the research (number of excluded participants reported in each study). No participants were added after the initial analyses were conducted. The number of participants was decided before data collection, based on the rule of thumb of more than 30 participants per cell for lab studies, and more than 50 participants per cell for online studies. The attention check consisted of the following: "We want to measure your attention to the questions. If you select 'a lot' now, then it means you are not paying lots of attention and will not be paid; hence, select 'a little' to be paid." Participants who selected "a lot" were excluded from the analyses—these exclusion figures are highlighted in subsequent studies.
All the data is securely stored into the university drive and all available data can be obtained by contacting the corresponding author.
All persons gave their informed consent prior to their inclusion in the study. Moreover, all participants were informed about their right to withdraw, protection of confidentiality and anonymity, lack of deception, or lack of any potential risk to them. The experiments were reviewed and approved by the Institutional Review Board of

## Study 1a—The Effect of Priming with an Antihero on Sensation Seeking

The aim of this study was to demonstrate that participants primed with an antihero (vs. hero) score higher (vs. lower) in sensation seeking. Specifically, in Study 1a, we tested the main effect predicted in $H_1$. We randomly assigned participants to primes of antihero or hero and measured sensation seeking. For this study, we used the context of the TV series *Breaking Bad*. In *Breaking Bad*, there is a hero (Hank, who fights drug cartels and loses his life in the attempt to do so) and an antihero (Walter, who engages in drug production and sales to give his family economic security for when he is deceased).

### Participants and Design

One hundred and twenty undergraduate students (52 male; $M_{age}$ = 21.77, $SD$ = 3.09) in a European university participated in a laboratory experiment in exchange for a course credit. One participant was excluded for not completing the questionnaire. This experiment used a between-subjects design, by priming either antihero or hero (see Web Appendix) as the independent variable and sensation seeking as the dependent variable.

### Materials and Procedure

After giving their informed consent, participants were randomly assigned to either priming with an antihero or hero condition, in which they read a short text describing Walter White (priming with an antihero condition) or Hank Schrader (priming with a hero condition)[2] (see Web Appendix for details).

Next, we measured participants' sensation seeking intentions using the Brief Sensation Seeking Scale (Hoyle, Stephenson, Palmgreen, Lorch, & Donohew, 2002). Sample items included the following: "I would prefer friends who are excitingly unpredictable," "I

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the first and second authors' home institutions during the time this research started. All participants provided their informed consent before participating in the study.
The authors acknowledge that they should have conducted power analyses before the data collection. Failure to do so only leaves the post-hoc power analyses calculations. However, post-hoc power analyses of the observed effects are not reported given their limitations (Lakens, 2014); they are available upon request.
[2] Please refer to the Web Appendix for the results of the pilot test on the two characters used in this study

would like to try bungee jumping," and "I would love to have new and exciting experiences, even if they are illegal." Participants answered all the questions on a 7-point scale (1 = *strongly disagree* and 7 = *strongly agree*). We averaged the scores on the 8 items and computed the sensation seeking score ($\alpha = .719$). Next, participants provided their demographic information, including age and gender.

**Results and Discussion**

A one-way ANOVA on sensation seeking indicated that participants in the antihero (vs. hero) condition scored higher on sensation seeking ($M_{antihero} = 4.74$, $SD_{antihero} = 0.97$ vs. $M_{hero} = 3.87$, $SD_{hero} = 0.93$; $t(1, 117) = 5.00$; $p < .001$; Cohen's $d = 0.92$; $r = .42$).

The results of this study supported our prediction that priming with an antihero (vs. hero) increases sensation seeking ($H_1$). One limitation of this study is that it lacked a control condition. We addressed this issue in the next study. Moreover, in Study 1b, we tested the effect of priming with an antihero (vs. hero and control) on temporal focus (past vs. present vs. future) ($H_2$).

**Study 1b—The Effect of Priming with an Antihero on People's Temporal Focus**

Study 1a showed preliminary support for our prediction that priming with an antihero (vs. hero) influences sensation seeking ($H_1$). However, Study 1a lacked a control condition, and it used very specific movie characters from the TV series *Breaking Bad*. Moreover, while Study 1a showed the effect of priming with an antihero (vs. hero) on sensation seeking, it did not test its effects on temporal focus ($H_2$). In Study 1b, we addressed these limitations by including a control condition and by using a more general description of antiheroes and heroes. In Study 1b, we also tested the effect of priming with an antihero (vs. hero, control) on temporal focus ($H_2$). The aim of this study was to demonstrate that participants primed with antihero (vs. hero, control) would be more focused on the present than on the past or future. So, Study 1b went beyond Study 1a by demonstrating the relationship between

priming with an antihero (vs. hero, control) and present temporal focus.

**Participants**

One hundred and ten undergraduate students (32 male; $M_{age}$ = 21.47, $SD$ = 1.38) in a European university participated in a laboratory experiment in exchange for course credit. This experiment used a mixed design with three between-subject conditions for priming with an antihero (vs. hero or control) and three within-subject conditions for temporal focus (past, present, and future).

**Materials and Procedure**

Upon entering the lab, participants read a text that primed them with an antihero, a hero, or neither (i.e., control condition). Participants in the priming with an antihero (or hero) condition read a definition of antiheroes (or heroes) accompanied by examples of antiheroes (or heroes) and were asked to describe their favourite antihero (or hero; see Web Appendix for more details). Participants in the control condition did not read any text and completed the temporal focus scale (Shipp et al., 2009).

The temporal focus scale is composed of 12 items, in which participants indicate the extent to which they agree with the items measuring temporal focus (Shipp et al., 2009). Sample items included the following: "I'm replaying memories of the past in my mind," "I'm focusing on what is currently happening in my life," and "I'm imagining what tomorrow will bring for me." Participants answered all the questions on a 7-point scale (1 = *strongly disagree* and 7 = *strongly agree*). The items regarding a past temporal focus were highly related to each other ($\alpha$ = .86); hence, we merged them into the same variable—past temporal focus—with higher scores on this variable indicating greater focus on the past. The items measuring present temporal focus were also highly related to each other ($\alpha$ = .78), so we merged them into the same variable—present temporal focus—with higher values indicating greater focus on the present. Finally, the items measuring future temporal focus were again

highly correlated with each other ($\alpha = .94$), so we again merged them into the same variable—future temporal focus—with higher values indicating greater focus on the future[3]. This scale has been used in previous research also (e.g., Peetz, & Wohl, 2019).

**Results and Discussion**

Consistent with our prediction, participants primed with an antihero versus hero ($M_{\text{present-antihero}} = 5.03$, $SD_{\text{present-antihero}} = 1.02$, vs. $M_{\text{present-hero}} = 4.34$, $SD_{\text{present-hero}} = 1.21$; $t(2, 107) = 2.66$; $p = .01$; Cohen's $d = 0.62$; $r = .30$) or the control ($M_{\text{present-control}} = 4.29$, $SD_{\text{present-control}} = 1.59$; $t(2, 107) = 6.71$; $p = .021$; Cohen's $d = 0.56$; $r = .27$; see Figure 1) focused more on the present.

We ran paired t-test means and comparisons and repeated-measures ANOVA using SPSS Statistics 25 IBM software for the temporal focus scores of participants primed with antiheroes, heroes, or neither (i.e., control). There was an overall within-subjects effect of the antihero (vs. hero or control) condition on the repeated measure of temporal focus (past, present, or future) ($F(2, 107) = 3.41$; $p = .04$; $\eta^2 = 0.06$). Among participants primed with antiheroes, the results of the paired test suggested a significant difference between the present temporal focus scores and past temporal focus scores ($M_{\text{present-antihero}} = 5.03$, $SD_{present\text{-}antihero} = 1.02$ vs. $M_{\text{past-antihero}} = 3.77$, $SD_{\text{past-antihero}} = 1.53$; $t(1, 35) = 3.74$; $p = .001$; Cohen's $d = 0.97$; $r = .44$) and a significant difference between the present temporal focus scores and future temporal focus scores (vs. $M_{\text{future-antihero}} = 4.19$, $SD_{\text{future.antihero}} = 1.85$; $t(1, 35) = 2.64$; $p = .012$; Cohen's $d = 0.56$; $r = .27$).

Moreover, we ran paired comparisons of the temporal focus scores of participants primed with heroes. The results of the paired test suggested a marginally significant difference between the present temporal focus scores and the past temporal focus scores ($M_{\text{past-hero}} = 4.99$, $SD_{past\text{-}hero} = 1.38$ vs. $M_{\text{present-hero}} = 4.34$, $SD_{present\text{-}hero} = 1.21$; $t(1, 37) = 1.95$; $p$

[3] A reduction factor analysis with principal component analysis supported the reliability analysis results

= .059; Cohen's $d$ = 0.51; $r$ = .25) but no significant difference between the past temporal focus scores and the future temporal focus scores (vs. $M_{\text{future-hero}}$ = 4.74, $SD_{future\text{-}hero}$ = 1.61; $t(1, 37) = 0.75$; $p$ = .46; Cohen's $d$ = 0.17; $r$ = .08). No significant difference was observed between the present and future temporal focus scores of participants primed with a hero ($t(1, 37) = 1.36$; $p$ = .183; Cohen's $d$ = 0.29; $r$ = .14).

No significant differences in the temporal focus scores were observed in the control condition between past and present temporal focus scores ($M_{\text{past-control}}$ = 4.30, $SD_{\text{past-control}}$ = 1.59 vs. $M_{\text{present-control}}$ = 4.29, $SD_{\text{present-control}}$ = 1.59; $t(1, 35) = .04$; $p$ = .972; Cohen's $d$ = 0.01; $r$ = .01). However, a significant difference was observed between past and future temporal focus scores (vs. $M_{\text{future-control}}$ = 5.37, $SD_{\text{future-control}}$ = 1.31; $t(1, 35) = 3.37$; $p$ = .002; Cohen's $d$ = 0.73; $r$ = .34) and between present and future temporal focus scores ($t(1, 35) = 3.10$; $p$ = .004; Cohen's $d$ = 0.74; $r$ = .35).

The results of this study suggested that, in general, people tend to focus more on the future. However, when primed with antiheroes, people tend to display greater temporal focus on the present. When people are primed with heroes instead, their temporal focus tends to be spread as a continuum between the past and future, thus providing support for $H_2$. In Study 2, we attempted to replicate the findings of Studies 1a and 1b and further investigated the underlying processes that might explain the effect of priming with an antihero (vs. hero) on sensation seeking: present temporal focus ($H_2$).

## Study 2—The Role of Temporal Focus

The previous studies (i.e., Study 1a and Study 1b) provided evidence for the effect of priming with an antihero (vs. hero) on people's sensation seeking and for the effect of priming with an antihero (vs. hero or control) on people's temporal focus. In Study 2, we tested our prediction that present temporal focus mediates the effect of priming with an antihero (vs. hero) on sensation seeking ($H_3$). We randomly assigned participants to either a

priming with an antihero or a priming with hero condition and measured participants' present temporal focus and their willingness to engage in sensation seeking.

**Participants**

Two hundred thirty-eight adults participated in the study using the Prolific Academic online platform in exchange for a monetary reward. Thirty-seven participants were dropped from the dataset prior to the analyses because they either failed the attention check or they provided answers unrelated to the question in the open text question. Finally, two hundred and one adults (106 male; $M_{age}$ = 30.69, $SD_{age}$ = 9.58) comprised the sample for this study. The experiment used a between-subjects design with the following conditions: antihero vs. hero primes. We measured present temporal focus and sensation seeking.

**Materials and Procedure**

Participants were randomly assigned to watch either a 2.5-minute trailer of the movie *Deadpool* or a 2.5-minute trailer of the movie *Superman*. *Deadpool* is considered to be a typical antihero movie, and *Superman* is considered to be a typical hero movie (McAteer, 2017). After watching the trailer, participants wrote a minimum of 500 characters explaining why Deadpool/Superman is considered an antihero/hero, respectively, and their thoughts about the main movie character as a manipulation boost. Upon review of their answers, none of the participants considered Deadpool a hero or Superman an antihero. To control for characters' likeability, participants indicated how much they liked the main character they saw in the movie trailer (i.e., extent to which they agreed with the statement "I like the movie character I saw in the trailer") on a 7-point scale (1 = *strongly disagree* and 7 = *strongly agree*). No significant differences were found between participants' liking of Deadpool and Superman ($p$ = .224), which excluded liking as a possible explanation for the findings.

Next, participants were shown in random order both the scale for present temporal focus and the scale for sensation seeking. Specifically, we measured present temporal focus

using the items from Shipp et al. (2009), as performed in Study 1b. We averaged the items to compose the present temporal focus score ($\alpha = .88$).

As in Study 1a, we measured participants' sensation seeking intentions using the Brief Sensation Seeking Scale (Hoyle et al., 2002). We averaged the scores on the 8 items and created an overall sensation-seeking score ($\alpha = .88$). Next, participants provided their age and gender and were thanked for their participation.

**Results and Discussion**

**Sensation seeking.** As predicted, the results showed that priming with an antihero (vs. hero) movie trailer resulted in greater sensation seeking ($M_{\text{sensation seeking-antihero}} = 3.31$, $SD_{\text{sensation seeking-antihero}} = 1.39$ vs. $M_{\text{sensation seeking-hero}} = 2.87$, $SD_{\text{sensation seeking-hero}} = 1.12$; $t(1, 199) = 2.47$; $p = .014$; Cohen's $d = 0.35$; $r = .17$).

**Present temporal focus.** Priming with an antihero (vs. hero) resulted in greater focus on the present, resulting in a marginally significant effect ($M_{\text{present-antihero}} = 5.01$, $SD_{\text{present-antihero}} = 1.03$ vs. $M_{\text{present-hero}} = 4.71$, $SD_{\text{present-hero}} = 1.29$; $t(1, 199) = 1.85$; $p = .066$; Cohen's $d = 0.26$; $r = .13$), supporting $H_2$.

We next regressed sensation seeking scores on present temporal focus scores. We found that present temporal focus increases sensation seeking ($\beta = 0.32$; $SE = 0.08$; $p < .001$). Similarly, priming with an antihero (vs. hero) increased people's sensation seeking ($\beta = 0.44$; $SE = 0.44$; $p = .015$).

Bootstrap analyses following the recommendations of Preacher and Hayes (2004), using model 4 on the Process v3 macro for SPSS Statistics Version 25 with 10,000 iterations, suggested an indirect effect of the priming with an antihero (vs. hero) condition on sensation seeking via present temporal focus, but only at 90% confidence interval (indirect effect = 0.09, $SE = .06$, 90% CI = [0.01, 0.19]; see Figure 2 for the results of the regression with bootstrapping).

The results are consistent with our mediation hypothesis; the effect of priming with an antihero (vs. hero) on sensation seeking may be explained by a greater focus on the present. Hence, these findings suggest one possible explanation of the relationship between priming with an antihero and sensation seeking: present temporal focus.

## Study 3 – Priming with an Antihero Affects Consumer Behaviour

To demonstrate the effects of priming with an antihero on behaviour, we selected brand choices. Thus far (i.e., Study 1a and Study 2), we provided evidence of the effect of priming with an antihero (vs. hero) on people's sensation seeking and of the effect of priming with an antihero (vs. hero or control) on people's temporal focus (Study 1b and Study 2). Study 3 combined these notions by using a particular behavioural measure that is strongly associated with sensation seeking: brand choice. Given that we wanted to test our hypothesis in a branding context, we decided to use the brand personality to operationalize sensation seeking. For this, we have used three types of brand personalities: exciting, sincere, and control brand personality. Previous research shows that sensation seeking is highly related to excitement and thrill (Churchill, Jessop, & Sparks, 2008; Hart, Schwabach, & Solomon, 2010; Shipp et al., 2009). Hence, the brand personality that is closer to sensation seeking is the exciting personality (Aaker, 1997). Our main dependent variable consisted of the choice among an exciting brand (vs. sincere or control). We predicted that people primed with an antihero would more frequently choose an exciting brand, as opposed to a sincere brand, which is more in line with the heroes' character (Kinsella et al., 2015b) or a control brand. Choosing a brand that is positioned as exciting, thus, would serve as a proxy for sensation-seeking.

### Participants and Design

Sixty-five undergraduate students (21 male; $M_{age}$ = 22.43, $SD_{age}$ = 2.09) participated in the laboratory experiment in exchange for course credit. The experiment used a mixed

design with two between-subject conditions: character primes (antihero vs. hero) and three within-subject measures: temporal focus (past, present, or future). The main dependent variable consisted of the choice among an exciting brand, a sincere brand, or a control brand, with choice of an exciting brand choice being a proxy for sensation seeking.

**Materials and Procedure**

Participants were randomly assigned to priming with an antihero or a hero condition, as in Study 1a. After that, participants were invited to participate in another unrelated study. Participants then completed the 12-item temporal focus scale (Shipp et al., 2009). We averaged items related to past temporal focus to compose a past temporal focus score ($\alpha$ = .86). We used the same procedure to compose a present temporal focus score ($\alpha$ = .91) and a future temporal focus score ($\alpha$ = .94)[4].

To thank participants for their participation, we offered them a chocolate bar, which was a cover story for measuring our dependent variable (the choice of a brand that relates to sensation seeking vs. not). The participants chose a chocolate from one of the three bowls. The choice was recorded by the lab experimenter. In accordance with Sundar and Noseworthy (2016), participants were told that a new chocolate brand was being introduced by a local company and that this study was commissioned on behalf of the company to gain feedback about the brand and the product. The chocolate bar was presented as a prototype of what might be considered.

Three claims of brands were introduced to participants in three different bowls with a label in front of the bowl (brand personality: control [no brand personality] vs. sincere vs. exciting; please see Web Appendix). For the control condition, we used a white background with handwritten font, and the label page included no pictures, content, or a brand tagline. For the sincere and exciting brand conditions, we followed the procedures suggested by

[4] A reduction factor analysis supported the reliability analysis results

Aaker, Fournier, and Brasel (2004; see also Noseworthy, Di Muro, &Murray, 2014; Sundar & Noseworthy, 2016). Specifically, we wrote the following for the *sincere brand* tagline ("Because Life Is Too Meaningful to Let You Pass It By") and the *exciting brand* tagline "Because Life Is Too Exciting to Let You Pass It by" (see Web Appendix).

These descriptions have already been used in previous research to position a brand as sincere or exciting, respectively (Noseworthy et al., 2014; Sundar & Noseworthy, 2016). However, we have conducted a post-hoc test to ensure that the exciting claim (i.e., Because Life Is Too Exciting to Let You Pass It by) is indeed affecting the brand to be perceived as more exciting and to ensure that the claims did not affect liking of the brand or the information processing mindset of respondents. We conducted the post-hoc dependent variable validity test with 100 participants on Prolific Academic in return for monetary compensation. Participants were told that a new brand, which we would be calling ABC for brand privacy reasons, was about to launch a new line of chocolate. Specifically, we told participants that the slogan that ABC was considering using was either "Life is too exciting to let it pass you by" or "Life is too meaningful to let it pass you by". Afterwards, we asked them about the extent to which they considered ABC to be exciting and likeable. Finally, we randomly showed 5 items from the Behaviour Identification Form (Vallacher & Wegner, 1989) to observe potential differences in the abstract versus concrete mind-set of participants. Results suggested that the slogans differed in the extent to which they made the brand be considered exciting ($M_{exciting}$ = 5.00, $SD_{exciting}$ = 1.29 vs. $M_{control}$ = 4.36, $SD_{control}$ = 1.38, $t(1, 98) = 2.39$, $p = .019$) but they did not differ in likeability of the brand ($p = .677$) or in the extent to which they affected the information processing mindset of respondents ($p = .085$).

The order of the chocolate bowls was counterbalanced every session. Next, participants indicated their age and gender and they were thanked for their participation.

**Results and Discussion**

A Pearson Chi-square test on the dependent variable using the SPSS Statistics IBM software Version 25 revealed a significant overall effect of primes (antihero vs. hero) condition on brand choice, $\chi^2 = 15.46$, $p < .001$. More specifically, the difference in choice frequency of the exciting brand was significant for those primed with antihero (vs. hero), $\chi^2 = 16.10$, $p < .001$.

**Brand choice.** Next, we coded the choice of an exciting brand as 1 and the choice of a non-exciting brand (i.e., either sincere or control) as 0 to test for the effect of antihero (vs. hero) on the likelihood of choosing an exciting brand (vs. sincere or control). The results showed that priming with an antihero (vs. hero) increased the likelihood of choosing the exciting brand ($\beta = 2.23$, $p < .001$) compared to the sincere and control brands. Similarly, we coded the choice of a sincere brand as 1 and the choice of a non-sincere brand (i.e., either exciting or control) as 0 to test for the effect of priming with hero (vs. antihero) on the likelihood of choosing a sincere brand (vs. exciting or control). The results showed that priming with hero (vs. antihero) increased the likelihood of choosing the sincere brand ($\beta = 1.53$, $p = .005$) compared to the exciting and control brands. These results support our $H_1$ and demonstrate that priming with an antihero (vs. hero) increases behaviour that is related to sensation seeking, also when the context is that of consumer behaviour.

**Temporal focus.** In line with our previous findings, results showed that priming with an antihero (vs. hero) resulted in more present focus ($M_{\text{present-antihero}} = 5.85$, $SD_{\text{present-antihero}} = 0.82$ vs. $M_{\text{present-hero}} = 4.46$, $SD_{\text{present-hero}} = 1.40$), $t(1, 63) = 4.88$, $p < .001$, Cohen's $d = 1.22$, $r = .52$). Moreover, the analysis revealed a significant within-subjects temporal focus by character prime (i.e., antihero vs. hero) interaction, $F(1, 63) = 14.48$, $p < .001$. We then ran paired comparisons of the temporal focus scores of participants primed with antiheroes (vs. heroes). Among participants primed with antiheroes, we observed more focus on the present

compared to the past ($M_{past\text{-}antihero} = 4.48$, $SD_{antihero\text{-}past} = 1.36$), $t(1, 63) = 5.15$, $p < .001$, Cohen's $d = 1.22$, $r = .52$. Moreover, participants primed with the antihero were marginally more focused on the present, rather than on the future (vs. $M_{future\text{-}antihero} = 5.20$, $SD_{future\text{-}antihero} = 1.60$), $t(1, 63) = 1.98$, $p = .056$, Cohen's $d = 0.51$, $r = .25$).

Among participants exposed to a hero prime, we found a marginal effect between the present temporal focus scores and the past temporal focus scores ($M_{past\text{-}hero} = 5.14$, $SD_{past\text{-}hero} = 1.20$ vs. $M_{present\text{-}hero} = 4.46$, $SD_{present\text{-}hero} = 1.40$), $t(1, 63) = 1.85$, $p = .073$, Cohen's $d = 0.53$, $r = .26$. There was a marginal difference between the past temporal focus scores and the future temporal focus scores (vs. $M_{future\text{-}hero} = 5.63$, $SD_{future\text{-}hero} = 1.16$), $t(1, 63) = 1.76$, $p = .088$, Cohen's $d = 0.41$, $r = .20$, among participants exposed to the hero prime (Figure 3).

**Mediation effect of present temporal focus.** We next tested for our prediction $H_3$ and examined the effect of priming with an antihero (vs. hero) on sensation seeking behaviour and that this effect would be mediated by present temporal focus. We tested for mediation using model 4 on Process for SPSS Statistics Version 25 with 10,000 iterations. Priming with an antihero (vs. hero) condition was the independent variable. Brand choice (exciting vs. non-exciting brand) was the dependent variable and past, present, or future temporal focus were the possible mediators. The results suggested a significant mediation through present temporal focus ($\beta = 2.00$; $SE = 1.85$; 95% CI = [0.75, 5.65]). Note, there were no mediation effects through past ($\beta = 0.03$; $SE = .18$; 95% CI = [-0.29, .47]), or future ($\beta = -0.04$; $SE = 0.13$; CI: 95% = [-0.32, 0.21]) temporal focus (for specifics, please see Figure 4).

The results of this study supported our prediction that priming with an antihero (vs. hero) increases sensation seeking ($H_1$). The results also supported our prediction that the behaviour affected by priming with an antihero (vs. hero), in terms of sensation seeking, is mediated by focusing on the present ($H_3$). Importantly, this study showed how the findings of

this paper can be applied by marketing managers to affect brand choice and consumer preferences after consumers are exposed to primes of antiheroes.

## Study 4 – Priming with an Antihero Affects Prosocial Behaviour

In Study 3, we provided evidence that priming with an antihero can affect consumer behaviour, so that people make a choice resulting in more sensation seeking (in this case, more exciting), compared to a sincere or a neutral (control) brand message. Study 4 was designed to test the effects of priming with an antihero (vs. hero) on another form of social behaviour: prosocial behaviour. We predicted that people primed with an antihero would prefer prosocial activities that contain more risk and excitement.

**Pre-test of the prosocial activities.** Based on previous research, risky prosocial activities can be described as high in sensation seeking (Do, Moreira, & Telzer, 2017) if they contain elements of risk, such as caring for troubled teenagers or entering a fight to defend a bullied colleague. Based on Do and colleagues' (2017) suggestions, we have adapted two types of prosocial activities: one as high in sensation seeking and one as low in sensation seeking. Specifically, in the high sensation seeking prosocial activity scenario, one would be helping as a volunteer in a community centre for troubled teens, assisting teenagers with behavioural issues after they have had a short stay in a psychiatric hospital, or after being released from a juvenile detention facility. The volunteer would have to enforce rules to create a safe environment that helps teens create positive changes, even preventing (or stopping, if needed) aggressive behaviour. In the low sensation seeking prosocial activity scenario, one would be helping the elderly with their social activities, such as assisting with some participation in reading and communication activities and creating a pleasant environment that helps the elderly have positive moments.

Prior to conducting the study that tested our predictions in a prosocial context, we pretested the validity of the dependent variable (i.e., the two types of volunteering activities)

– one that is high in sensation seeking and one that is low in sensation seeking – with 101 respondents from Prolific Academic who were monetarily compensated. Specifically, we pretested the validity of the prosocial activities in terms of perceived sensation seeking (i.e., the extent to which engaging in this activity would be considered risky, emotionally intense, stimulating, and novel, based on suggestions from Do et al., 2017) on a 7-point scale (1 = *strongly disagree* and 7 = *strongly agree*). We averaged items related to sensation seeking to compose a score ($\alpha = .61$), with greater values indicating greater sensation seeking. To ensure that the prosocial activities were not different in terms of perceived social benefits and gratification for the volunteer, we also pretested the extent to which engaging in the prosocial activity would be considered gratifying and providing social benefits on a 7-point scale (1 = *strongly disagree* and 7 = *strongly agree*).

Results of the one-way ANOVA revealed a highly reliable difference in terms of sensation seeking between the two volunteering activities, in favour of the activity that we have adapted as a proxy for sensation seeking (i.e., helping troubled teenagers vs. helping the elderly; $M_{teenagers} = 5.35$, $SD_{teenagers} = 0.73$ vs. $M_{elderly} = 3.98$, $SD_{elderly} = 0.89$; $F(1, 99) = 70.64$; $p = < .001$; Cohen's $d = 1.68$; $r = .64$. As expected, no difference was observed between the two activities in terms of social benefits ($p = .413$) and gratification ($p = .827$).

**Participants and Design**

Sixty-eight undergraduate students in a European university (16 male; $M_{age} = 19.64$, $SD_{age} = 0.85$) participated in the laboratory experiment in exchange for course credit. The experiment used a between-subjects design with two conditions: character primes (antihero vs. hero). The main dependent variable consisted of the choice between two prosocial activities – helping troubled teenagers or helping elderly people – with the choice of helping troubled teenagers being a proxy for sensation seeking.

**Materials and Procedure**

Participants were told that we were interested in knowing some of their favourite characters, and specifically, we were interested in knowing their favourite antihero (vs. hero) character. For this, we asked them to draw their favourite antihero (vs. hero) and to write down their name. This task served as priming with an antihero (vs. hero), using the definition of antihero (or hero) used in Study 1b, (please see Web Appendix). All the drawings were in line with the antihero (or hero) condition and examples of the drawings are included in the Web Appendix. After the drawing, they were thanked for participating in this study. They were told that the university was collaborating with a series of prosocial organizations, and as part of their course activities, they would be dedicating two hours of their class to volunteering. To make this more credible, the experimenter cancelled the following week's class, communicating that the reason for cancelling class was the students' engagement in volunteering. Students were told that there were two activities from which they could choose, and to which they could dedicate their time and efforts. They were invited to choose one of them, bearing in mind that their choice would be binding for the following week's activity.

In a counterbalanced order, students viewed the two pretested prosocial activities: helping a group of troubled teens or helping a group of elderly people. They indicated their choice, and finally, indicated their age and gender and they were thanked for their participation. Afterwards, they were debriefed and told that they did not have to participate as part of their course work, but that we would have been happy to get them involved in volunteering work if they wanted to.

**Results and Discussion**

A Pearson Chi-square test on the dependent variable using the SPSS Statistics IBM software Version 25 revealed a significant overall effect of primes of antihero (vs. hero) condition on prosocial activity choice, $\chi^2 = 7.70$, $p = .006$.

**Prosocial activity choice.** Next, we coded the choice of the prosocial activity high in

sensation seeking (i.e., helping the troubled teenagers) as 1 and the choice of the prosocial activity low in sensation seeking (i.e., helping the elderly) as 0 to test for the effect of priming with an antihero (vs. hero) on the likelihood of choosing an activity high in sensation seeking. The results of the logistic regression showed that priming with an antihero (vs. hero) increased the likelihood of choosing the activity high in sensation seeking ($\beta = 1.44$, $p = .007$) compared to the one low in sensation seeking. The results persisted when including age and gender as covariates ($\beta = 1.39$, $p = .01$). Age ($p = .984$) and gender ($p = .354$) had no effect on the dependent variable. These results supported our $H_1$ and demonstrated that priming with an antihero (vs. hero) increased behaviour that is related to sensation seeking and also when the context was that of prosocial behaviour.

While the results of Studies 1a and 2 suggest that priming with an antihero (vs. hero) activates sensation seeking intentions, the results of Studies 3 and 4 showed that priming with an antihero (vs. hero) can also activate actual behavioural consequences.

## Meta-Analysis

We conducted five experimental studies to test the predicted effects. McShane and Böckenholt (2017) suggest that when "studies are of a common phenomenon, this practice is inefficient and forgoes important benefits that can be obtained only by analysing them jointly in a single-paper meta-analysis (SPM)". Given the similarity in the studied phenomenon, this practice of SPM can improve the effectiveness of the paper by analysing the studies jointly in the SPM. Following the suggestion of McShane and Böckenholt (2017), in the next session, we present the results of the SPM of the five previously conducted studies.

To conduct the SPM, we used the random effects, based on the assumption that the means and effects among studies may vary (Borenstein, Hedges, Higgins, & Rothstein, 2010). The results of the SPM showed a significant overall effect size ($z = 4.12$, $p < .001$) for the effects of priming with an antihero on sensation seeking (Figure 5) and a significant

overall effect size ($z = 4.94$, $p < .001$) for the effects of priming with an antihero on present temporal focus (Figure 6). The overall SPM on all the studies showed a significant effect size ($z = 6.52$, $p < .001$; Figure 7).

## General Discussion

The aim of the present research was to examine the causal relationship between primes of an antihero (vs. hero) and sensation seeking. In doing so, we tested our predictions that primes of antiheroes (vs. heroes) would (i) increase people's sensation seeking ($H_1$), (ii) increase their present temporal focus ($H_2$), and (iii) increase sensation seeking through a focus on the present ($H_3$).

We tested our predictions in a series of experimental studies. Specifically, in Study 1a, we demonstrated that participants primed with an antihero (vs. hero) scored higher (vs. lower) in sensation seeking ($H_1$). In Study 1b, we demonstrated the effect of priming with an antihero (vs. hero, control) on temporal focus (past vs. present vs. future). Study 1b complemented the findings of Study 1a with the addition of a control condition, apart from the priming with an antihero and hero conditions, and by showing the effect of these primes on the temporal focus ($H_2$). Study 2 further supported our predictions that priming with an antihero (vs. hero) would increase sensation seeking ($H_1$) and present temporal focus ($H_2$). Finally, in Study 3 and Study 4, we conceptually replicated the previous findings using a real behavioural context. We found that priming with an antihero (vs. hero) affected present temporal focus, and this in turn, affected a real behaviour of participants that proxied sensation seeking: exciting brand choice. Moreover, priming with an antihero (vs. hero) also affected real engagement in different types of prosocial activities—those that are perceived as high in sensation seeking (e.g., risky and exciting), compared to low in sensation seeking, but equally honourable and gratifying.

Overall, the findings show that priming participants with an antihero influences their sensation seeking behaviour. In other words, people seek greater risk and excitement when they are primed with characters that are perceived as antiheroes (vs. heroes). This is consistent with the assumption that antiheroes focus on the present. The antihero's focus on the present moment transfers over to participants primed with reminders of such an antihero. Ultimately, the participants' greater focus on the present (vs. the past or future) explains their willingness to engage in greater sensation seeking, when primed with an antihero (vs. hero).

**Implications, Limitations, and Future Research**

**Empirical contributions.** Although prior findings suggest a link between priming with an antihero and the adoption of a fast life strategy (Jonason et al., 2012), these findings are primarily correlational or speculative in nature. The present research adds to the existing research on heroes and antiheroes, temporal focus, and sensation seeking in a number of ways. Specifically, the results of this paper show, in a series of experiments, the following: (i) a link between priming with an antihero and sensation seeking (Studies 1a, 2, 3, and 4); (ii) a link between priming with an antihero and present temporal focus (Studies 1b, 2, and 3); and (iii) the mediating role of present temporal focus on the effect of priming with an antihero on sensation seeking (Studies 2 and 3). To our knowledge, this is the first empirical assessment of the effects of primes of antiheroes on sensation seeking.

**Theoretical contributions.** While there is a range of research emerging on the important topic of heroes (e.g., Allison & Goethals, 2011, 2013, 2015, 2016; Allison et al., 2016; Franco et al., 2011; Kinsella et al., 2017; Kinsella et al., 2015a, 2015b; Sullivan & Venter, 2005), research on antiheroes is still lacking (Jonason et al., 2012) despite the growing popularity of this everyday concept. Some previous research on antiheroes has suggested a link between antiheroes and a fast life strategy (Jonason et al., 2012). Indirectly, by showing the effects of heroes and villains on vice versus virtue attitudes of consumers,

Masters and Mishra (2019) found that priming with hero versus villains (e.g., putting the image in logos or product packages) can drive consumers preferences towards either virtue or vice products. The authors showed that merely looking at the image of a hero or a villain attached to the label of a product can affect consumers' perceptions of the product and thus their purchase intentions. We add to previous research on this stream by providing some insights on the effects of priming with an antihero on people's behaviour. The findings from this research programme demonstrate that priming with an antihero and hero has different effects on people. Specifically, we show that people primed with an antihero report greater sensation seeking scores than those primed with a hero. We explain and demonstrate that the psychological reason why this happens is the temporal focus of people who are affected when they are primed with an antihero (e.g., by watching a movie or writing about them). Priming with an antihero can affect the temporal focus of people by making them more focused on the present than the past or the future. This finding explains why priming with an antihero can affect people's sensation seeking.

Furthermore, we contribute to the extant literature on LHT by showing that this theory helps explain why and how priming with an antihero affects human behaviour or intentions. This information helps to demonstrate the utility of LHT in enabling researchers to generate testable predictions that are relevant to human behaviour in everyday life.

**Practical implications**. These findings are likely to be of interest to people involved in marketing and sales in particular. Moreover, these findings can be of interest to charity organizations trying to recruit more volunteers in activities that are perceived as riskier but also more exciting. The present research demonstrates that priming with an antihero would result in greater present temporal focus and hence greater sensation seeking. Additionally, these findings could be applied to the entertainment industry. Entertainment parks would benefit more from having antihero mascots around the park than hero mascots, as the former

would result in greater sensation seeking, based on our findings. Moreover, we show that priming with an antihero (vs. hero) helps people focus more on the present. Many brands push consumers to engage in the present and embrace a fast life strategy: Pepsi ("live for now"); Volvo ("live fully now"); Lincoln Motor Company ("live in your moment"); and Diesel ("only the brave"). Focusing on an antihero is another way to encourage consumers to focus on the present and engage in fast life strategies. To persuade consumers to focus on the present, primes of antiheroes (vs. heroes) can be used in brand communications. Moreover, antiheroes as cultural symbols might evoke risky behaviour that can either be desirable (for instance, when people are too conservative when the situation does not call for it), or not desirable (for instance, when being cautious is useful).

**Limitations and future research**. In Study 1a, and Study 2, we tested the effect of priming with an antihero (vs. hero) on sensation seeking using the Brief Sensation Seeking Scale (Hoyle et al., 2002). While this scale is commonly used to assess sensation seeking and demonstrates high reliability according to the reported Cronbach's alpha scores, future research can test the effects of priming with an antihero on people using different behavioural measures. Moreover, while we used participants from a more generalizable sample in Study 2, given that this study was conducted on an online platform (e.g., Prolific Academic), in other studies (i.e., Study 1a, Study 1b, and Study 3), we included graduate students mainly from Europe.

It is not clear whether there is any effect of culture on the effects of being primed with an antihero (vs. a hero) on sensation seeking or present temporal focus. Based on previous research suggesting that antiheroes are linked by definition to a selfish purpose (Jonason et al., 2012) and that heroes are linked to a selfless purpose (Kinsella et al., 2015a), we would expect these relationships to be linked to the cultural background of the participants. Hence, we would expect selfish acts to be *more* related to an individualistic cultural orientation and

selfless acts to be *more* related to a collectivistic cultural orientation. Specifically, we would expect participants with a collectivistic cultural orientation (e.g., China) to be more affected by primes of heroes (vs. antiheroes). Moreover, we would expect participants with an individualistic cultural orientation (e.g., the US or UK) to be more influenced by priming with an antihero (vs. hero) on their sensation seeking. Hence, we would predict the effect of priming with an antihero on sensation seeking to be moderated by people's cultural orientation. For instance, people with individualistic (vs. collectivistic) cultural orientation would be most likely to display enhanced (vs. diminished) sensation seeking when primed with antiheroes (vs. heroes).

**Conclusions.** The NFL's TV series "Breaking Bad" broke viewing records, with the highest number of viewers (approximately 10.3 million) for its final episode (Boorstin, 2013). The main character of the TV series is Walter White, a chemistry teacher who becomes one of the emperors of the methamphetamine illegal commerce. He is considered by the audience as probably the greatest antihero ever encountered in TV (Sharma, 2017). Given the increasing appearance of antiheroes in movies, books, and in many different industries, it is important to examine the impact of these exemplars on people's perceptions and behaviour. Our findings demonstrate that priming with an antihero (vs. hero) increases people's sensation seeking. Specifically, the findings of this paper show that priming with an antihero can affect the sensation seeking of people, and not only the self-reported intentions to engage in sensation seeking, but also their real behaviour in the context of prosocial behaviour and consumption choices. We found that people seek greater risk and excitement when they are primed with characters that are perceived as antiheroes (vs. heroes) because antiheroes focus on the present and engage in the moment, and this quality is transmitted to people primed with them. People's greater focus on the present (vs. the past or the future) explains why they engage in greater sensation seeking when primed with an antihero (vs. hero). We found that

even briefly priming with an antihero can influence people's intentions – opening a range of possibilities for future researchers and practical applications.

## Conflict of Interest

The authors confirm they have no conflict of interest to declare. Authors also confirm that this article adheres to the ethical guidelines specified in the APA Code of Conduct as well as the authors' national ethics guidelines. The authors confirm that the article submitted, to the knowledge of all authors, has not been published elsewhere previously and is not under consideration for publication elsewhere. This submission is approved by all authors and by the responsible authorities where the authors carried out the work. If accepted for publication, this article will not be published elsewhere including electronically in the same form, in English, or in any other language, without the written consent of the copyright-holder.

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