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Analysing the perception–choice process in Situational Action Theory. A randomized scenario study

Lieven J.R. Pauwels
Ghent University, Belgium

Abstract

In Situational Action Theory (SAT), crime is seen as the result of the interplay between individual and setting characteristics. This replication study focuses on the perception–choice process. The perception–choice process refers to the process whereby one sees the breaking of rules (stated in laws) as an action alternative and deliberately (or habitually) carries out an act of rule-breaking, given that one sees the breaking of a specific rule as an action alternative. The unique contribution of this study to the empirical literature is that it tests the interaction between choosing a violent response, propensity, and exposure to scenario criminogeneity using a web-based randomized scenario study. The results indicate that individuals who have low levels of crime propensity rarely choose a violent response, independent of scenario criminogeneity (as measured by provocation and the absence of monitoring agents). The likelihood of choosing a violent response increases as a result of the interplay between scenario criminogeneity and crime propensity. The implications for future tests of SAT are discussed.

Keywords

crime propensity, exposure to setting provocation, online factorial survey, randomized scenario study, Situational Action Theory

Introduction

In contemporary studies of crime causation, a renewed interest in the study of decision-making can be observed (Van Gelder, 2013). Previously, rational choice scholars in criminology have argued that individuals make a decision to become involved in crime

Corresponding author:
Lieven J.R. Pauwels, Faculty of Law and Criminology, Ghent University, Universiteitstraat 4, Ghent, B-9000, Belgium.
Email: lieven.pauwels@ugent.be

(Cornish and Clarke, 2008). According to Wikström and Treiber (2016), rational choice criminology has not always been clear about the assumptions that are made with regard to human nature and (social) action. Because of the longstanding tradition of action theories in sociology and economics, both narrow (Becker, 1968) and wide versions (Opp, 2017) of rational choice theory (RCT) have been developed to study processes of decision-making. Often scholars criticize RCT explanations and argue that they make false assumptions concerning human nature and especially the 'hyper-rational' and calculating actor. However, because there are many versions of RCT explanations it is often not clear what kind of version is being criticized (Opp, 1999). Wide versions of RCT (Opp, 1999) do not equate decision-making with deliberate choice but are compatible with dual process models of decision-making (Fazio, 1990; Kahneman, 2003; Tversky and Kahneman, 1992). When decisions are made, actors are usually expected to be able to choose between action alternatives that are available to them (Elster, 1989). Only narrow versions of RCT base their assumption on the principle of utility maximization (for a thorough criticism of narrow versions of RCT, see Bunge, 1999). Just like contemporary wide versions of sociological RCT (Opp, 2017) and the model of frame selection (Kroneberg et al., 2010), Situational Action Theory (SAT) is based on the idea of dual processes. Contrary to narrow microeconomic versions of RCT, SAT assumes bounded cognitive rationality (Boudon, 2011; Wikström et al., 2012), and merely assumes a reasonable actor. In our view, this is compatible with Opp's (1999, 2017) wide version of RCT. In SAT, the term '*perception–choice process*' is used to refer to decision-making (Wikström et al., 2012*)*. A perception–choice process implies that actors first need to consider crime as a viable action alternative before choosing to actually commit an act of crime. Thus, individuals deliberate among action alternatives. This so-called perception–choice process is at the heart of Wikström's SAT. In SAT, decision-making consists of two consecutive steps: first one must be willing to see crime as an action alternative and subsequently one (deliberately or habitually) chooses an act of rule-breaking among the selected action alternatives that emerge in the context of action. The present study grew out of the empirical observation that only a handful of tests of SAT have studied the perception–choice process from the perspective of SAT (Haar and Wikström, 2010; Wikström et al., 2012). Haar and Wikström (2010) demonstrated that morality and self-control interact in the explanation of the likelihood of choosing a violent response, whereas Wikström et al (2012) demonstrated that scenario criminogeneity (based on combinations of monitoring and provocation) affected the likelihood of choosing a violent response in only high propensity respondents. This study uses an online randomized scenario study in order to adequately test (and this in essence replicates) the above described finding of Wikström et al. (2012).

When testing theories that make conjectures about person–environment interactions and choice processes, it is essential (1) to use appropriate measures of both circumstantial characteristics and individual characteristics and (2) to use a technique that randomly assigns individuals to circumstances. Although the assumption in SAT that people who do not perceive action alternatives are unlikely to commit crimes, and the assumption that only individuals who see crime as an action alternative deliberately or habitually choose crime as an alternative may sound straightforward, the number of explicit replication studies is limited. One reason may be that it is not possible to test

hypotheses that refer to choice processes with conventional survey data. Thus, if we want to know whether or not people are differentially triggered to (deliberately or habitually) commit a criminal act, depending on the situation (that is, the relevant person–circumstance interaction) we need to move beyond the traditional survey. A randomized scenario study, which combines survey questions on personal characteristics for everybody but which randomly distributes vignettes (including different levels of monitoring and provocation in the context of action), is a means to conduct an experimental design.

In our study, the vignette part of the questionnaire is randomized, as was the case in the scenario studies by Wikström et al. (2012). Although it is fair to say that scenario studies have not been used as frequently as the typical self-reported delinquency studies, previous criminological enquiries have demonstrated its potential (Bachman et al., 1992; De Keijser et al., 2007; Eifler, 2007, 2008, 2015; Kennedy and Forde, 1994; Thurman et al., 1993). The present study extends the literature by using an online version of the randomized factorial survey.

Circumstantial hypotheses in SAT

Let me start by stressing that SAT uses the concept 'situational' in a slightly different way than traditional situational theorists. In traditional situational theories, the situation refers to the circumstances (thus the environment) in which action takes place. In SAT, the situation arises out of the interplay between personal and setting characteristics. Setting characteristics refer to the context of action. SAT further posits that individuals are primarily moral agents, whereas theorists within narrow versions of the RCT paradigm put too much emphasis on rational actors, who calculate costs and benefits. In SAT, the causes of offending are situational, while the tendency to see crime as an action alternative is especially determined by one's propensity to rule-breaking (Wikström et al., 2012). Individuals are assumed to respond differently to cues of provocations and temptations that are present in settings dependent on their morality and ability to exercise self-control and the deterrent qualities of the setting in which they take part (Wikström et al., 2012). The consideration of action alternatives in response to temptations and deterrent agents has received plenty of attention in studies of criminal decision-making, especially from the standpoint of (perceived) deterrence theory (Klepper and Nagin, 1989; Nagin and Paternoster, 1993; Paternoster, 2010), but the theoretical concepts of setting provocation and propensity (the ability to exercise self-control combined with personal moral values and moral emotions) are rarely studied together in enquiries into decision-making.

Because the success of a theory is determined by both empirical successes and the degree of corroboration, that is, surviving falsification (Bunge, 1999), it is important that the scenario findings reported in Wikström et al. (2012) are replicated. Replication studies in the field of criminology remain extremely rare (McNeeley and Warner, 2015) and are therefore necessary if we want to be able to take stock of (European) tests of criminological theories, a practice that is more common in US studies (Cullen et al., 2008). Research prestige is sometimes looked at only in the form of a completely new methodology or pioneer directions in theory that have not been looked at before. However, we

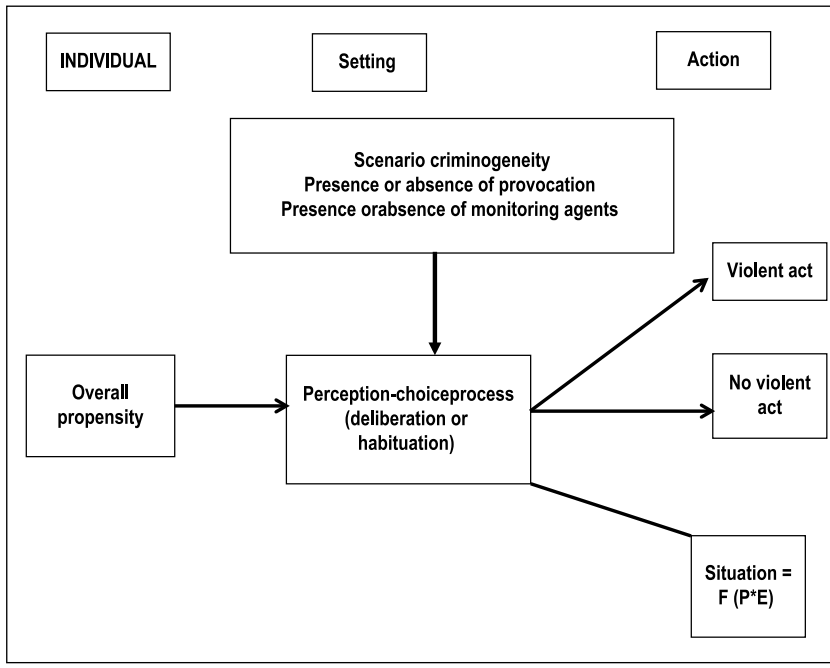

Figure 1. The perception–choice process in SAT.
Source: Based on Wikström et al. (2012).

should not forget that it is only through repeated empirical tests of the same theory that one can tell if a theory is able to survive critical tests and it is the only way to get to know how many times a theory survives critical tests (Bunge, 1999). The key hypothesis that is tested in this paper is based on the conceptual diagram in Figure 1. This diagram has been used to derive testable hypotheses.

Key propositions

In the present study, we test following propositions:

Proposition 1: Scenario criminogeneity has an independent effect on choosing the violent response, controlling for propensity, age and sex.

Proposition 2: The effect of scenario criminogeneity on choosing the violent response is dependent on one's level of propensity, controlling for age and sex.

Proposition 3: We explicitly assume that the magnitude of the scenario criminogeneity regression coefficient will increase by propensity. More specifically, if SAT is corroborated, then low propensity individuals should not be affected by scenario criminogeneity.

Advantages and disadvantages of an (online) factorial survey

Paper and pencil or computer-assisted personal interview survey methods are still commonly used when testing theories of crime causation (Groves et al., 2013; Thornberry and Krohn, 2011). A key problem of traditional self-reported delinquency studies is their inability to provide convincing tests of situational effects. If situational theories assume that individuals commit an act of crime in some settings (that is, when some setting characteristics trigger individual propensity), then a traditional survey does not demonstratively show that the individual committed the act of crime when he or she was present in a situation of provocation or temptation. Although it may be plausible to argue that measures of unstructured routines may serve as acceptable proxies for spending time in criminogenic moral settings, it remains unclear what circumstantial instigations were at work (for example, the presence or absence of provocation, the presence or absence of deterrence caused by monitoring agents). Surveys that use cross-sectional designs are additionally criticized because they use measures of past offending and thus risk the danger of reversing causation. The weakness of the non-experimental survey design lies in the absence of possibilities to randomly assign the presence or absence of criminogenic exposure to subjects.

One interesting alternative for studying situational causes of offending is by conducting a space–time budget survey (STB) (Averdijk and Bernasco, 2015; Wikström et al., 2012). This method has many advantages when studying the situational context of offending, but the STB method cannot be used to study the perception–choice process. Simply asking subjects to run thought processes probably leads to artificially constructed answers and may result in listing action alternatives that otherwise would never be considered in real life (Wikström et al., 2012). To overcome these issues, scenario vignettes that describe a real-world situation are randomly distributed to respondents. The randomly distributed vignettes offer a unique way around the limitation that traditional surveys come with.

One of the founding fathers of the so-called factorial survey was Rossi (Rossi and Nock, 1982; Rossi et al., 1974). According to Rossi and Anderson (1982), the factorial survey provides a better means to capture and measure human judgement. Because of the random manipulations that are distributed to persons in a random fashion, the study is less likely to suffer from a social desirability bias (Alexander and Becker, 1978). The survey participants have no way of knowing whether they are part of a controlled or a manipulated group. Randomized scenario studies provide a full account of all circumstantial factors to be considered by the respondent. Key circumstantial constructs vary in a controlled and theoretically interesting way, since they are manipulated by the researcher in the verbal description.

The present study

The present study contributes to the literature by testing the idea that choosing the violent response in a randomized scenario study is based on the situation, that is, the specific interaction between propensity and exposure to criminogenic scenarios. We replicate the

propensity–exposure–choice process that was originally tested in *Breaking Rules* (see Wikström et al., 2012: chapter eight). The present study uses *an online version* of the factorial survey of students. Participants were randomly presented with scenario versions in a 2 by 2 design (two dimensions and two levels). Subjects were asked to provide their biological sex at the beginning of the survey. By doing so, it was possible to modify the scenario vignettes to match correct gender names such as 'David' for males or 'Lisa' for females and to randomize the vignettes by dimension and level in males and females. The scenario study is restricted in the sense that we used only a scenario that was related to violence. The present study is only a partial test of the perception–choice process in SAT.

Before the online factorial survey was launched, the randomization process was tested by generating 100 trials. The results indicated that the randomization generator performed well and yielded random versions of the different scenario dimensions and levels.[1] Internet surveys have undergone a transformation since the early days and provide researchers with a powerful way to achieve the goals set in this research and, by avoiding certain fallacies, a valid data set can be gathered (Manfreda and Vehovar, 2008; Marsden and Wright, 2010). A control mechanism was included to detect multiple entries by the same participant. Because participants could win an iPad as an incentive, deception is always possible.[2] The anonymity of the respondents was guaranteed. IP addresses and emails were stored in separate databases that could not be linked to the table that kept the survey records.

Scenario structure, the randomization process and the correlational validity of scenario responses

One criticism of scenario studies is that they measure intentions and people do not always act in the way they intended to act. However, a study by Eagly and Chaiken (2007) provides us with empirical evidence that there is a correlation between intention and action. It would be really strange if no such correlation existed. That would suggest that people act completely arbitrarily. This makes no sense at all. After all, we are all humans, sharing a human nature (Hall, 2012; Wilson, 2012) and social patterns come from human universals and their interplay with ecological settings. One issue that is of true concern is the degree of realism that is portrayed by the vignettes. It is important that scenarios do not have an artificial character. Although this criticism should be taken into account when setting up a factorial survey with many vignettes and numerous outcomes, it is of less concern in this specific study. The vignette study of the Peterborough Adolescent and Young Adult Development Study (PADS+), which is replicated here, has been validated before. The *vignette universe* was limited to a 2 by 2 design, mainly for a pragmatic reason: to try to replicate the previous tests of the perception–choice process in SAT. The advantage of having a small scenario universe is that we do not require a vast number of responses to have enough data on each scenario permutation to perform statistical analysis (Wikström et al., 2012). The original content of the vignettes is represented in Table 1 and can be found in Wikström et al. (2012).

Each student was randomly assigned to one of four scenarios (A to D) in a form adapted to his/her gender (that is, males got scenarios involving male actors, and

Table 1. Structure and content of the vignette.

INTRODUCTION	Louise (in the male version, Michael) is waiting for the bus at a bus stop. She is listening to her iPod		
DIMENSION	LEVEL	WORDING	
Provocation	Pushed and ignored	Suddenly a girl who is walking by pushes her. When Louise asks her why she pushed her the girl just ignores her	
	Pushed twice and iPod broken	Suddenly a girl who is walking by pushes her so she drops her iPod to the ground and it breaks. When Louise asks her why she pushed her the girl pushes her again	
Monitoring	Police officers	There are two police officers walking on the other side of the street	
	None	There are no other people at the bus stop	
OUTCOME	Violence	If you were Louise, how likely do you think it is that you would hit or push the girl that pushed you?	
JUDGEMENT		Very likely Likely Unlikely Very unlikely	
Scenario universe		Monitoring	
		Police officers	No one
Provocation	Pushed and ignored	A	B
	Pushed twice and iPod broken	C	D

Source: Wikström et al. (2012).

females received scenarios involving female actors). Although the scenario questions and recorded answers do not refer to actual behaviour, they are assumed to have some truth to them (Wallander, 2009). This assumption is tentatively supported by comparing the choice of the violent response with self-reported violent offending in the study. Respondents who answered positively to the violent scenario had a significantly higher likelihood of self-reported hitting someone (Odds Ratio: 5.7, $p < .001$) and self-reported hitting and injuring someone (Odds Ratio: 4.3, $p < .001$) than the respondents who provided a non-violent response. The results displayed in Table 2 show that the randomization process performed rather well. Owing to a small percentage of item non-response there is a small though non-significant difference in the distribution of some scenario categories. However, and this is important from a methodological point of view, the distribution of scenario categories was random by gender and age. Only 13.2 percent of the respondents chose the violent response to the vignette on the use of violence at the bus stop. Boys chose the violent response significantly more than girls and the youngest age group had the highest likelihood of choosing the violent response.

Table 2. Distribution of vignettes: Violence at the bus stop.

	Frequency	Percent	Valid percent
No provocation, monitoring	292	24.3	24.9
No provocation, no monitoring	317	26.4	27.0
Provocation, monitoring	285	23.7	24.3
Provocation, no monitoring	279	23.2	23.8
Total	1173	97.7	100.0
System missing	28	2.3	
N	1201	100.0	

Study sample

In October 2014, permission was obtained to use the PADS+ vignettes and questionnaire and the construction of the online factorial survey started. In March 2015 an email was sent to all secondary school principals of schools located in Ghent (Belgium) to ask whether the school was prepared to distribute a web link to the factorial survey. Flyers and posters were also printed and distributed among schools of compulsory secondary education and at universities and university colleges in the Flemish part of Belgium. The goal of the study was to get as many respondents as possible within a three-month period. The initial goal was to reach a sufficiently large number of respondents in three age groups: 13–15 years old (young adolescents), 16–18 years old (youths in mid-adolescence) and 19–20 years old (young adults/bachelor students). Finally, 1201 respondents filled in the online questionnaire partially and 1050 respondents filled in the questionnaire completely. A disadvantage of web surveys is that it is impossible to get insight into the unit non-response and the sample frame. We do not know to what extent this affects the results. However, the most important aspect of this exploratory study is the random exposure to scenario criminogeneity: 64.7 percent of the sample students were females and 35.3 percent were males; 26.9 percent belonged to the youngest age group (13–15 years old), 43.9 percent belonged to the group of mid-adolescents (16–18 years old) and 28.6 percent belonged to the oldest age group (19–20 years old). Full confidentiality was guaranteed. Therefore no background information was requested except for gender and age. However, if participants wanted to be part of the contest and to have a chance of winning the incentive (an iPad) they had to provide a valid email address. In September 2015, the winner was randomly selected from the respondents who had filled in a valid email address. She was awarded the iPad. Sample descriptives of the key variables can be found in Table 3.

Measures

Morality is an extremely complex concept. There are many ways to study morality, and criminologists seem to study the concept in a restricted way: often criminologists do not pay a lot of attention to providing detailed conceptual definitions of moral beliefs, values, norms, etc. Unfortunately, these concepts are used interchangeably. In SAT, morality

Table 3. Sample descriptives.

	N	Minimum	Maximum	Mean	Std. deviation
Gender (being male)	1191	0.00	1.00	0.35	0.47
Moral values	1050	16.00	64.00	32.38	7.00
Shame	1050	6.00	18.00	16.75	2.10
Guilt	1050	6.00	18.00	14.38	2.36
Low ability to exercise self-control	1050	10.00	48.00	27.96	5.67
Violent reaction at the bus stop	1173	0.00	1.00	0.13	0.34
Valid *N* (listwise)	1040				

is conceived of as moral values backed up by secondary moral emotions (anticipated shame and guilt).

Moral values

Moral values are value statements that refer to moral norms. This concept measures how morally right or wrong respondents thought the breaking of a set of rules was. High scores indicate poor moral values. The construct is an additive index of the respondent's evaluation of 16 situations of potential wrong-doing. Alpha is .91. See Appendix 1 for details on items regarding all scales. Additionally, the factor structure of each scale construct was checked. To avoid lengthy tables, details can be provided on demand.

Moral emotions

Two moral emotions were measured. *Anticipated shame* measures the extent to which an adolescent would feel ashamed towards significant others if he or she were caught committing an offence. High scores indicate high levels of feelings of shame. Alpha is .87. *Anticipated guilt* measures the extent to which an adolescent would feel guilty if he or she had broken moral rules. Alpha is .80.

The 'overall morality scale' combines moral values, anticipated shame and anticipated guilt and is adapted from the PADS+ study. The modus operandi is identical to that in the PADS+ study.

The ability to exercise self-control

The ability to exercise elf-control is a summary construct that measures whether or not an individual is capable of resisting temptations and provocations. The scale is an additive index based on the scale that was developed by Grasmick et al. (1993), but shortened in PADS+ to a more concise index. High scores indicate a low ability to exercise self-control. Alpha is .75.

Low moral values, a lack of anticipated shame and anticipated guilt and a low ability to exercise self-control are combined into an 'overall propensity index' (Wikström et al., 2012). Scenario criminogeneity is measured as follows: 1 = No provocation, monitoring,

2 = No provocation, no monitoring, 3 = Provocation, monitoring and 4 = Provocation, no monitoring. In previous studies this variable has been treated as continuous because we assume that an underlying continuous variation in scenario criminogeneity exists. Analytically, interaction effects between scenario criminogeneity and propensity are unaffected when using generalized linear modelling.

Statistical controls

Although statistical controls such as sex and age cannot be considered causes from a philosophical point of view (they are not powerful particulars that can bring about something, and can at best be proxies), we do take them into account because the survey descriptives revealed an overrepresentation of girls. Age was trichotomized and coded as follows: 0 = 13–15 years, 1 = 16–18 years, 2 = older than 18 years; gender was code 1 for females and 0 for males.

Analytical strategy

We estimated the net effects of the personal and scenario characteristics using logistic regression and a linear probability model (see Table 4) (Mood, 2010; Schultz, 2016). Modelling non-linear interaction effects is highly difficult in logit and probit models and may often lead to biased and non-significant interaction terms when an interaction effect clearly exists (Ai and Norton, 2003; Hirtenlehner and Kunz, 2016). It can be very misleading to study interaction effects in non-linear models by looking at the significance level of the interaction terms. This has been discussed in detail elsewhere (Hirtenlehner and Kunz, 2016; Mood, 2010; Oberwittler and Gerstner, 2014; Schultz, 2016).

The results of both analyses are very similar. Although the natural choice for analysing the effects of metric and categorical outcomes on binary categorical dependent variables would be the logistic regression, we also ran a linear probability model to put the interactive effects hypothesis to the test. The significant parameters are presented in bold for both the logistic and the linear probability models in Table 4. For the logistic model, the logistic coefficient, significance level (based on the Wald statistic) and odds ratio are presented. The beta coefficients corresponding to the linear probability model are unstandardized coefficients of metric and dummy independent variables. Scenario criminogeneity has the strongest main net effect (Odds Ratio: 2.21 and *B*: 0.12). All other things being equal, propensity has no significant main effect in this analysis. Thus, Proposition 1 is partially rejected. Only in combination with scenario criminogeneity does propensity have significant effects. Proposition 2 cannot be refuted based on these analyses. This finding is in line with the basic assumption of SAT that propensity needs to be activated. The proportion of respondents choosing the violent response is extremely low among low propensity individuals, regardless of their level of exposure. However, in medium propensity individuals the proportion of respondents who choose the violent response is related to the level of situational exposure. This pattern (see Figure 2) is even more pronounced in high propensity individuals. The Nagelkerke pseudo R^2 is 22.3 percent and the R^2 derived from the linear probability model is 12.8 percent. This study replicates the findings reported by Wikström et al. (2012).

Table 4. Multivariate analyses (logistic regression and linear probability model).

Parameter	Logistic regression			Linear probability model	
	B	Sig.	Odds Ratio	*B*	Sig
Females (ref: males)	**−0.72**	**.000**	**0.49**	**−0.07**	**.000**
Age group 13–15 (ref: 19–20)	0.25	.350	1.28	0.02	.406
Age group 16–18 (ref: 19–20)	−0.42	.090	**0.66**	−0.04	.082
Overall propensity: Low (ref: high)	−1.34	.205	0.26	0.06	.342
Overall propensity: Medium (ref: high)	−0.747	.275	0.47	0.02	.730
Scenario criminogeneity	**0.79**	.000	**2.21**	**0.12**	.000
Overall propensity: Low * Scenario criminogeneity	−0.229	.490	0.79	**−0.10**	**.000**
Overall propensity: Medium * Scenario criminogeneity	−0.03	.886	0.969	**−0.05**	**.010**
Model fit	Nagelkerke pseudo R^2: 22.3%			R^2 LPM: 12.8%	

Discussion and conclusion

The present paper is restricted because it had only one ambition: to test the relationship between scenario criminogeneity and propensity. All propositions were corroborated. Scenario criminogeneity increases the probability of choosing the violent response, and its effect is greatest among high propensity individuals. This has important consequences for the theoretical state of the art of SAT. This study provided an independent test of a proposition derived from SAT (Wikström et al., 2012). Using the same measures, the results were replicated in another country, in another sample and with an online version of the randomized scenario study. Indeed, the study could not refute the hypothesis that choosing a violent response is a matter of the combined effect of scenario criminogeneity and propensity. Therefore, the study provides additional evidence for the fact that choosing crime is a matter of person–environment interactions. Theories that stress only situational inducements and ignore the individual are seriously limited, as are theories that ignore characteristics of the action-relevant environment in which crime is perceived as an action alternative and chosen from among different action alternatives. Traditional self-reported delinquency studies (either cross-sectional or panel studies) typically are restricted to survey questions to test theories of crime causation. These designs are not optimal when the aim is to test decision-making in context. Cross-sectional designs often are criticized on the ground that the dependent variable, although measured at the same time as the independent variables, refers to the previous 12 months, and thus may be causally flawed, that is, some respondents' self-incriminations may refer to a time frame prior to the time when the respondents filled in the factorial survey. This is a well-known phenomenon that is generally referred to as backwards telescoping. Panel studies, although having the causal order right, may sometimes be problematic when offending measured at time 2

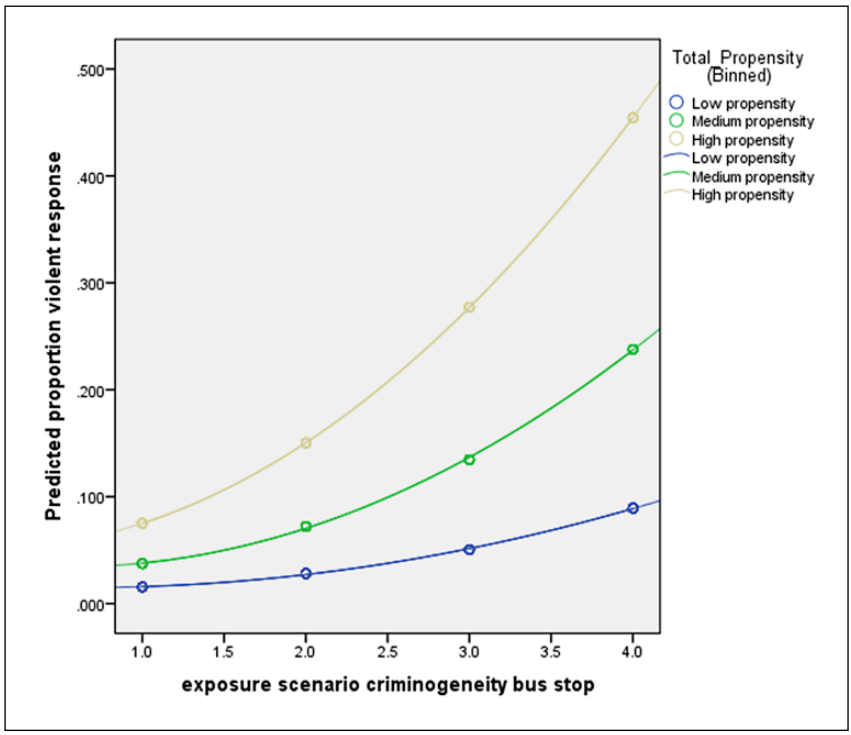

Figure 2. The interaction between scenario criminogeneity and propensity. (For color figure, see the online version.)

is the dependent variable and a number of independent variables are used that refer to time 2−1 (for such an example regarding SAT, see Bruinsma et al., 2015). The potential problem is the (sometimes too long) gap between the two periods: in many cases, causation is a question not of years but of seconds or minutes (Wikström et al., 2012). Panel studies are probably better suited to test within individual-level change in propensities. But when the interest of scholars lies in detecting situational cues and the perception–choice process, then one must look for other designs.

However, although we successfully tested one proposition derived from SAT, the present study has a number of important limitations that need to be taken into account. First of all, this study is clearly based on a convenience sample. Therefore selection effects and bias are not known. This is a downside, but we want to stress that we have obtained a lot of variability with regard to the dependent variable and with regard to propensity. The distribution of the characteristics (such as propensity) does not vary from the distribution of propensity measures in previous self-reported delinquency studies that were drawn from large-scale school surveys with known non-response (see Pauwels, Svensson and Hirtenlehner in this issue). However, we insist that the results are interpreted with care. Most self-report studies and online surveys are derived from the so-called WEIRD people (Western, Educated, Intellectual and Rich; see Henrich et al., 2010). Future tests

of theories need to be conducted among a variety of respondents (juveniles and adults) and in different settings (not just settings that refer to micro-places in the public space, but also other settings such as companies, shops, etc.). Thus, cross-national comparisons are required. The International Self-Reported Delinquency Study (ISRD) (Marshall and Enzmann, 2012) may be a first step in cross-national testing of scenario findings. Although ISRD3 does not make use of a randomized scenario, the ISRD3 questionnaire makes use of one scenario that relates to shoplifting, to which all respondents are exposed.

Still, it remains difficult to see the result of this study as a strong test of SAT. We have found evidence of the fact that respondents who have low scores on the propensity variable report would choose the violent response. And, although that is exactly the pattern that can be expected through the lens of SAT, there remain some queries that future studies need to tackle. SAT is about deliberative and habitual decision-making, and this distinction is very hard to make. In fact, it has been argued before that this issue deserves more attention in empirical studies. How to disentangle this process is beyond the scope of this paper (but see Fazio, 1990, for a discussion on testing dual process models). This issue of the complexity of disentangling perceptions of alternatives and making choices among alternatives has been raised before (for example, Beier, 2016). One of the key questions for dual process theories, to which SAT subscribes, is in what circumstances do people deliberate and in what circumstances do people habitually choose crime as an alternative. Fazio (1990) hypothesized that strong motivations, combined with strong opportunities, would make people deliberate, whereas action in automated response is to be expected when motivations are weak. Reasoning from SAT, deliberation can be expected when moral conflicts arise, but that does not mean that deliberation cannot take place when there is moral correspondence. Future and stronger tests of the perception–choice process in SAT might want to actually measure motivation, independently of morality, self-control, etc., or measure whether system 1 (the fast system of decision-making) or system 2 (the deliberative and slow system) is used. This will require complex research designs.

Another shortcoming of the present study is the fact that we did not disentangle the effect of self-control and morality (originally tested by Haar and Wikström, 2010), as has been carefully done in a study by Schulz (2016). For the sake of parsimony, this study was restricted to the replication of one single hypothesis derived from SAT. We acknowledge that this may be seen as a shortcoming of this study, but this was not our initial goal. A proper test of the morality and self-control interaction would require an extensive theoretical section in which we describe different explanatory frameworks and derive competing propositions from these frameworks. The reader needs to see this paper as an exploration of the possibility of studying processes of choice from the standpoint of SAT. However, our data do allow us to further explore the conditional effect of self-control by scenario criminogeneity and by levels of morality. We hope that future studies will shed some more light on the conditional effects of controls. This is a complex issue that certainly deserves more attention than it has received today. Future research should analyse under which setting conditions (that is, different combinations of deterrent agents and provocation) the interaction between morality and self-control is amplified or diminished.

This study is also limited to one randomly assigned scenario. Thus, the findings should be interpreted with care. Decision-making should be studied with regard to a variety of types of rule-breaking and a variety of action-relevant setting mechanisms (Eifler, 2015). Randomized vignettes have the advantage of combining the best of two worlds: the experimental design, by randomizing the scenarios, and the online survey questionnaire, which is administered to everybody. Randomized scenario studies may be used not only to apply theories to the explanation of traditional crimes, like this student survey of violence, but also to study other types of crime, on other populations, such as employees in work-places. That would strengthen the external validity of SAT.

The appeal of general theoretical frameworks such as SAT lies in the broad applicability of general mechanisms to specific contexts, as has previously been done in the field of studies of political protest (Opp, 2009). The scholar who puts general theories to the strongest tests needs to try to test assumptions in a great diversity of settings using crime-specific measures of propensity and exposure. Future studies should pay attention to other setting characteristics that have relevance, such as temptation, for example, are there other characteristics that may serve as deterrents? Whereas this study was restricted to the study of provocation and monitoring, future studies might also want to look at scenario temptation and other aspects such as the presence of deviant peer groups; in short, to fully capture the potential of the randomized vignette study, respondents should be provided with more vignettes. We may conclude that, based on these preliminary results, the future for further testing theories of decision-making looks promising. It may be challenging and fruitful to derive different propositions from different theories, to increase our understanding of the general strength of SAT in comparison with other perspectives. This could be done using the research programme of comparative theory testing (Opp and Wippler, 1990).

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Notes

1. I sincerely thank Benjamin Van Damme, criminologist (2015, Ghent University), who developed the online factorial survey.
2. IP addresses were stored to identify participants who had very recently taken part in the survey and were prohibited from trying to make a new entry. Finally, duplicate emails rendered an entry invalid for incentive participation.

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Appendix: Measures and question wording

Moral beliefs

Respondents were asked to indicate how wrong it is to 'ride a bike through red light', 'skip doing homework for school', 'skip school or work without an excuse', 'lie, disobey or talk back to teachers', 'go skateboarding in a place where skateboarding is not allowed', 'tease a classmate because of the way he or she dresses', 'smoke cigarettes', 'get drunk with friends on a Friday evening', 'hit another young person who makes a rude comment', 'steal a pencil from a classmate', 'paint graffiti on a house wall', 'smash a street light for fun', 'smoke cannabis', 'steal a CD from a shop', 'break into or try to break into a building to steal something', 'use a weapon or force to get money or things from another young person'. Answering categories were: 'very wrong', 'wrong', 'a bit wrong', 'not at all wrong'.

Anticipated shame

Six items were used: 'If you were caught shoplifting and your best friends found out about it would you feel ashamed?', 'If you were caught shoplifting and your teachers found out about it would you feel ashamed?', 'If you were caught shoplifting and your parents found out about it would you feel ashamed?', 'If you were caught breaking into a car and your best friends found out about it would you feel ashamed?', 'If you were caught breaking into a car and your teachers found out about it would you feel ashamed?', and 'If you were caught breaking into a car and your parents found out about it would you feel ashamed?'. Answering categories for these items were: 'no', 'not at all', 'yes, a bit', 'yes, very much'.

Anticipated guilt

A high score indicates a high level of guilt. The following six items were used: 'Would you feel guilty if you did something your parents (step-parents) have told you absolutely not to do?', 'Would you feel guilty if you cheated on a test in school?', 'Would you feel guilty if you teased another pupil so he or she started to cry?', 'Would you feel guilty if you stole something in a shop?', 'Would you feel guilty if you hit another pupil who made a rude remark to you?', and 'Would you feel guilty if you broke into a car and stole

something?'. Answering categories for these items were similar to the measurement of shame: 'no', 'not at all', 'yes, a bit', 'yes, very much'.

Ability to exercise self-control

The items are: 'I always say what I think, even if it is not nice or smart', 'If I want something, I do it immediately', 'When I have an argument with someone, I can talk calmly about it', 'I lose my temper easily', 'When I am really angry, other people better stay away from me', 'I sometimes find it exciting to do things that may be dangerous', 'I often try to avoid things that I know will be difficult', 'I get bored easily', 'I often do things without thinking of the consequences', and 'Sometimes I will take a risk just for the fun of it'.