

# Role-induced bias in criminal prosecutions

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## Abstract

There are two main models of criminal prosecution in the western world. One tasks an independent magistrate (the examining judge) with the duty of conducting the investigation of a given case and transferring all evidence collected to the parties and the trial court. The other vests the prosecution with the task of conducting the investigation before representing the accusation in court. In 2011, a new code of criminal procedure entered into force in Switzerland, forcing most Swiss cantons to transition from the first model to the second. We investigate whether the change in the person conducting the investigation (from examining judge to prosecutor) could introduce or exacerbate bias against or in favor of the defendant. Through an empirical study carried out with students, we tried to determine whether this change might affect the fairness of the proceedings. We contend that the rights of the defense are better safeguarded in the first model than in the second, even if the contrast is not as stark as was initially predicted.

## Keywords

Criminal procedure, examining judge, fair trial, prosecutor, rights of the defense, wrongful convictions

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## **Introduction**

In 2011, a new federal code of criminal procedure entered into force in Switzerland. Reforming the structure of criminal prosecution for most of the cantons, it established the prosecutor as the sole investigating authority and abolished the institution of the neutral examining judge. During the debates that preceded the adoption of this new model, several scholars and practitioners expressed their fear that criminal prosecutions would become unbalanced and unfair because of the concentration of powers in the hands of a magistrate whose task would ultimately be to seek the conviction of the suspect (Institut du fédéralisme de Fribourg, 2003).

Our study aimed at investigating whether prosecutors, more than examining judges, might be subject to role-induced bias, that is, a psychological phenomenon leading to investigations being carried out mainly against the defendant and not, as provided by the law, to establish the facts. To this end, an empirical study was carried out with 284 Swiss students,<sup>1</sup> who were assigned to one of three experimental conditions aimed at recreating the role of the authorities and parties in a criminal investigation. The study is of interest to criminal practitioners, to lawmakers and to academics interested in the fairness of the criminal process. The results could also fuel the ongoing debate on the respective merits of adversarial-type and inquisitorial-type criminal justice systems and the implications of such models of criminal prosecutions in terms of the fairness of the trial and, more specifically, the presumption of innocence, the burden of proof and the rights of the accused.

## **Role-induced bias**

Social psychology has repeatedly demonstrated the dramatic effects that social roles can have on behavior (Janis and King, 1954). It also has been shown, that once a subject has been induced to adopt a social theory, she/he is reluctant to give it up even if the theory has been discredited (Anderson et al., 1980). It has been argued that this bias is highly relevant in the legal context because roles influence choices (Sunstein, 1996), as well as the search for evidence (O'Brien, 2009a).

Role-induced bias can be caused by deliberate motivated reasoning (Kunda, 1990). Indeed, individuals might come to the conclusion that adopting a biased perspective is mandated by their role (Janis and King, 1954; Zimbardo, 1965). Yet the bias can also emerge unintentionally (Kunda and Thagard, 1996; Monroe and Read, 2008; Engel and Glöckner, 2013). The resulting 'confirmation bias' has been experimentally demonstrated specifically in the context of the investigation of a criminal case (Rassin et al., 2010). A leading psychological theory of decision-making in complex situations assumes that humans strive to maximize the coherence of their mental representation of the world (Byrne, 1994; Engel and Glöckner, 2013; Glöckner and Betsch, 2008; Holyoak and Simon, 1999; Simon et al., 2004). While reaching a decision, such as whether or not the evidence in a given case supports a guilty verdict, coherence is forced – in a bi-directional process – upon the person's mental representation, even if the latter was initially incoherent (Holyoak and Simon, 1999). The formation of coherence in an iterative process leads to a polarization of the evidence: evidence that supports the emerging decision is strongly endorsed while contradicting evidence is dismissed, rejected or ignored (Simon, 2004). This process is largely automatic and unconscious.

Unlike a biased assessment caused by motivated reasoning, which should disappear once the goal is changed, the coherence imposed by coherence-shifts persists even when the goal has changed, because coherent representations are inherently stable (Read et al., 1997). Engel and Glöckner (2013) show that a role-induced bias persists even without any incentive and largely results from unconscious processes. Controlling for differences in information search, role-induced bias persists even when subjects have a high monetary incentive – €100 – to accurately predict the outcome of a criminal trial. Subjects previously assigned to the role of the prosecutor consider the probability of a guilty verdict to be significantly higher than subjects in the role of the defense (Engel and Glöckner, 2013). Role-induced bias is therefore more than just motivated reasoning. Once ‘trapped’ in an interpretation, it is hard to discard it and to adopt a different interpretation (Engel and Glöckner, 2013). This could explain why attempts at de-biasing role-induced bias have been met with limited success (O’Brien, 2009a; Simon, 2004). The pure assignment of a role, even if there is no self-serving element, may have behavioral effects that cannot easily be reversed.

The legal relevance of these psychological findings is evident. The assignment of a role – be it prosecutor, examining judge or defense attorney – likely influences both the assessment of evidence and the selection of information, that is, the decision to obtain further evidence that might support or contradict an initially preferred hypothesis. Since the assignment of the role of, for example, prosecutor induces a motivation to prefer the hypothesis that the defendant is guilty, the assessment of the evidence and the search for new evidence will likely be biased, unbeknownst to the subject. With the abrogation of the institution of the examining judge and its replacement with a system that places the responsibility for the investigation solely into the hands of the prosecutor, there is a risk that the investigation will focus primarily on obtaining a guilty verdict, rather than finding the truth. Indeed, whereas the perceived goal of the examining judge is to establish the facts of the case, the perceived goal of the prosecutor is primarily to obtain a guilty verdict (Riklin, 1998).

Data from other jurisdictions should raise concerns in this respect. In the United States, for example, the bias and misconduct of prosecutors have been denounced as one of the major causes of wrongful convictions (Balko, 2013; Davis, 2007; Garrett, 2011; Gershman, 2003; Giannelli and McMunigal, 2007; O’Brien, 2009b; Robles, 2013; Taylor Jr and Johnson, 2007). We therefore seek to investigate the potential effects of role-induced bias on the conduct of criminal investigations. Through an experiment with undergraduate (bachelor) law and psychology students at the universities of Geneva and Neuchâtel in Switzerland, we sought to test the prediction that prosecutors in particular would search for more incriminating elements than would examining judges and defense attorneys.

## *Hypotheses*

Our main hypothesis was that subjects assigned to the role of prosecutors would search for more incriminating elements than would subjects assigned to the role of examining judges and defense attorneys. Prosecutors would focus on a guilty verdict and search for incriminating elements against the suspect, whereas defense attorneys would focus on exonerating elements. Examining judges would be in between, as mandated by their

neutral role. A second hypothesis was that subjects assigned to the role of the prosecutor were more likely to assess the evidence in a way that supports a guilty verdict than would subjects in the role of defense attorney. Again, the subjects in the role of examining judge were expected to be in between those two extremes. Lastly, based on Rassin et al. (2010), we expected that the more severe the crime being investigated, the stronger are the effects of role-induced bias.

## Methods

### Respondents

To test our hypotheses, we randomly assigned students of a criminology class at the University of Geneva and a criminal law class at the University of Neuchâtel, Switzerland, into three groups (prosecutor, defense attorney and examining judge). Students were asked by their professor to participate in an online questionnaire (see next section for the content) and then received an email invitation to participate. A total of 935 invitations were sent out (316 in Geneva, 619 in Neuchâtel) in early 2016.

A total of 423 responses were received (127 from Geneva and 296 from Neuchâtel), corresponding to a response rate of 45 percent (40 percent in Geneva, 48 percent in Neuchâtel). However, a substantial number of respondents failed to complete the questionnaire (58 only read the description, some stopping before role attribution, some after, yielding 379 individuals having had a role attributed, and 365 individuals answering at least one question). Overall, 284 respondents completed the questionnaire (81 from Geneva and 203 from Neuchâtel), for a completion rate of 30 percent among all invited students (67 percent of those that started the questionnaire completed it). The completion rate of those who started the questionnaire differed according to the assigned role (the non-responders could not be aware of their assigned role). Of 138 respondents in the 'defense attorney' condition 96 completed the questionnaire, 108 of 131 in the 'prosecutor' role and 80 of 110 in the 'examining judge' role ( $X^2=6.34, p=.04$ ); 178 of 365 who started the questionnaire were assigned to the 'severe crime' condition versus 141 of 284 who finished the questionnaire. There was no significant difference in completion rates according to case severity ( $X^2=0.25, p=.61$ ).

A majority (87 percent) of those who finished the questionnaire were law students (43 of 81 from Geneva, and all the respondents from Neuchâtel). The rest were primarily students of psychology from the Geneva pool (31). The law students were uniformly distributed among the three bachelor years and two master years of study. Seventy percent of respondents were women. The median age of respondents was 23 years (mean: 24, standard deviation: 6.5).

### Questionnaire

Among the three experimental conditions (prosecutor, defense attorney and examining judge) the questionnaire differed only in the introductory part. Depending on the randomly assigned role, respondents were told that they should imagine being in one of the three roles and the duties of their assumed persona were briefly explained. The prosecutor's role

**Table 1.** Expected incriminating or exonerating weight of the evidence.

Investigation	Direction (+ incriminating, – exonerating)
Ask witness to identify suspect in line-up	0.61***
Further investigate use of stolen credit card	0.41***
Investigate suspect's prior criminal record	0.31***
Investigate (im)partiality of witness	-0.26*
Check security camera footage	-0.31*
Expand investigations to other suspects	-0.43***

\* $p < .05$ , \*\*\* $p < .001$ .

during investigation was carefully worded to highlight the initial neutrality of the role,<sup>2</sup> following the legal text (Art. 6, Swiss Code of Criminal Procedure). The role of the defense remains the same throughout the investigation and the judgment.<sup>3</sup> Finally, the role of the examining judge was explained in a somewhat similar way to that of the prosecutor, except that the examining judge has no role in the judgment.<sup>4</sup>

These roles are inherently different during the investigative phase: whereas the prosecutor and the examining judge are imbued with the powers and means of the state and therefore must seek to discover the truth, the defense attorney operates only in the interest of their client. If they intervene in the investigation, they should be interested exclusively in discovering exonerating elements.

We constructed a short vignette of a criminal case involving a thief on a motorbike snatching a handbag from an old woman. Depending on the condition 'severity of crime', the woman either falls and quickly gets up unhurt ('light') or falls and dies from the resulting injuries ('severe'). The questionnaire then introduced the subject to the investigations carried out so far. One witness claimed to identify the thief. This led to a suspect who was subsequently arrested. He owned the same type of clothing as the thief, but no stolen items were found in his possession, and neither did he own a motorbike. The stolen credit card was used near the suspect's home. The suspect claimed to have been watching TV with his girlfriend at the time of the assault. When the stolen handbag was later found in a dumpster, traces of DNA evidence on the bag were found to match those of the suspect. The random match probability was given as 1:1000. The motorbike used in the robbery was later reported stolen by its owner. The specific vignette used was the result of a series of pilot tests on Amazon's Mechanical Turk to ensure that roughly 50 percent of respondents would initially find the suspect guilty, and 50 percent not guilty.

After having determined whether the subjects considered the suspect to be guilty or not guilty based on the initial investigations, the respondents were given a choice of six further investigations that they could carry out (see Table 1) and were told to choose three, and only three, of them. These six elements were the result of a series of pilot studies on Amazon's Mechanical Turk that sought to identify investigative activities that were considered as leading to either incriminating or exonerating evidence. The participants on Mechanical Turk were asked to rate each of 13 investigative activities on a scale

**Table 2.** Proportion of initial and final guilty and not guilty verdicts.

		Initial verdicts	
		Guilty	Not guilty
Final verdicts	Guilty	0.31	0.03
	Not guilty	0.13	0.53

**Table 3.** Initial and final guilty verdicts by role.

	Initial verdicts			Final verdicts		
	Defense	ExamJudge	Prosecutor	Defense	ExamJudge	Prosecutor
Guilty	0.39	0.43	0.5	0.25	0.34	0.42
Not guilty	0.61	0.57	0.5	0.75	0.66	0.58

ranging from  $-2$  to  $+2$ , with  $-2$  corresponding to 'strongly exonerating' and  $+2$  to 'strongly incriminating', and '0' as 'neither exonerating nor incriminating'. Out of the 13 initial investigative activities, 3 were identified as incriminating pieces of evidence, and 3 as exonerating pieces of evidence. For all of these investigations, the expected direction of the resulting evidence was significantly different from 0 (see Table 1).

Here, it may seem surprising that evidence is qualified a priori as exonerating or incriminating. However, a new examination of the CCTV footage can, at this point, serve only to find differences between the actual offender and the suspect, just as the development of new leads is necessarily exculpatory. Furthermore, the wording was chosen carefully to illustrate a goal in these different investigative avenues. This goal was either in favor of the defense<sup>5</sup> or in favor of the accusation.<sup>6</sup>

The central question about the choice of further investigations was followed by three control questions pertaining to the facts of the case and a final question that asked (again) whether the suspect was guilty or not.

## Results

Overall, 125 students considered the suspect guilty initially, and 96 considered him guilty at the end of the questionnaire. No person changed from absence of guilt to guilt after having read the investigative elements. The results are given in Table 2.

The results concerning initial and final assessments of guilt by role are shown in Table 3.

The link between the verdicts and the role assigned to the participants is not significant; indeed, the test on the initial data yields  $\chi^2 = 2.81, p = .25$ . After having chosen the leads to investigate further, these values are  $\chi^2 = 6.31, p = .04$ . After the choice of investigation, therefore, the link between the role and guilty verdicts is significant. The proportions of guilty verdicts are in agreement with the hypothesis concerning the roles: the

**Table 4.** Initial and final guilty verdicts by case gravity.

	Initial verdicts		Final verdicts	
	VictDead	VictAlive	VictDead	VictAlive
Guilty	0.42	0.46	0.38	0.3
Not guilty	0.58	0.54	0.62	0.7

**Table 5.** Proportion of incriminating elements selected by role.

Role	Incriminating
Defense	0.38
ExamJudge	0.41
Prosecutor	0.45

most guilty verdicts are meted out by those who responded in the role of the prosecutor, the fewest by those in the role of the defense attorney. This result shows significant bias resulting from the assigned roles in the interpretation of the investigative elements.

Concerning the link between the consequences of the actions carried out by the perpetrator (victim dead or victim alive), Table 4 was obtained with respect to initial and final guilty verdicts.

By hypothesis, more guilty verdicts were expected for the case where the victim dies after the aggression than where the victim is unharmed. The converse is true (see Table 4) for the initial assessment of guilt. This relationship between case type and guilty verdicts is not significant before the investigative elements are described and selected by the participants. The Chi-square test yields the following numbers:  $\chi^2 = 0.37, p = .54$ . Then, after the description of possible investigative routes (without any results) the relationship changes somewhat, with a larger proportion of guilty verdicts in the scenario where the victim dies. Again, these differences are not significant ( $\chi^2 = 1.47, p = .22$ ). In conclusion to these preliminary analyses, we found that the attributed role had the predicted effect on verdicts; role induction was therefore a success. However, the hypothesis that a more dire outcome for the victim would yield more guilty verdicts was not supported.

### *Investigative choices*

Now to the main hypothesis, that is, that prosecutors would select more incriminating elements, and defense attorneys would select more exonerating elements, while investigating the case. The proportion of incriminating choices by role are shown in Table 5.

These choices by role reflect the expected behavior: the fewest incriminating choices were made by the respondents in the defense attorney's role (38 percent of choices made overall are among those determined to be incriminating in nature), followed by the respondents in the examining judge's role (41 percent of choices are incriminating), and, finally, in the prosecutor's role (45 percent of choices are incriminating). Note that all roles favored exonerating over incriminating elements, on the whole. Among the

**Table 6.** Anova on the proportions of incriminating choices, by role.

	df	Sum of Sq	RSS	AIC	F-value	Pr(>F)
<none>			15.323	-823.178		
Role	2.000	0.316	15.638	-821.384	2.896	0.057

**Table 7.** Mean of weighted investigative choices.

Role	Investigative choice
Defense	-0.16
ExamJudge	-0.08
Prosecutor	0.01

respondents in the defense attorney's role, 13.54 percent (or 13 individuals) chose only exonerating elements, whereas in the prosecutor's role this percentage was 7.41 percent (8 individuals). Conversely, none of the respondents in the defense attorney's role chose only incriminating elements, which was the case for 4.63 percent in the prosecutor's role (5 individuals); these numbers are small, but they indicate an agreement with the hypothesis of the influence of these roles. These differences in selection of investigative elements by role are not significant, but very close to significance with  $p = .057$  (Table 6).

All investigative elements were not equal; in Table 1 the weights that can be attributed to the different choices are shown. These were used to compute a weighted mean of the investigative choices made, shown in Table 7; an overall mean of 0 would imply that, for a very exonerating element (such as the development of new leads), a larger number of incriminating but less meaningful elements would be chosen, thus balancing the approach.

The weighted choices show that the evidential weight of the incriminating evidence is larger than for the exonerating evidence for all of the roles. However, the respondents put in a defense attorney's role chose less incriminating evidence than their counterparts placed in the roles of either prosecutors or examining judges. Among those two roles (which searched for more incriminating evidence), the examining judges led an investigation that was more exonerating in nature. But these differences between roles were not significant (Table 8).

Although there are no significant differences in the overall direction of the selected evidence types according to role, we were still interested in examining which role would prefer which choice of investigative elements. Table 9 shows the differences in the choices between the three roles.

Most participants chose 'OtherLeads', which is the strongest exonerating element (see Table 1). However, this particular element was chosen most frequently by the respondents in the defense attorney's and the examining judge's role, and less frequently by the respondents put in the role of prosecutors. The next most frequently chosen element was the history between the suspect and witness 1; this element was exonerating as well. The pattern of the choices changed with respect to the 'OtherLeads', with the



**Table 8.** ANOVA on the overall tendency of choices, by role.

	df	Sum of Sq	RSS	AIC	F-value	Pr(>F)
<none>			77.568	-362.579		
Role	2.000	1.535	79.104	-361.012	2.781	0.063

**Table 9.** Selections carried out by role.

Role	CCTV	CreditCards	CriminalHistory	DrozvWitI	OtherLeads	AskWitsForID
Defense	0.47	0.50	0.49	0.65	0.68	0.14
ExamJudge	0.47	0.57	0.47	0.54	0.68	0.19
Prosecutor	0.41	0.56	0.57	0.58	0.60	0.22
All roles	0.45	0.55	0.52	0.59	0.65	0.18

respondents acting as defense attorneys choosing this element most often, followed by prosecutors and finally examining judges. Credit card use is the next element chosen overall, and was assessed as somewhat incriminating. This element was, again, chosen least frequently by respondents acting as defense attorneys (50 percent of them chose this element), most frequently by the examining judges, with prosecutors in between; respondents acting as examining judges and prosecutors chose this element at a very similar rate (56 percent vs 57 percent of them). The criminal history, which was assessed as slightly incriminating in nature (Table 1), was chosen by over 50 percent of respondents as well. Respondents acting as prosecutors chose this element most often, followed by the defense attorneys and finally the examining judges. The final two elements were a new analysis of the CCTV camera, chosen with the same frequency by respondents acting as defense attorneys and examining judges, and less frequently by those acting as prosecutors; indeed, this is an exonerating element. The final element chosen least frequently was the line-up, asking the other witnesses whether they identified the suspect. This was an incriminating element, and it was chosen most often by the respondents acting as prosecutors, followed by examining judges and finally defense attorneys.

In order to examine whether the different investigative leads were chosen in a different order by the respondents assigned to different roles, we attributed different weights to the choices based on their position. If an element is chosen first, it is multiplied by 3, the second choice is multiplied by 2 and the third choice by 1. Elements not chosen are attributed a value of 0. Only the direction of the element was retained, that is ‘-1’ for exonerating elements and ‘+1’ for incriminating elements (given under ‘InvestigativePrioritiesNet’ in Table 10).

In a second approach, the weights from Table 1 were used and multiplied by 3, 2 or 1 depending on their rank as chosen. (These resulting ‘InvestigativePriorities’ are also reported in Table 10). The weighted priorities are somewhat more incriminating for all three roles than the unweighted ones, showing a preference for the items that are highly incriminating (with respect to those incriminating elements that are considered as having less weight). Also, and this is true whether or not the weights of the different

**Table 10.** Weighted sum (by order of selection) of investigative choices.

Role	InvestigativePrioritiesNet	InvestigativePriorities
Defense	-1.35	-0.31
ExamJudge	-1.09	-0.22
Prosecutor	-0.36	0.05

**Table 11.** ANOVA table of the weighted investigative priorities.

	df	Sum of Sq	RSS	AIC	F-value	Pr(>F)
< none>		2723.26	648.01			
Role	2	53.98	2777.24	649.59	2.78	0.0634

investigative items are used, the most incriminating evidence was collected with the highest priority by the respondents acting as prosecutors, followed by examining judges and finally by defense attorneys.

Formal testing using ANOVA based on the net priorities (that is, without including the weights of the investigative elements, only their order; Table 11) yields no link between the role and the investigative priorities set at a significance level of .05; again, however, the result is very close to significance.

Analysis using logistic regression, with the guilty verdict as the response variable and the examining judge as baseline, confirms previous results: role is not significantly linked to guilty verdicts. Here, an effect of the geographic location is apparent, once gender, case severity and role are controlled (Table 12).

In this analysis, the odds ratio of 1.44 for prosecutors means that respondents acting as prosecutors were more likely than their counterparts acting as examining judges to find the suspect guilty. The odds ratio for defense attorney (0.86) means that respondents acting as defense attorneys were less likely than investigating judges to find the suspect guilty. The effect therefore goes in the expected direction, but is not significant.

The significant effect of geographic location no longer exists once the academic curriculum of the respondents is taken into account; neither the geographic locations nor the academic curricula are significant (results not shown).

Linear regression with the weight of the chosen investigative elements as a dependent variable yields the model shown in Table 13.

Whereas role and severity are not significantly linked to the overall weight of the chosen investigative elements, the initial verdict and gender are significant predictors. An initial verdict of innocence leads to a choice of less incriminating elements. Furthermore, men chose more incriminating elements than women did. As to the link between role and investigative weight, again, the direction of the link is in agreement with the hypothesis, but is not significant.

## Discussion and conclusion

It should first be noted that in all the different roles (prosecutor, defense attorney and examining judge), subjects chose more exonerating elements than incriminating

**Table 12.** Logistic regression of guilty verdicts as a function of role and case severity.

	B (SE)	95% conf. interval for odds ratio		
		Lower	Odds ratio	Upper
Intercept	0.21 (0.33)			
Role = defense attorney	-0.15 (0.31)	0.46	0.86	1.59
Role = prosecutor	0.37 (0.30)	0.79	1.44	2.63
Victim = dead	-0.11 (0.25)	0.55	0.89	1.45
Location = NE	-0.56* (0.27)	0.33	0.57	0.96
Gender = male	-0.31 (0.27)	0.42	0.73	1.23

\* $p < .05$ .**Table 13.** Linear regression of the weight of the investigative elements.

	$R^2$	B	SE B	Stand. $\beta$	$p$
<b>Step 4</b>	0.07**				.01
Constant		-0.102	0.088		.25
Role = defense attorney		-0.076	0.078	-0.116	.32
Role = prosecutor		0.071	0.077	0.067	.35
Verdict = innocent		-0.162*	0.063	-0.139	.01
Location = NE		0.029	0.068	0.027	.67
Severity = dead		0.083	0.062	0.072	.18
Gender = male		0.179**	0.067	0.274	.01

 $R^2$ \* $p < .05$ , \*\* $p < .01$ .

ones. This confirms previously published data on the topic. Indeed, Rassin et al. (2010) obtained percentages of incriminating evidence (as opposed to exonerating evidence) below 50 percent, except for participants already convinced of the guilt of the accused.

Initial and final guilty verdicts (before and after having selected investigative leads) clearly indicate role bias. Here, respondents in a prosecutor role found the suspect significantly more often guilty after the investigative phase. In this phase, as further results show, respondents acting as prosecutors chose more incriminating elements (although not significantly so). But, foremost, their final opinion showed stronger confirmation bias with respect to their initial assessment than was the case for the participants in the other roles. This is interesting, given the fact that the participants were not given the results of the investigative leads that they had chosen (for example, if they asked to check the security camera footage, they were not told that the footage showed images that would exonerate/implicate the suspect). The opposite question is, why did participants change overall towards not guilty verdicts? Here, again, there is probably a bias at work. The fact that the investigation did not yield any results was apparently interpreted as being due to the innocence of the suspect, when it is simply due to the setup of the study. No exonerating element is found, but it is the absence of an incriminating element that seems to influence this second verdict most strongly.

Second, in all the analyses carried out, the subjects numerically behaved as foreseen, that is, respondents acting as defense attorneys chose more exonerating elements than did examining judges, who in turn chose more exonerating elements than did prosecutors. Although our results are not statistically significant, they are, with respect to the selection of investigative elements, very close to significance ( $p=.057$  in the central analysis). Thus, the hypothesis that the collection of investigative elements is influenced by the role attributed to a person in the criminal justice system could not formally be confirmed, but should not be discounted either.

In particular, the study was carried out on students who were assigned a role by merely telling them that they were acting as a prosecutor, defense attorney or examining judge. This is a very subtle manipulation that is easily missed. Nonetheless, role induction was successful, and yielded results that not only agreed in direction with the hypothesis that more incriminating evidence would be sought by prosecutors than by investigative judges, but also were very close to significance. Some elements suggest that research on this topic should be carried out further; indeed, one of the predictors of the search for exonerating evidence was the initial assessment of innocence, demonstrating confirmation bias (Table 13). Again, if confirmation bias and role-induced bias could be demonstrated on a sample of students, the implications for the criminal justice system must be assessed. Indeed, if role bias is tendentially present in this study, the effects in the context of the criminal justice system can be expected to be much larger owing to a stronger identification of the stakeholders with the respective roles. Finally, male and female participants differed in the selection of investigative elements, and our study was carried out on a majority of women (70 percent, vs 30 percent of men). This does not reproduce the distribution of sexes among Swiss prosecutors in the cantons in which the study was conducted. In Neuchâtel, 3 out of 10 prosecutors are female; in Geneva, 17 out of 43 (that is, approximately 40 percent). These numbers could suggest that the tendencies that we have observed in our sample could be stronger in a population of mostly male prosecutors.

Although the results do not cause alarm, most investigations having included exonerating and incriminating evidence, these results do show a somewhat worrying trend. We would suggest, since neither confirmation bias nor role-induced bias is ruled out by these results, that jurisdictions that have an examining magistrate consider carefully whether they want to adopt a system in which prosecutors hold all investigative powers. Such a model can seem to be efficient – the same person being in charge of one case from beginning to end – but it also poses a threat to the rights of the defense and creates a heightened risk of wrongful convictions. Furthermore, in systems in which a prosecutor both leads the investigation and represents the accusation in court, we would recommend that two distinct and independent prosecutors be tasked with these two phases of the process in each given case. In the end, it is in everybody's interest to ensure that no one is convicted despite their innocence.

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## Notes

1. 423 students started the study, 284 completed it.
2. ‘Imagine that you are a prosecutor. As a prosecutor, you conduct the investigation and look for all circumstances relevant to the assessment of the criminal act and the accused. You will investigate incriminating and exculpating circumstances with equal care. Once your investigation is over, you decide to close the case or return the accused to the court that will try him. In the latter case, you finally support the prosecution in court for the conviction of the defendant.’
3. ‘Imagine that you are a lawyer specializing in criminal defense. Your goal is primarily to safeguard the interests of the defendant, your client. To this end, your role includes critically evaluating the evidence gathered by the public prosecutor and proposing alternative investigative leads to investigators. If your client is sent to trial, it is up to you to defend him in court and get his acquittal.’
4. ‘You are an examining judge. In some systems of criminal procedure, the examining judge is the judge in charge of the criminal investigation. As an examining judge, you investigate all circumstances relevant to the assessment of the criminal act and the accused. You will investigate incriminating and exculpating circumstances with equal care. Once your investigation is completed, you transmit the file to the public prosecutor, who will decide whether to return the accused to the court that will judge him.’
5. ‘Analyze the security cameras once again. Could there be a clue that would suggest that Mr Droz cannot be the author of the crime?’
6. ‘Now that a suspect, Mr Droz, has been found, the case against him can be strengthened if other witnesses identify him. An identification session should be organized.’

## ORCID iD

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