

The Engel Effect?

Experimental Evidence on Rule Compliance

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A. Introduction

In Prof. Engel's research group at the Max Planck Institute for Research on Collective Goods, each Monday used to feature the "Ratio Runde." During its sessions, members and guests would present their work and receive valuable feedback in a very constructive environment. Given the interdisciplinary nature of his group, which consisted of researchers from many disciplines – including Law, Economics, Psychology, Sociology, Political Science, and Computer Science – the speakers always faced a great number of questions. At some point, Professor Engel introduced a rule that only clarifying questions were allowed during the main part of the presentations. While he always took great care to ensure the audience was aware of this rule, there were no sanctions attached to breaking it, and yet most participants adhered to it. In this paper, we explore whether the high rates of rule adherence can be attributed to Professor Engel's authority as the rule-setter, or if the adherence was merely due to the guideline being explicitly called a "rule".

Already Prof. Engel himself has conducted research on rule-following behavior. His work on rule following shows that compliance is not only a function of intrinsic morality or deterrence: i) compliance is socially mediated: rules succeed or fail through the expectations they induce, ii) information design is crucial, since what authorities publicize about typical behavior can either crowd in or crowd out compliance, iii) a rule taking the form of a law works best in concert with credible sanctions. In the following, we briefly summarize his corresponding work on these topics – some of which is jointly with us – and for which we are very grateful to have had the chance to collaborate with him.

In Desmet & Engel (2021), he demonstrates that individuals are conditional rule followers: their willingness to obey an arbitrary rule increases when they expect higher compliance by peers. This pattern establishes

a social-contagion channel for compliance that operates even when the rule itself has no instrumental payoff, highlighting why public messaging about typical behavior can shift adherence. In Engel (2023) he pushes this insight toward deviance. In a laboratory experiment, complemented by vignette evidence, he shows that very lean cues about others' noncompliance are sufficient to increase the propensity and intensity of rule violations. The study isolates a peer-effect mechanism for "conditional rule violation," underscoring the risk that transparency about low compliance or visible nonenforcement may propagate offending. Interpreting the rule violation as a crime, as Prof. Engel does in that paper, a straightforward implication for legal design arises: information environments that give rise to a norm of noncompliance can undo the gains from sanctions or moral suasion. Furthermore, observing rule violations reduces compliance not only in the same task but also in others, especially when rules are perceived as similar between tasks (Goerg et al., 2024a). They also show that spillovers – even though they are bounded – are stronger when individuals first break the same rule themselves, suggesting a "slippery slope" effect. Taken together, (not only) these findings from lab and field settings point to conditional norm compliance as a key mechanism: individuals weigh norms less in their decision process after seeing others violate them.

In a related strand of research, Prof. Engel has zoomed in on the importance of norms and the mechanisms by which they guide behavior. Engel, Kube & Kurschilgen (2021) show – by experimentally inducing differences in what people see as "normal" behavior – that selected information about past cooperation shifts beliefs and, through them, cooperation and punishment in social dilemmas. Notably, "bad news" about low cooperation depresses both contributions and the effectiveness of peer punishment, making recovery from poor expectations difficult. This identifies expectations management as a powerful yet delicate policy tool: highlighting undesirable behavior can entrench it. Norms and sanctions are also explored in Engel & Kurschilgen (2013), where the relationship between institutions, expectations, and behavior is made explicit. In public-goods experiments with sanction regimes and legal framing, behavior and normative (i.e. injunctive) expectations coevolve. A "legal frame" by itself does little; paired with sanctions, however, it boosts their effectiveness. Apparently, the law's expressive function complements deterrence rather than substituting for it. A light-touch alternative to sanctions is proposed in Engel & Kurschilgen (2020), namely self-set contribution standards

that operate like private injunctive norms. These “self-nudges” initially raise cooperation, but small wording changes or already-high baselines can erase the effect. Their lesson for policymakers is cautionary: norm-based nudges are fragile; what works in one environment may not work in another.

Apart from Prof. Engel’s work on rule-following, there has been a growing body of experimental research lately that investigates individuals’ willingness to follow rules – particularly in situations where compliance is costly, the rule is seemingly arbitrary, and explicit enforcement is absent (Kimbrough and Wilson, 2022). A first approach was introduced by Kimbrough and Vostroknutov (2016), who developed a “costly rule-following” task. In their design, participants decide whether to wait at a series of red traffic lights before proceeding, with the rule being to wait until each light turns green. While waiting reduces monetary payoffs, the presence of the rule substantially increases compliance: 62.5% of participants always waited in the rule condition, compared to 12.5% in the control where no such rule was given to the subjects. This task has initiated some further methods to elicit intrinsic motivation to follow arbitrary rules. For example, to enhance portability and scalability, Kimbrough and Vostroknutov (2018) proposed a second task in which participants allocate a series of balls into one of two buckets. The rule instructs them to place the balls in the lower-paying bucket, while placing them in the higher-paying bucket yields greater financial rewards. This design allows researchers to measure individual variation in rule adherence by observing willingness to incur financial costs to follow an unenforced rule. Again, the rule is presented in a neutral manner and no punishment is associated with not adhering to the rule – and again, rule-following is frequently observed across several subject pools from different countries. Moreover, as shown in Kimbrough et al. (2024), rule-following rates in this task are remarkably stable at the individual level, at least over a one-month period.

Building on the results of these abstract rule-following paradigms, Gächter et al. (2025) introduced and experimentally tested the CRISP framework, which conceptualizes rule conformity (C) as a function of four motivational forces: intrinsic respect for rules (R), extrinsic incentives (I), social expectations (S) and social preferences (P). Their experimental evidence, which uses one-shot variants of the traffic light rule-following tasks, highlights how social context shapes compliance: observing others break rules reduces one’s own compliance, while introducing strong probabilistic financial penalties increases it significantly. Furthermore, tying

rule-following to altruistic preferences by not donating 1 \$ to the red cross if the rule is violated significantly increases rule-following rates. Their design also incorporates the elicitation of empirical (descriptive), normative and personal beliefs, which are shown to be important predictors of rule-following behavior.

While these prior studies primarily investigate responses to arbitrary rules set by the experimenter, recent work explores how the perceived legitimacy and identity of the rule-setter influence compliance. In particular, in politically polarized contexts, such as during the 2024 U.S. election cycle, Suri et al. (2025a) test if individuals respond differently to the same rule depending on whether it is attributed to a political ingroup or outgroup. While rule-following is found to be remarkably robust with respect to ideological polarization, affective polarisation (perceived social distance to the rule setter), seems to pose the stronger behavioural threat for rule-following.

In this paper, we used the task from Suri et al. (2025a) to explore if rule-following changes if the rule is attributed to Prof. Engel (in the following referred to as treatment Engel), compared to treatment Baseline where the rule is given by an anonymous user from the online platform on which we ran our study (Prolific Academic). Subjects in both treatments (n=100 per treatment) are given exactly the same experimental instructions and face the same financial incentives to follow or break the rule. They are shown 20 coins on screen, each being worth 10 Pence to them, and each second one coin disappears and reduces the payoff to the subject correspondingly. Subjects can stop the coins from disappearing whenever they like, but a rule instructs them to do so only after a visual signal on screen has occurred. The only difference between treatments is that this rule is either presented as a rule given by another prolific user or as a rule given by Prof. Engel (see the instructions, which are in the appendix, for the exact wording). After they made their decision, they are additionally asked about their personal norm to follow the rule in this situation, their normative expectations about how others view following or breaking the rule in this situation, and their descriptive belief about how many of the other participants they expect to have followed the rule. Since Prof. Engel has started working on Large Language Models (LLMs) in recent years (Engel and McAdams 2024, Engel 2025, Engel et al. 2025), in addition to our online experiment we also provided the instructions and treatment descriptions to four popular LLMs and asked them to guess the impact of Prof. Engel being the rule setter in this experiment.

Our comparison between the LLMs' forecasts and the behavior of human participants reveals a striking divergence. All four LLMs (Chat-GPT 5.0, Perplexity, Google Gemini, Claude Sonnet 4) predicted that attributing the rule to a well-known legal scholar would substantially increase rule-following, with expected rule-following rates in the Engel treatment exceeding the baseline by 20 to 30 percentage points. These predictions were mirrored in the models' forecasts of personal, normative, and descriptive beliefs: the LLMs consistently anticipated that participants would view compliance as the modal response, that rule-following would be seen as very socially appropriate, and that others would be expected to follow the rule at higher rates in the Engel treatment than in the baseline. In other words, LLMs projected a strong "Engel Effect", both at the behavioral and at the belief level.

In contrast, the actual experimental data provide little evidence for an Engel effect on people's behavior. Rule-following rates did not significantly differ between treatments. They were fully in line with rates that were previously reported in rule-following studies using the same or related rule-following tasks (see the corresponding literature above). Similarly, participants' own normative judgments about whether one ought to follow the rule were unaffected by authority framing. We do, however, find some shifts in expectations. Participants in the Engel treatment were more likely to believe that others considered compliance very socially appropriate. Regression analysis shows that actual compliance was best explained by personal and descriptive beliefs, not by the authority source of the rule. Taken together, the results suggest that while LLMs readily anticipate authority effects on rule-following, human subjects appear less responsive, with behavior shaped instead by individual norms and expectations of peer behavior.

The remainder of this paper is structured as follows. Section 2 presents the experimental design and introduces the main hypotheses. Section 3 reports the empirical results. Section 4 discusses the findings and concludes with a summary.

B. Design

Our experiment is designed to obtain a clean behavioral measure of rule compliance to explore if the added authority of Prof. Engel introducing a rule affects rule-following behavior. To achieve this, we use the rule-fol-

lowing task (coins-task) used in Suri et al. (2025a) and Suri et al. (2025b). The task is inspired by the work of Kimbrough and Vostroknutov (2016) and Gächter et al. (2025). It is slightly more abstract than the traffic light tasks used in their research, with the key advantage that the cost of complying with the rule is very clear to participants.

The task works as follows: Participants see 20 coins on their screen (see figure 1). Every second, one coin disappears. Participants can press a button at any time to stop the coins from disappearing (in Suri et al., 2025a,b, there was no button, but subjects had to press the space bar). The number of coins they have left when they press the button determines their payout, with each coin worth £0.10. Participants are explicitly told they can press the button at any time, which means they can receive a payout from 0 to 20 coins, i.e. between £0 to £2 (in addition to the £1.00 show-up fee that subjects received for participation).

In addition to the coins, a sign is displayed on the screen. It starts as a “minus” symbol and changes to a “plus” after 12 seconds. The exact time of the change is not disclosed to the participants. The following non-enforced rule is implemented: “Press the stop button only after the sign has changed from ‘minus’ to ‘plus’.” Importantly, following or breaking the rule has no monetary consequences beyond the number of coins a participant has left.

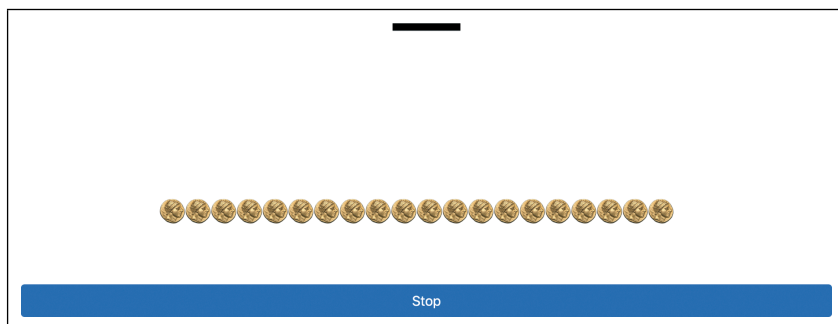


Figure 1: The coins-task

Note: This is a screenshot of the main decision screen. Here, the coins haven't started to vanish and, correspondingly, the sign hasn't changed yet from minus to plus. See the appendix for more screenshots and the full set of instructions.

Before beginning the task, participants are shown a visual representation of the process and must correctly answer two comprehension questions. These questions ask how many coins they would receive if they pressed the space bar at two different time points shown in a screenshot (similar to the image above). This is to implicitly emphasize that there are no financial penalties for breaking the rule, as well as to ensure that each subject has understood the instructions. Each participant plays the coins-task exactly once.

We have two treatments, Baseline and Engel. In treatment Engel, the rule is introduced as follows: “*There is a rule for this. The rule is based on a study by the professor of law, Prof. Dr. Dres. h. c. Christoph Engel. The rule is: Press the stop button only after the sign has changed from minus to plus.*” In addition, a picture taken from Prof. Engel’s website is displayed on screen (see figure 2). In the baseline treatment, subjects are instead told that the rule was chosen by another user on Prolific, and a generic person icon is shown instead of Prof. Engel’s picture (the decisions of other Prolific users were pre-sampled and taken from Suri et al. 2025a).

Procedure: The experiments were programmed in oTree (Chen et al., 2016) by Maren Bermúdez, whom we thank for excellent research assistance. The study was run in August 2025. We sampled German-speaking participants living in Germany from Prolific Academic until we had collected data of 200 subjects that completed the entire experiment, randomly assigning them to either treatment Engel or baseline. In total, we ended up with 99 independent observations in treatment Engel and 101 independent observations in the baseline condition. It took participants about 5 minutes (median) to finish the study. They were paid a base payment of 1.00 GBP for their participation and could earn an additional bonus payment of up to 2.00 GBP, depending on their decision in the coins-task. On average, subjects earned 1.24 GBP in the bonus task. The order of tasks and questions was the same for all subjects: after subjects provided their consent, they entered their Prolific ID and were then provided with the instructions of the coins-task. After they successfully answered a set of control questions about the task at hand, they were once again reminded about the rule setter (other Prolific user or Prof. Engel) and then made their decision in the coins-task. Afterwards, we asked them about their personal norm (personal belief), their normative expectations and their descriptive belief. The study ended with a short socio-demographic questionnaire, asking them for their gender, age, highest school and vocational degrees and whether they had any connection to the le-

gal domain (e.g., studying or having studied law, or working in a related field).

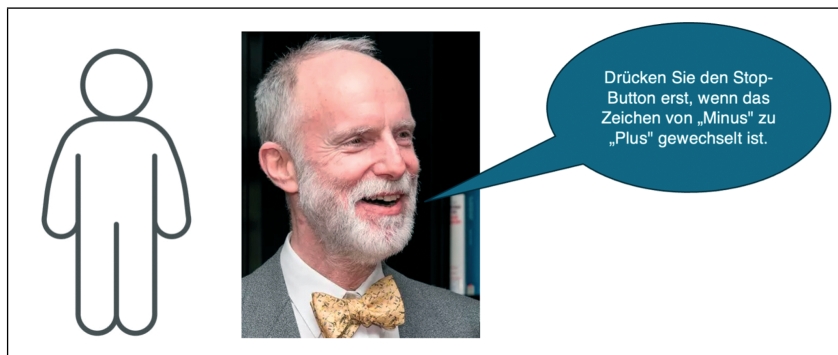


Figure 2: Treatment manipulation Note: The left-hand side shows the stylized person used in treatment Baseline to introduce the rule given by a Prolific user, while the right-hand side shows the photograph of Prof. Engel used in treatment Engel to introduce the rule. The speech bubble with instructions was present in both treatments.

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To complement our lab experiment with human participants, we also explored how state-of-the-art language models would forecast behavior in the same setting. We gave four LLMs (ChatGPT 5.0, Perplexity, Google Gemini, and Claude Sonnet 4= the identical instructions and treatment manipulations that participants saw. Then, in German since also the experimental instructions were in German, we asked each model to reason about what a typical participant might do and to produce quantitative hypotheses. Specifically, we asked them to estimate: i) how many participants in each treatment would wait for the signal to switch from minus to plus before acting, ii) how responses to each of the three normative belief questions would be distributed across the four answer categories, and iii) what proportion of other subjects the participants would expect to follow

the rule. This allowed us to directly compare LLM forecasts with actual human behavior.

C. Hypotheses

We build on authority theory and social influence (Milgram, 1974; Cialdini, 2001) to conjecture that the identity of the rule-setter shapes willingness to comply with the rule. Early work emphasized problematic obedience – most famously Milgram’s experiments – but subsequent research documents potentially beneficial consequences of legitimate authority for coordination and cooperation (e.g., Posten et al., 2025; Petty & Cacioppo, 1986). In applied domains, messenger credibility and reputational signals amplify compliance: for instance, Attari et al. (2016, 2019) show that the smaller the personal carbon footprint of a climate scientist – and thus arguably the larger their perceived authority and legitimacy – the more effective they are at encouraging energy conservation and mobilizing support for climate-friendly policies. In addition, our authority cue (law professor) can render the situation more “law-like,” strengthening the rule’s expressive meaning and perceived obligatoriness.

In this paper, we therefore test whether attributing the rule to a renowned law professor – a figure plausibly seen as legitimate in matters of rules and law – elevates compliance relative to a neutral peer source. Formally, we hypothesize that participants in the Engel treatment, compared to baseline, will exhibit higher compliance with the given rule in our experiment.

H1 (Authority-compliance): Rule compliance is higher in treatment Engel than in the baseline condition.

Beyond behavior, we expect the rule-setter’s identity to shift both injunctive (normative) and empirical (descriptive) expectations, i.e., beliefs about what is socially appropriate or “ought” to be done and beliefs about what others will do, via two mechanisms.

Normative-cue channel: First, a salient, legitimate rule setter (e.g., a respected authority, an elected leader) strengthens injunctive/normative cues about appropriate conduct. Classic work on social norms shows that making injunctive norms salient does guide behavior even holding incentives fixed (Bicchieri, 2005). In law and policy contexts, perceived legitimacy robustly predicts compliance beyond deterrence, and democratic or otherwise “owned” rules tend to elicit higher cooperation than exoge-

nously imposed ones – consistent with stronger normative expectations under a rule setter seen as rightful (see, for instance, Cialdini, 1991, Tyler, 2006a, 2006b; Sunshine and Tyler, 2003). The messenger’s identity can heighten that salience. Perceived authority and legitimacy increase participants’ sense of obligation and their anticipated disapproval for deviance. Legal rules also carry an expressive signal that can complement deterrence and coordinate expectations (Silverman et al., 2014; McAdams, 2015; Posner, 2000). Relatedly, “dynamic norm” messages about what people approve of (or are moving toward) can increase compliance (Sparkman & Walton, 2017; Tankard & Paluck, 2016). As a result, experimental participants might view rule violations as more socially inappropriate – and evaluate rule-following as more socially appropriate – when the rule is attributed to Prof. Engel. Authoritative attribution can also reduce strategic uncertainty and make the compliant action (“wait until sign changes to plus”) focal, easing coordination on the normatively appropriate choice (Engel et al. 2021). Such attribution may activate deontic self-concepts – “I am the kind of person who respects (official) rules or professional expertise” – thereby strengthening personal norms (Tyler, 2006a, 2006b; Hoefl et al., 2025). Even with no explicit sanctions, naming a legal authority can raise perceived scrutiny or reputational costs, modestly increasing expected enforceability (Silverman et al., 2014; French & Raven, 1959).

H2 (Authority-injunctive beliefs): Personal and normative beliefs are more favorable to rule-following in treatment Engel than in the baseline condition.

Coordination-beliefs channel: The rule setter’s identity also acts as an informational cue about what others will do, following a coordination logic central to social-norms theory. If a rule appears backed by a highly legitimate source, individuals infer higher compliance by peers and condition their own behavior accordingly (Bicchieri & Xiao, 2009; Krupka & Weber, 2013; Desmet & Engel, 2021). In other words, authority can shift descriptive expectations that are known to be pivotal for rule adherence (Fehr & Schurtenberger, 2018). As individual subjects respond to authority, comply more with the rule, and evaluate rule compliance as more socially appropriate, this translates into their beliefs about other subjects’ behavior and therefore they might hold higher expectations of compliance by others.

H3 (Authority-descriptive beliefs): Descriptive beliefs about others’ rule-following behavior are higher in treatment Engel than in the baseline condition.

D. Results LLMs

In this section, we examine the responses of commonly used LLMs (Chat-GPT 5.0, Perplexity, Google Gemini, and Claude Sonnet 4). Each model was provided with the instructions of the experiment described above and given an identical prompt to predict participants' behavior. Specifically, all LLMs were asked to forecast both the decision outcomes and the belief responses of participants. Table 1 summarizes the predicted responses on decisions and beliefs.

Table 1: LLM Responses with expected results for rule following and beliefs.

		Chat GPT 5.0	Perplexity	Google Gemini	Claude Sonnet 4
Rule Following	Engel	60–70 %	65–75 %	70–80 %	75–80 %
	Baseline	30–40 %	40–50 %	50–60 %	45–55 %
Descriptive Belief	Engel	60 %	70 %	60–70 %	65–70 %
	Baseline	40 %	45 %	40–50 %	40–45 %
Personal Belief	Engel	5/10/35/50	5/10/35/50	1/9/40/50	5/15/30/30
	Baseline	10/20/40/30	15/25/35/25	5/25/55/15	15/25/40/20
Normative Belief Follow	Engel	0/5/30/65	2/8/30/60	0/1/24/75	5/10/45/40
	Baseline	0/10/40/50	5/20/35/40	1/4/80/15	10/20/50/20
Normative Belief Break	Engel	50/35/10/5	55/30/12/3	25/60/14/1	35/40/20/5
	Baseline	30/35/25/10	30/30/25/15	5/45/45/5	20/35/35/10

Notes: Personal Belief: percentages for Never/Rarely/Often/Always the rule

Normative Beliefs: percentages for Very inappropriate/Somewhat inappropriate/Somewhat appropriate/Very appropriate to either follow the rule (Normative Belief Follow) or break the rule (Normative Belief Break)

All LLMs predict higher levels of rule-following behavior in the Engel treatment compared to the baseline condition. These behavioral predictions are consistent with their respective forecasts of descriptive beliefs. As such, the predictions of the LLMs are in line with the formulated hypotheses for the experiment.

Although there are differences in the distributions of predicted beliefs across models, the overall pattern is consistent. For the Engel treat-

ment, all LLMs anticipate that the modal response to the question of personal rule adherence is to always follow the rule (with Claude showing a tie between always and mostly). In the baseline condition, all models predict that the modal response is to mostly follow the rule.

Regarding the perceived social appropriateness of rule-following behavior, all models predict that, in the Engel treatment, following the rule is considered very socially appropriate, while not following the rule is viewed as very socially inappropriate.

In the baseline treatment, predictions vary more substantially across models. ChatGPT 5.0 and Perplexity predict very socially appropriate as the modal response to rule-following, while Google Gemini and Claude Sonnet predict socially appropriate. For the appropriateness of not following the rule in the Engel treatment, ChatGPT 5.0 and Perplexity predict a modal response of very socially inappropriate, whereas Google Gemini and Claude Sonnet anticipate socially inappropriate. In the baseline condition, all models predict socially inappropriate as the modal response; however, Perplexity shows a tie between socially inappropriate and very socially inappropriate, while Google Gemini and Claude Sonnet predict a tie between socially inappropriate and socially appropriate.

E. Results Experiment

We first examine the effect of treatment on actual rule-following behavior. In the baseline condition, participants followed the rule in 59.41 % of trials, whereas in the Engel treatment – the condition in which the rule was stated by a law professor – the rate was slightly lower at 54.55 % (see Figure 3). This difference is statistically insignificant (χ^2 , $p = 0.488$), indicating that the authority framing of the rule did not have a direct effect on participants' compliance in this task.

Next, we consider participants' personal beliefs regarding rule compliance (see figure 4). Participants were asked: “*What do you think people should do in decision-making situations like this?*”, with response options ranging from always to never following the rule. In baseline, 54.46 % of participants indicated that one should always or often follow the rule, compared to 52.53 % in the Engel treatment. 23.23 % indicated one should rarely follow the rule in baseline, compared to 15.84 % in the Engel treatment, and 24.24 %, resp. 29.7 %, said one should never follow the rule in decision making situations like this. These differences are not statistically

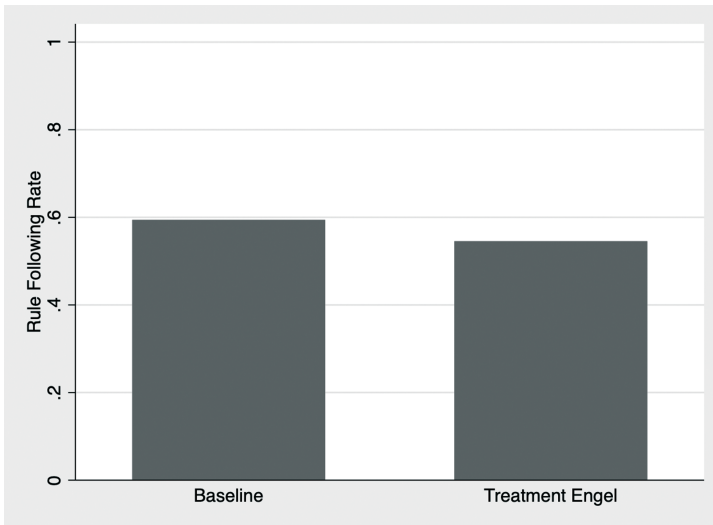


Figure 3: Relative frequency rule following behavior in treatments Baseline and Engel

significant (χ^2 , $p = 0.784$), suggesting that framing the rule as coming from a law professor did not meaningfully influence participants' own normative judgments about rule-following.

We then turn to participants' normative expectations about how others would evaluate rule-following behavior. Specifically, participants were asked: "Suppose a Prolific user had followed or violated the rule. What do you think, how would most other Prolific users evaluate this behavior?" For expectations regarding compliance, we observe a significant effect of the Engel treatment. In this condition, 58.59% (40.4%) of participants expected that others would consider following the rule very (somewhat) socially appropriate, compared to 41.58% (51.49%) in baseline. Only very few subjects considered following the rule as inappropriate (somewhat/very inappropriate in treatment Engel: 1.01%/0%, in baseline 4.95%/1.98%). These differences are statistically significant (χ^2 , $p = 0.032$), suggesting that there is an association between treatment Engel and the normative expectations. In contrast, expectations regarding rule violation were similar across treatments: in both conditions, roughly 80% of participants indicated that breaking the rule would be viewed by others as somewhat or very inappropriate, 15.15%/18.81% expected that

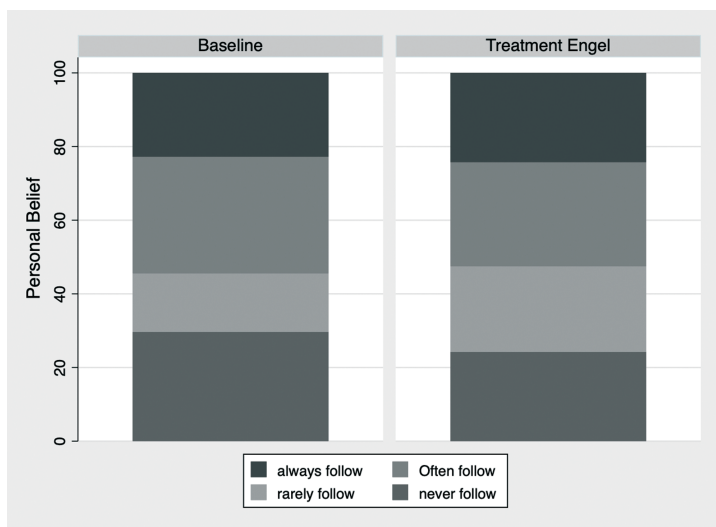


Figure 4: Personal Belief on rule following

others would view violating the rule as somewhat appropriate in treatment Engel/baseline, and only 4.04%/0.99% answered very appropriate (χ^2 , $p = 0.480$). Taken together, these results indicate that authority framing increases the perceived social approval of rule compliance but does not affect perceptions of disapproval for rule-breaking.

Participants were also asked to report their descriptive beliefs about others' behavior, specifically the proportion of other participants in the same situation who followed the rule. The mean descriptive belief was 55.4% in baseline and 60.9% in the Engel treatment. While this suggests a positive tendency associated with authority framing, the difference is not statistically significant (Wilcoxon Rank-Sum test, $p = 0.1785$).

To examine the determinants of individual rule-following behavior more formally, we estimate a series of linear probability models, reported in Table 2. Model 1 includes only a dummy variable for the Engel treatment and shows a small, negative, and insignificant effect ($\beta = -0.049$, $SE = 0.070$). In Model 2, we add participants' personal beliefs about whether one should follow the rule. Personal belief is strongly and significantly associated with compliance ($\beta = 0.263$, $SE = 0.025$, $p < 0.01$), while the Engel treatment remains insignificant ($\beta = -0.062$, $SE = 0.057$).

Model 3 further incorporates normative beliefs regarding whether

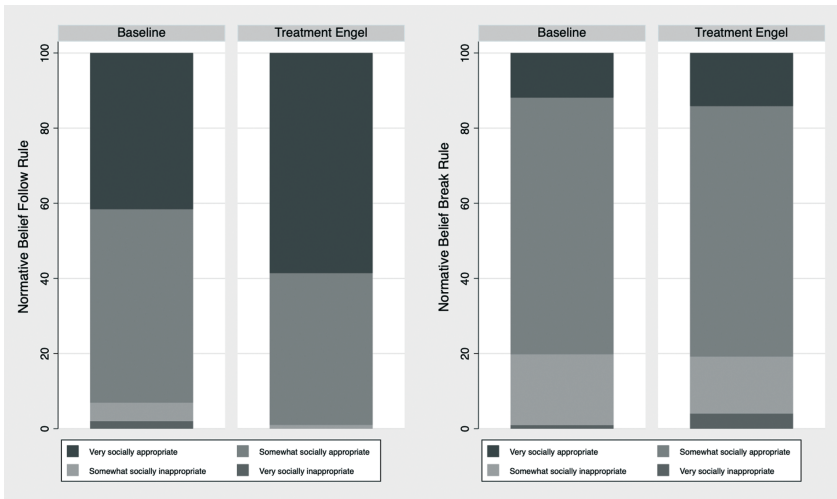


Figure 5: Belief on normative ratings on rule compliance and rule violation among other subjects.

others will follow or violate the rule. Here, the coefficient on expectations that others will follow the rule is positive and significant ($\beta = 0.120$, $SE = 0.051$, $p < 0.05$), whereas beliefs about others violating the rule are not significant ($\beta = 0.012$, $SE = 0.049$, $p = 0.80$). The Engel treatment coefficient is slightly larger in absolute value but still not significant ($\beta = -0.091$, $SE = 0.057$).

Finally, Model 4 adds descriptive beliefs, that is, participants' expectations about the proportion of others who actually followed the rule. Descriptive belief is a strong positive predictor of individual compliance ($\beta = 0.004$, $SE = 0.001$, $p < 0.01$), and personal and normative beliefs remain significant. In this full specification, the Engel treatment coefficient is marginally negative and weakly significant ($\beta = -0.107$, $SE = 0.056$, $p < 0.10$), suggesting that, once beliefs are controlled for, framing the rule as coming from a law professor does not increase compliance.

Overall, our results indicate that rule-following behavior is primarily driven by participants' personal beliefs and their expectations of others' behavior and social approval. Authority framing has limited direct impact on compliance, although it does appear to increase participants' perceptions that others would socially approve of following the rule.

Table 2: Regressions explaining rule-following behavior

	(1)	(2)	(3)	(4)
Treatment Engel	-0.049	-0.062	-0.091	-0.107*
	(0.070)	(0.057)	(0.057)	(0.056)
Personal Belief		0.263***	0.248***	0.205***
		(0.025)	(0.026)	(0.029)
Normative Belief others will follow			0.120**	0.106**
			(0.051)	(0.050)
Normative Belief others will violate			0.012	-0.014
			(0.049)	(0.048)
Descriptive Belief				0.004***
				(0.001)
Constant	0.594***	-0.056	-0.454**	-0.442**
	(0.049)	(0.074)	(0.181)	(0.177)
Observations	200	200	200	200

Note: The table presents the results of linear probability models (OLS regressions). The dependent variable is a dummy variable indicating whether an individual subject has followed the rule (=1) or violated the rule (=0). The independent variables are Treatment Engel, a dummy variable which equals 1 if the rule was given by Prof. Engel, the categorical variables “Personal Belief” (1=never, 2=rarely, 3=often, 4=always follow the rule), “Normative beliefs others will follow” (1=very inappropriate to follow the rule) and “Normative beliefs others will violate” (1=very appropriate to follow the rule, 2=somewhat appropriate, 3=somewhat inappropriate, 4=very inappropriate to follow the rule), and the continuous variable “Descriptive Belief” representing the relative frequency that the subject expects others to follow the rule, measured as a percentage ranging from 0 to 100. Standard errors in parentheses. Levels of significance are denoted by * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

F. Summary

In this study, we combined experimental economics with forecasts from generative AI to examine whether attributing a rule to a prominent legal scholar influences compliance. Across treatments, we observed robust levels of rule-following, broadly consistent with prior work using similar paradigms. However, we found no evidence for an Engel effect in the narrow sense of increased compliance when the rule was attributed to Prof. Engel. While participants in the Engel treatment were more likely to believe that others considered compliance socially appropriate, this shift in expectations did not translate into higher rates of actual rule-following behavior. Instead, our results confirm that compliance is primarily driven by individual norms and expectations of peer behavior.

The absence of a measurable Engel effect in this study does not imply that authority framing or scholarly attribution is irrelevant. Rather, it suggests that the effect may depend on contextual factors that were not present in our design. Framing and norm-based nudges are fragile; what works in one environment may not work in another. This mirrors findings on information-provision nudges in less formal norm contexts, such as gender norms or support for specific policies. In these settings, individuals often underestimate the extent of support for certain norms and adjust their behavior when provided with information (e.g., Bursztyrn et al., 2020; Goerg et al., 2024b) – though in some cases they do not (Goerg et al., 2024b), depending on the environment and the source of the information, again pointing to the fragility of norm-based nudges.

One possibility for the non-result in this study is that the domain matters: our rule was arbitrary and payoff-irrelevant, whereas rules that are more meaningful or explicitly connected to legal norms might elicit stronger responses. Another factor may be social distance. As Suri et al. (2025a) show, perceived distance to the rule-setter is predictive of compliance, and in our sample only very few participants reported studying or working in fields related to law. For many, a law professor may thus appear socially distant, weakening any authority effect. Relatedly, our framing was deliberately cautious in order to avoid deception: participants were told that the rule was “based on a study by the professor of law, Prof. Dr. Dres. h. c. Christoph Engel,” rather than that it was “given by” him. A stronger attribution may have produced different results. Future studies might therefore target subject pools with a closer connection to the legal domain, vary the wording of authority attributions, or directly frame the

rule as a “law” rather than a neutral “rule.” Introducing sanctions could also provide a way of making the authority of the rule more salient. These extensions would help clarify the scope conditions under which an Engel effect emerges, and whether it depends on the interplay of domain relevance, wording, and social distance.

Finally, while our data did not reveal an Engel effect in rule-following, our study itself reflects Engel’s legacy. The combination of behavioral law and economics, social norms, and experimental methodology – enriched here with the use of generative AI – builds directly on themes that he advanced and shaped. For us, the Engel effect has certainly existed: in his role as a researcher, mentor, and innovator who encouraged us to ask new questions and to embrace new tools. We are deeply grateful for his inspiration and support, and we wish him many more years full of creativity and enthusiasm for continuing to advance our academic knowledge frontier.

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