

# Routine Activity Theory and Research Ethics

## *A criminological approach*

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**Abstract** Research misconduct is often attributed to pressure or bad apples. There is little use of these folk theories because all professional scientists in the United States are always under pressure and, apparently, bad apples are only discovered after misconduct has been committed. These theories do not offer any explanatory or predictive promise because they focus on the multifaceted individual within a multifaceted population.

Until the late 20th century, efforts by criminologists trying to understand who become criminals focused on interior, individual qualities, such as temperament or faulty cognition. More recently, two closely related ways of understanding and preventing crime: the more abstract Routine Activity Theory (RAT) informing the more concrete Situational Crime Prevention (SCP).

While research misconduct is not technically a crime, they are analogs, and the insights of criminology can fruitfully be applied to the practice of science. In short, we should pay attention to the ways day-to-day routines of doing science make it difficult or easy to commit research misconduct. If only one person – say a graduate student – ever saw raw data, the PI has little chance of recognizing falsification, and a PI who always or randomly scrutinizes raw data will naturally deter most would-be bad actors.

In this talk, I will briefly explain RAT and SCP, provide additional examples from criminology and possibly useful examples for science.

## Introduction: Words of wisdom

Recently, Brian Martinson presented a talk called “Promoting Research Integrity Climates in Organizations” (Martinson 2014) at a workshop that I organized. I was especially impressed by his subtitle, which I take the liberty of paraphrasing as advice:

Let’s stop bobbing for bad apples and start looking upstream.

It took me days to recognize its brilliance.

My words of wisdom take the form of a fact, or maybe a theory.

Every apple has the potential to go rotten but among properly handled apples, putrefaction is minimized or prevented.

As you may know, research misconduct is often attributed to *bad apples*, when it is not being attributed to *pressure*. Today I hope, in part, to convince you that this attitude is of no practical use. The concept of *bad apples* is just a version of *original sin*; both simply say that people often act badly. This is not news.

*Pressure* is no better. For any given individual, today’s pressure may be detrimental and tomorrow’s may be exhilarating. Everyone is under pressure and its results are generally mixed.

That’s the last that I have to say about people’s lack of virtue or abundance of vice. After all,

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**Acknowledgement** This talk is adapted from “A situational approach to research integrity: A proven method” by myself and Douglas Adams, Ph.D., University of Arkansas (Pimple and Adams 2011). I dedicate this presentation to Doug. Everything I know about criminology, I learned from him. Flaws and foolishness are mine.

who knows what evil lurks in the hearts of men?<sup>1</sup> Instead, I want to convince you that a different approach, one that focuses not on individual actors, but the situations in which actors find themselves.

Until the late 20th century, efforts by criminologists trying to understand who become criminals focused on interior, individual qualities, such as temperament or faulty cognition. In the 1970s, that started to change.

If you object to comparing scientists gone wrong to criminals, consider that research misconduct (OSTP 2000), questionable research practices (QRP – COSEPUP 1992), and similar behaviors are equivalent to crime insofar as they are antisocial, undesirable, counter-productive, and/or destructive behaviors. They cover a wide range of behaviors, from the nearly trivial to the very serious.

The relatively abstract Routine Activity Theory and the concrete Situational Crime Prevention approach can have impressive results from simple, low-investment, low-maintenance techniques that can reduce the likelihood of bad behavior; improve productivity, efficiency, and morale; and promote research integrity.

## Routine Activity Theory

Routine Activity Theory (RAT) was initially developed by Lawrence Cohen and Marcus Felson in the late 1970s (Cohen and Felson 1979). Felson has continued developing the theory, as well as extending it to white-collar crime (Felson and Boba 2010).

The similarities between white-collar crime and research misconduct are clear once one discards the odd designation “white-collar crime”<sup>2</sup> and adopts Felson and Boba’s more accurate “crimes of specialized access” (Felson and Boba 2010:119). Without insider status, a book keeper can’t embezzle funds and a researcher can’t fabricate data. If RAT can be applied to crimes of specialized access, it can be applied to research.

Routine Activity Theory holds that criminal acts have three “*almost-always*” elements:

A likely offender

A suitable target

The absence of a capable guardian against the offense [Felson and Boba 2010:28, emphasis in original]

In other words, crime and research malfeasance require

- an actor, such as a thug *or* a harried researcher;
- a tempting target, such as a wallet full of cash *or* a shortcut to the timely completion of a grant proposal in the form of easily plagiarized papers; and

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<sup>1</sup> “The Shadow knows.” From Wikiquote:

The Shadow is a fictional character created by Walter B. Gibson, one of the most famous of the pulp heroes of the 1930s and 1940s. Born Kent Allard he assumed various identities for his crime fighting work, most notably that of Lamont Cranston. [Wikiquote 2014]

<sup>2</sup> How does it make sense to name a crime based on the once-common hue of the criminal’s wardrobe?

- the lack of anyone to stop the actor, such as a bartender or the owner of the wallet, or reviewers who are unlikely to recognize the plagiarized text.

As Felson puts it, “*opportunity is the root cause of crime*” (Felson and Boba 2010:47, citing Felson and Clark 1998). Thus Routine Activity Theory is also known as Opportunity Theory.

## Situational Crime Prevention

Situational Crime Prevention (SCP) is a proven method that arises from Routine Activity Theory. SCP is successful at reducing crime rates and, in that sense, “preventing” some crimes. Consider a dark alley with a high rate of muggings. The city has lights installed and the rate of mugging at that alley plummets. Calling the approach “prevention” is a bit overstated – the rate of crime can be reduced but rarely extinguished. Even so, when preventive measures are introduced, crime will tend to be reduced and/or re-situated.

RAT and SCP shift attention from bad actors and their motivations to the situations in which bad behavior is most often found. Just as Willie Sutton robbed banks because, as Sutton is said to have quipped, “that’s where the money is,” people who want to reduce crime have to look at the situations in which crimes arise – and those that don’t.

I suggest that there are many more differences between persons than between situations, which is also to say that situations are more prone to duplication – think of McDonalds – than do people. I suspect that there are more differences between biologists than biology labs. If situations are less diverse than people, situations are easier to analyze and change.

When a crime-prone situation is identified, it is often possible to reduce crime by, for example,

- hiring and training bouncers to check IDs and keep under-age drinkers out of bars;
- “hardening” targets by making steering wheel locks standard in cars to reduce auto theft;
- increasing capable guardianship by making potential guardians more effective or increasing the number of guardians, perhaps by spiffing up an area to attract more people who are generally not prone to criminal behavior, such as women, men over 30, and so forth.

**Figure 1 – Comparison of RAT and SCP**

Routine Activity Theory	Situational Crime Prevention
A likely offender	Reduce the number of likely offenders
A suitable target	Harden prospective targets
The absence of a capable guardian against the offense	Increase capability and/or number of guardians

## Capable guardians in science

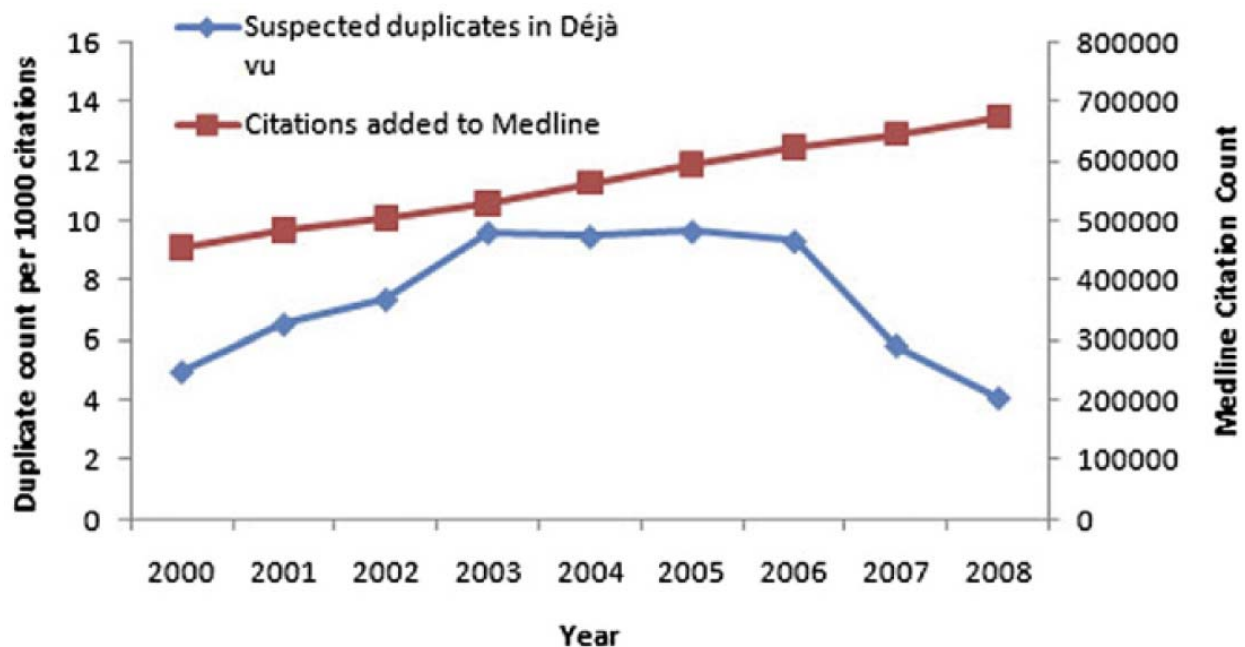
Happily, every research group has several potential capable guardians. As Gerald Koocher and Patricia Keith-Spiegel found, when unacceptable research behavior is suspected informal interventions appear to prevent misconduct. As they put it, “The key to nipping as many infractions in the bud as possible is to reassure people of the potential effectiveness of informal intervention, and to educate them in how best to do it” (Koocher and Keith-Spiegel 2010:438) – in other words, to increase the number and capability of guardians.

## Plagiarism

Here’s an application to research, drawn from H. R. Garner’s 2011 paper on using detection services and tools designed to uncover plagiarism in the scientific literature (Figure 2).

The top line of this slide from Garner’s article shows the number of citations added to Medline each year from 2000 to 2008. The bottom line shows the suspected duplicates in *Déjà vu*, Garner’s own database of “highly similar” abstracts, which rose until 2003, leveled off, and began to fall in 2006.

**Figure 2 – Garner 2011**



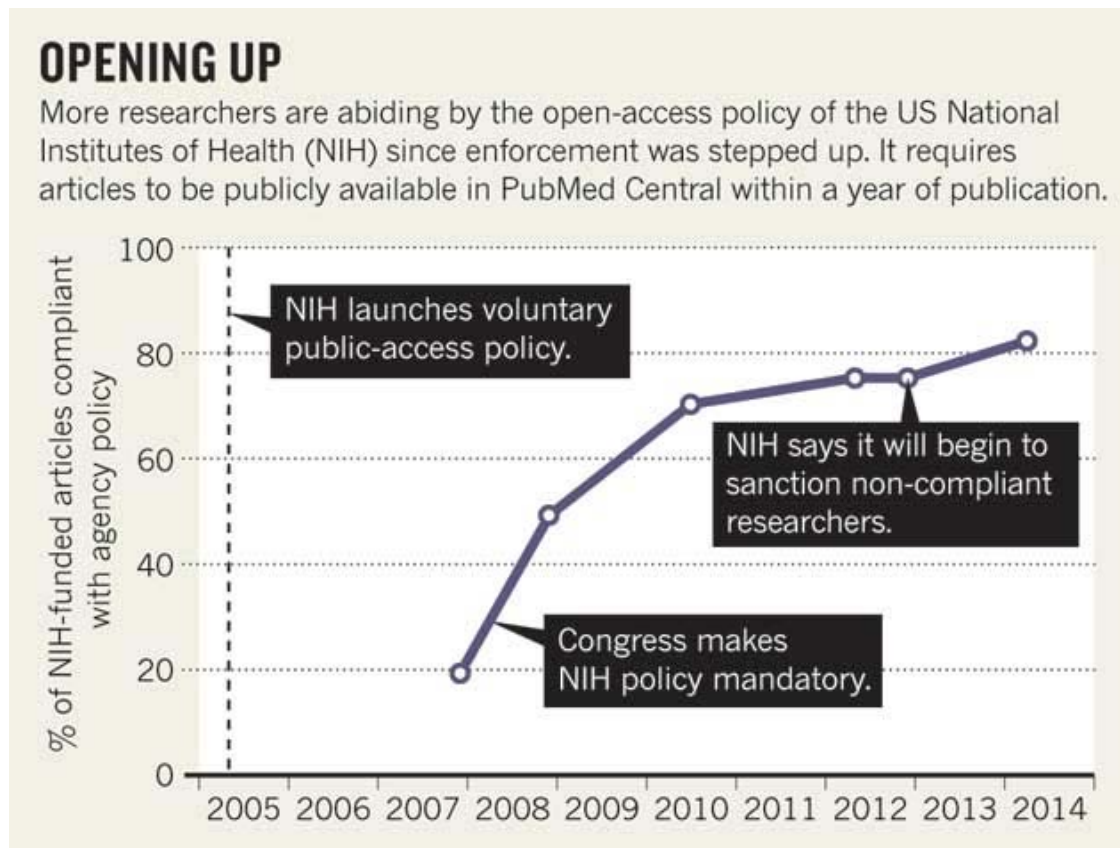
As online publication became more common, plagiarism by cut-and-paste became easier and, apparently, more frequent. But increased sophistication of computerized plagiarism detection tools – that is, an increase in the capability of guardians to detect and deter misconduct – seems to have caused the plagiarism rate to plateau and then drop (Garner 2011).

## Enforcement

Similarly, in 2005, the National Institutes of Health implemented a policy for published NIH-funded papers to be made publicly available in PubMed Central within a year of the initial

publication. In the first two years or so, the policy was voluntary, and it appears that no one complied. Then Congress made it mandatory, and you see the results (Figure 3).

**Figure 3 – Van Noorden 2014**



The lesson: Rules that are not tallied or enforced aren't actually rules at all. They're more like suggestions. Weak suggestions.

## The power of situation

This clip from *This American Life* highlights the power of the situation. I selected about two minutes of a much longer – and fascinating – story. The clip requires a little background.

David Kestenbaum interviewed his cousin, Dan Weiss, who was a volunteer in the 1970s at the new Kennedy Center's gift shop. There were a few paid staff and about 300 volunteers, mostly retirees. It was a fun place to volunteer, seeing famous musicians pet the gift shop's cat and whatnot. But the shop was losing money. The clip uses the word "shrinkage," which is the "percentage of overall sales that you [are] losing." In a grocery store, shrinkage includes the produce that goes bad before it can be sold. For both groceries and gift shops, shoplifting is part of shrinkage. In the case of the Kennedy Center's gift shop, the shrinkage was 40%. A typical operation's shrinkage was 3%.

Here's the transcript:

*Kestenbaum:* Dan sets up an inventory system. He posts price lists in the gift shop – hats cost **this** much, t-shirts **this** much. He tells the retirees volunteering in the gift shops, "When you sell

something, write it down.” In other words, he basically reinvents, on his own, what any normal retail business would call “record keeping.”

And lo and behold, the leaking stops. The mysterious losses, that 40% shrinkage, began to steadily shrink. He got in Macy’s territory, down to single digits.

At the gift shop, Dan was a hero. But his victory meant something kind of unsettling. It meant the problem hadn’t been **a** thief, it was **lots** of thieves. In fact, as best as Dan could figure, in that sea of 300 volunteers, those elderly art lovers, a bunch of them were taking stuff. And the paid staff, who worked in other parts of the building, they were grabbing stuff, too.

*Weiss:* People would walk by, and pet the cat, and see merchandise, and pick it up, because it was just stuff on a table, that people thought it was okay.

*Kestenbaum:* And people weren’t just grabbing t-shirts. Some had been taking cash, mostly small amounts like a cab fare home. After all, they’d just worked three hours for free, it’s just a few dollars, what’s the harm? But still, they put their hands in the cash box, took some bills out, and put the money in their pockets.

*Weiss:* That’s stealing. They were all stealing.

*Kestenbaum:* There were retired volunteers there, taking money out of the cash box?

*Weiss:* There were some volunteers who were taking money, there were some young employees who were taking money, there were lots of people who were taking merchandise, at **every** level. People were all stealing from this wonderful, uplifting organization because they **could**, because it was easy and it was available.

*Kestenbaum:* If this population, these people, well-meaning, community-minded, classical music fans – if some of them were stealing, it meant anyone would. For Dan, that was a sad thing.

*Weiss:* And I guess that’s the lesson I learned in 1979. We are going to take things from each other if we have a chance. I never understood that; it didn’t feel okay to me then, and it doesn’t feel okay to me now, and it wasn’t a terrifically optimistic lesson – that many people need there to be controls around them for them to do the right thing.

And if there aren’t any controls around them, or any supervision, they may not do the right thing.

There are direct parallels between this case and collaborative research. If there aren’t any controls – if no one looks at the original data – it’s more likely that some member of research team will think, “They don’t pay me enough for my work; it’s just a few data points; what’s the harm?” And he will think this primarily because he knows he can get away with it. He’ll falsify data **because he can**, because he is given the opportunity to do so. A study of ORI misconduct files by David Wright, Sandra Titus, and Jered Cornelison suggests that this does indeed happen (Wright et al. 2008).

## A different lesson

Dan Weiss was saddened by his experience, but there were, after all, two facets of the situation. When volunteers were stealing, the merchandise and petty cash were not treated as such; they were treated as perks or treats. The informality of the situation made volunteering like play and the gift shop less like a store than, say, a tree house. It was like a game. And if it feels like a game, it **is** a game.

There’s also the before-and-after facets. Before Dan Weiss’s re-creation of record keeping, there were none of the trappings of real stores, so the volunteers – who were something like play

workers – acted a bit like kindergarteners. But when the trappings of the Real World took over, the childish behavior just went away. In short, the volunteers weren't particularly good or bad. They stopped stealing as easily as they had started. It was all in the situation.

The volunteers, those petty thieves, were rehabilitated by simple, unobtrusive techniques. And no one had to be, fired, or imprisoned. Why couldn't this work in labs?

In preparing this talk, I've stumbled into the "needless to say" syndrome. When a young man is dealing with kindly, elderly volunteers, the young man doesn't say, "Don't steal any of this." That goes without saying. But since it was not said, it happened.

I wonder how often scientists cheat because certain standards go without saying. It's very difficult to be persuaded by something that isn't said.

Thank you for your attention.

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