Routine Activity Theory's 'Mindless' *Chemistry* Meme masquerades as a theory of crime causation[1]

Mike Sutton[2]

Abstract

Felson and Cohen's 'Three Elements in the Chemistry of Crime' is a model of crime causation proposing that most predatory crime is caused by the suitability of the target to be overcome by a motivated likely offender in the absence of anyone to stop it. Calamitously, this 'Chemistry Model' cannot rationally explain causes of crimes of attempt that fail to achieve the offender's principal goal. That is because the three 'elements' can exist only after the successful completion of an intended predatory crime, not before. Being simply a post-hoc truism masquerading in the literature as a pre-crime causation the 'Chemistry Model' cannot be a causal explanation for crime. Believing that such minimalist descriptions of data as the 'Chemistry Model' can serve as casual explanations for that data is irrational and pseudoscientific, equating in this case to the nonsensically comical conclusion that every successfully completed crime caused itself to happen. As confirmatory evidence for it being a pathological criminological meme, one hundred examples are cited of the published dissemination of apparent belief in the 'Chemistry Model' as a causal explanation for crime. An improved, realistic, pre-crime opportunity model is suggested, but it too represents no more than a similarly tautological descriptive truism, also incapable of testing and refutation. The improved model does provide a rational and more accurate account of potential pre-crime situations, pinpointing fruitful areas for more research. However, it too is a truism and would be equally as absurd as a standalone pseudoscientific minimalist explanation for crime causation as the 'Chemistry Model'.

Introduction

This article unifies an area of my published research (Sutton 2010, 2012, 2013 and 2104a) into the problem of scholars uncritically parroting in the literature un-evidenced knowledge claims, dogma built on false premises and irrational explanations of causality as though they are unquestionable facts and sound propositions. The principle aim of the article is to encourage academic criminologists and crime reduction practitioners to focus greater attention on understanding the importance of potential offender and potential guardian perception, and decision making variables, as measurable and testable hypothetical contributory causes in the commission of crimes. To address one cognitive barrier to such criminological enquiry, this article explains why Cohen and Felson's (1979) and Felson's

[1] This article is based on an earlier published web article (Sutton 2012) and a paper (Sutton 2015a) presented at the 2015 International Crime Prevention Through Environmental Design Conference

[2] Reader in Criminology. Nottingham Trent University. England.

(1998), oft-cited 'three elements' of the 'chemistry of crime' model of crime opportunity (*Chemistry Model*) is a post-crime truism dressed-up and widely misunderstood by many to be a crime causation theory. In addition to refuting the rationality of using and disseminating the *Chemistry Model* in that regard, this article presents independently verifiable original evidence, provided from the published literature, which confirms the widespread dissemination of the *Chemistry Model* as a tautological stand-alone crime causation theory. Data from the publication record confirms its interpretation and dissemination in this way occurs to such an extent that it has become a disadvantageous criminological meme.

This article is restricted in scope to demonstrating the problem exists and is widespread. The model is refuted with logic, and 100 examples of its dissemination as a cause of crime provide confirmatory evidence of its meme-like prolificacy. The actual number of times it occurs in the publication record, and the reasons for its widespread acceptance as a stand-alone causation theory, are beyond the range of this work. Future research should be undertaken in those two areas.

The term 'Routine Activities Theory' (RAT) was first coined by Cohen and Felson (1979) to explain changes in area crime rates, and differences between areas, with reference to changing social and economic variables. A book written by Hindelang, et al. (1978) was arguably first to contain the original criminological concept via a lifestyle-exposure theory of personal victimization, with individual 'routine activities' as their principal explanation. Cohen and Felson (1979) cited earlier work by Hindelang, but not the 1978 book. Felson (1994) cites it but fails to confirm or deny whether he or Cohen actually read it before publishing on the topic a year later. Therefore, it is not, apparently, known whether some form of *knowledge contamination* (see Sutton 2015b) from that 1978 book infected Cohen's or Felson's pre-1979 minds. To clarify this one particular matter of origination and influence, social scientists interested in co-incidental independent multiples in discovery, unacknowledged influence and plagiarism (Merton 1957, 1963, 1968, Sutton, 2014b, 2014c, 2015b) may see this as an area where further research is needed.

Noting Hindelang et al's (1978) origination priority, Wikström provides a good explanation of what RAT is. As a leading expert on the topic, his explanation is so precise and encompassing it is worth quoting at length:

> *'A key idea is that the structure of routine activities in a society influences what kinds of situations emerge, and changes in a society's routine activities cause changes in the kind of situations people confront. Another key idea is that people act in response to situations (including when they commit crimes); therefore, the kinds of situations they encounter in their daily lives influence their crime involvement (and, as a result, influence a society's crime rate), and changes in people's exposure to situations may lead to changes in their crime involvement (and, consequently, changes in a society's crime rate). Routine activity theory links a macro-level structural model (spatial and temporal patterns of routine activities in society) with a micro-level situational model that aims to explain why a crime occurs. The situational model stipulates that a criminal act occurs as a result of the convergence of a motivated offender, a suitable target, and a lack of guardianship (control, supervision). Routine activity theory is sometimes combined with rational choice theory, an action theory that explains human action as the result of rational choice (i.e., acting on the best available option perceived).'*
>
> Wikström (2009)

Criminologists are familiar with the term 'crime opportunity theories'. RAT is a crime opportunity theory. There is a large body of literature on this topic, including websites, crime reduction guides, single authored monographs, edited collections, textbooks and peer reviewed articles. The two most famous and esteemed criminologists in the field are Marcus Felson and Ronald Clarke. Both are prolific authors, and they have co-authored an oft-cited research report (Felson and Clarke 1998) on the central theme of their work, which is summed up in its title: 'Opportunity Makes the Thief: Practical theory for crime prevention.' One principle component of their work on policy oriented crime reduction is what Felson and Clarke (1998: 4) call 'The Basic Crime Triangle'. Elsewhere in that same year, Felson (1998: 52) refers to it as 'The Predatory Crime Triangle' (see Fig 1). The same triangle used in Felson's book *Crime and Everyday Life* in a chapter named 'The Chemistry for Crime', which is an analogy of similarities with chemistry that has remained a staple explanation of his thinking in each edition, beginning four years earlier than Clarke's and Felson's (1998) report (e.g. Felson 1994, 1998, 2015).

According to Felson's *Chemistry Model,* there are three fundamental 'elements of a criminal act'. Notably, these same three 'elements' are what Wikström (2009) refers to as 'the situational model', which, as he authoritatively points out, is only 'sometimes' combined with rational choice theory. Wikström explains that the model (hereafter the *Chemistry Model*) clearly stipulates that a crime occurs as a result of the convergence in time and space of a motivated offender, suitable target, and a lack of guardianship.

Further evidence from the publication record proves that the *Chemistry Model* is being explained and then disseminated as a theory in its own right:

> '***[T]heory**: a systematic explanation for the observed facts and laws that relate to a particular aspect of life. For example, Routine Activities Theory (see Cohen and Felson 1979) explains crime as the result of three key elements coming together: a suitable victim, a motivated offender, and the absence of capable guardians.*'
>
> Maxfield and Babbie (2012: 308)

The problem identified in this article is that many writers, such as Maxfield and Babbie (2012), do not appear on the evidence provided by what they write to interpret this model as an impossible stand-alone pre-crime explanatory theory or approach. Yet, as this article proves below, the *Chemistry Model* is a mere truism masquerading as causation. If they have noticed it's a mere truism, and of that we must be far from certain, some other writers have more commendably avoided spreading the compounder by expanding upon the model. They do so by avoiding direct critique of the kind used in this article and instead subtly conceptualise themselves, albeit implicitly, that the model is a necessarily contingent *potential* condition only - one that is dependent upon *potential offender*, *potential victim* and *potential capable guardianship perceptions*. However, such failure to criticise directly the logic of the *Chemistry Model,* as Cohen and Felson and many others present it as a stand-alone crime causation explanation, might in turn be criticised as normalising a logical irregularity that is now widespread and continuing to spread in the literature. Even so, those who do not fall for and yet fail to criticise the irrationality of the model are beyond the scope of this article. Only those who appear to very clearly disseminate the credulous *Chemistry Model* in its own right as a causal explanation for crime are focused upon here. Furthermore, it is important to note that those who fall for it, do not necessarily portray the model as a

necessary and sufficient condition to be '*the*' cause of crime. What they have done is to disseminate it without question as '*a*' rational causal explanation.

A Malignant Molecule: Understanding Felson's 'Three Elements' in the 'Chemistry of Crime'

Presenting conclusions drawn from his earlier co-authored work (Cohen and Felson 1979), Felson's (1994) so-called 'Predatory Crime Triangle' diagram depicts his 'Chemistry Model'. By incorporating only what he calls 'minimal elements' in the 'chemistry of crime', Felson's model essentially removes human motivation and perception from the pre-crime decision making process. Instead, it characterises crime analogously as the result of three elements coming together in nature to form a socially malignant compound.

As a heuristic device to explain RAT and other crime opportunity theories, Felson's Predatory Crime Triangle certainly does not reveal the complexity of human perceptions of vulnerabilities and target suitability that we find elsewhere in his work. In fact, removing perception from the equation, as Cohen and Felson (1979) do, and as Felson (e.g.1994, 1998, 2015) does at more length elsewhere than in his *Chemistry of Crime* chapters, is unhelpful. Unhelpful because such unrealistic deterministic thinking runs the risk of influencing criminologists and practitioners in crime reduction initiatives to neglect the importance of thinking about influencing human offender and human guardian perceptions.

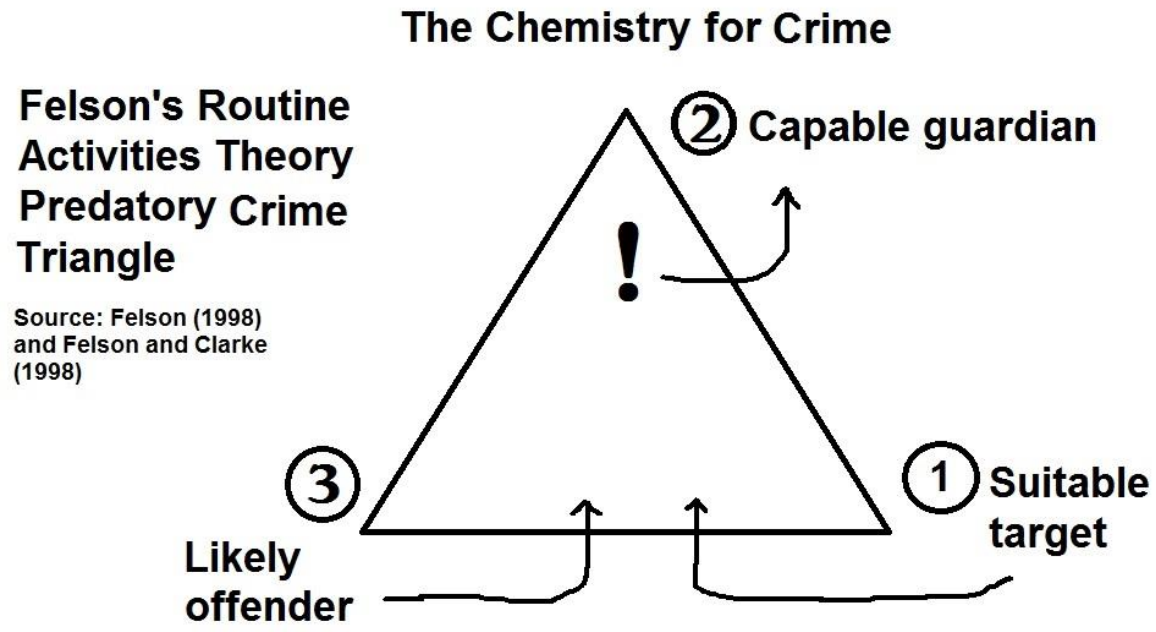

Figure 1

In the third edition of 'Crime and Everyday Life', Felson and Boba (2010) continue to write about the causes of criminal acts whilst failing to distinguish between criminal acts that are failed attempts and criminal acts that are successfully completed intended crimes. They essentially claim, therefore, that a pre-crime guaranteed 'absence of a capable guardian' means so-called 'likely offenders' in any 'crime opportunity' situation are in some way guaranteed 'capable' of committing crime against a guaranteed-present suitable target. They

portray all three as coming together in the pre-crime situation of a crime with a guaranteed successful outcome for the offender:

> *'A criminal act has three elements almost always present: a likely offender, a suitable personal or property target, and the absence of a capable guardian against a crime.*
>
> *'The crime triangle illustrates the relationship amongst offender, target, place and time and mechanisms that can influence crime opportunities, handlers, guardians and managers.'*
>
> Felson and Boba (2010, p. 47).

Perhaps it is from this cause that others have substituted, without explanation, the seemingly equivalently suitable term 'capable and motivated offender' for Felson's original 'likely offender'. For example:

> *'One good starting point for analysis is to think about (and get others also to think about) the 'ingredients' for burglary and how they are brought together amongst the high-risk group. A burglary needs a capable and motivated offender to find a suitable and accessible target, in the absence of anyone or anything there to keep the two apart (Felson, 1998). If there is something or someone to keep the offender and victim apart, if the potential target is inaccessible, or if there is no motivated or capable offender, then a burglary will not occur.'*
>
> Curtin et al (2001: 13)

As Figure 2 demonstrates, in the latest and fifth edition of his 'Crime and Everyday Life' (Felson and Eckert 2015) the crime triangle has evolved to include the purported causal role of an absence of any 'handler' (read carer) for an offender at the crime scene and the absence of a place manager.

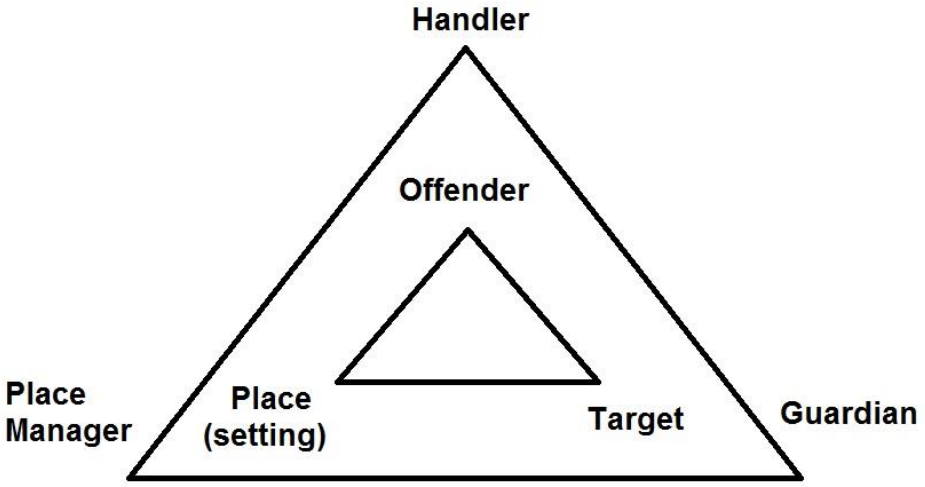

Figure 2 Revised Predatory Crime Triangle From Felson and Eckert (2015)

Under an image of the triangle depicted in Figure 2, as it appears in their book, Felson and Eckert (2015)[3] write: *'First the offender evades handlers. Next the offender finds a setting without a manager, and then a target without a guardian.'* Thus, whatever else they have named them and how many more examples have been added, the same 'three elements' continue as a running theme in their chapter 'The Chemistry of Crime' in this, Felson's latest edition of Crime and Everyday Life.

The *Chemistry Model's* pre-crime 'likely offender' and other actors are essentially decontextualized and dehumanised. Any notion that 'likely offenders' are merely potential offenders until the crime is completed is unconsidered. Moreover, the possibility that the 'offender' may not have completely evaded his/her handler is also not considered. Furthermore, the reality that the 'offender' is a living organism who perceives, rightly or wrongly, the absence of a capable guardian and the presence of a suitable target is just wished away. Instead, humans are ablated to mindless – and to use Felson's term - 'elements'.

Explaining where such deterministic chemistry set thinking came from, harking back to his personal golden age schoolboy days in the 1950's, Felson opens his Chemistry of Crime chapter with the following:

> '*As a boy growing up in the 1950's and 1960's, I was lucky to have some really good maths teachers. They would first teach us the simplest model, then build on it step by step. Accordingly, I look for the simplest model of crime, share it with you, then build upon it. Let me start with the simplest "mixing" principles, the basic chemistry of everyday crime*.'
>
> (Felson and Eckert 2015. Kindle Edition with no page numbers)

Being devoid of the reality of human perception, Felson's *Chemistry Model* is built on false premises. The premises are false because humans, unlike chemical elements such as lead, mercury and uranium, perceive things. Human perception is subject to both human error and the always-present possibility of unpredictable yet commonly occurring contingent alteration of potential outcomes by the presence, arrival and involvement of other humans and events in social-geographic situations. Ignoring such reality, the *Chemistry Model* describes characteristics of a pre-crime situation that quite simply just cannot be known to exist until after the intended crime has been successfully completed. In reality, people perceive opportunities, and those opportunities do not exist as foregone fortuitous outcomes in advance of their occurrence. If the causes of things were as the *Chemistry Model* portrays the world, there would be no crimes of failed attempts to commit a crime, no disappointed burglars discovering what they thought was inside a burgled enclosure is not there. Furthermore, there would be no successful have-a-go hero victims of attempted crimes turning the tables on offenders.

In other words, in the real world inhabited by offenders and their victims, an opportunity cannot exist unless someone personally perceives it as the coming together of a set of what are in fact merely potentially beneficial circumstances upon which they can choose to act. Felson knows this, because elsewhere (e.g. Felson and Eckert 2015) he has written extensively about how rationally calculating offenders exercise 'rational choice'. The problem is, no matter how uncomfortable it is for those named, the references to their

[3] Kindle Edition, so no page numbers provided.

published work in Table 1 prove that criminologists, crime reduction practitioners and members of the wider population writing about crime have taken Cohen and Felson's (1979) dehumanized 'three elements in the chemistry of crime' as a literal explanation of reality. In so doing so, they fail to take adequate account of the reality of not only human perception, pre-crime but also contingent human intervention and contingent physical accidents. And I know that, because I am one of those named in the table!

Furthermore, Felson's *Chemistry Model* has misled some academics and crime reduction practitioners into believing, apparently, that it is the main premise of all crime opportunity theories (e.g. Stack et al 2004) and represents either the entirety or core of Cohen and Felson's RAT explanation of crime causality (e.g. Marcum 2008). Examples such as these reveal the price that is to be paid when all sense is lost during oversimplification in the pursuit of popularising complex theories.

Method and findings

The examples included in Table 1 were found simply by the author's use of his Internet Date Detection (IDD) research method – essentially, a specifically sequential date delineated Boolean search technique – necessarily using no more than three specific search terms, each of no more than three words, at any one time, on Google and Google Scholar search engines. The terms used included, amongst others, "Felson" "three conditions" "crime", "three elements" and "chemistry of crime". Earlier Big Data IDD research using Google (Sutton 2014b) found that using more than three terms at any one time in this way, to research any topic in the published literature, is not so effective as using just three or less.

The publications detected and itemized by Google were read sequentially. Those deemed to have presented the '*Chemistry Model'* as a veracious and plausible stand-alone causational explanation for crime were added to Table 1 until the prior-set target total of 100 was reached.

Table 1: Sample of 100 Publications Disseminating the '*Chemistry of Crime*' Meme

Alexander (2010)	Farrell et al (1995)	Hamilton-Smith and Kent (2005)	Pelfrey (1998)
Anadarajan et al (2013)	Farrell et al (2005)	Laycock (2001).	Robinson (1998)
Anderson (2000)	Fiala and LaFree (1988)	Leclerc (2013)	Rogerson and Armitage (2014)
Argun, and Dağlar (2016)	Frailing and Harper (2013)	Lombardo and Lough, T. (2016)	Sampson (2000)
Badiora (2014)	Freisthler et al (2013)	Long (2012)	Setterlund et al (2007)
Barnes (2013)	Garland (1999)	Mabika and Dube (2017)	Sherman (1995)
Bell et al (2013)	Gill (2005)	Macmillan (1995)	Sidebottom and Wortley (2016)
Branas et al (2004)	Gorman et al (2013)	Mannon, (1997)	Somerville (2009)
Brock and Walker (2008)	Goc (2013)	Marcum (2008)	Spink et al (2014)
Bruce (2001)	Graham and Homel (2011)	Marchione et al (2014)	Stack et al (2004)
Brunsdon et al (2009)	Grana and Windell (2017)	Marquart et al (2004)	Stahura and Sloan (1988)
Bullock and Tilley (2011)	Graycar and Sidebottom (2012)	Martinez-Prather and Vandiver (2014)	Stein (2009)

Cave (2012)	Griffiths and Chavez (2004)	Maxfield and Babbie. (2012)	Stummvoll, G (2012)
Case et al (2017)	Grover (2008)	McElvain et al (2013)	Sung (2002)
Cherise (1997)	Guerette et al (2016)	Meier and Miethe (1993)	Sutton (2005)
Clarke and Felson (1998)	Hagan (2010)	Messner, and Blau (1987)	Tilley and Hopkins (2008)
Copes (1999)	Harris and Benson (2006)	Murray et al (2013)	Van Tran and Bridges (2009)
Crank et al (2011)	Hope (1995)	Näsi et al (2016)	Vito et al (2007)
Crawford (2010)	Hutchings and Hayes (2009)	O'Connor (2009)	Walker et al (2016)
Davies and Johnson (2015)	Jegede, (2014)	Ozkan (2016)	Wikström et al (2010)
Dillenburger (2007)	Kigerl (2013)	Padhy (2006)	Willison (2000)
Dubey and Chaturvedi (2014)	Kohm (2006)	Pease (2005)	Willison (2006)
Durrant and Ward (2015)	Kupatadze (2012)	Quick, (2016)	Wortley and Townsley (2008)
Ellis et al (2016)	Lab (2016)	Regoli et al (2011	Xu, (2009)
Erdoğan, A (2010)	LaFree (1999)	Reynald (2011)	Zandbergen (2010)

A large-scale research project to enumerate the extent to which the *Chemistry Model* is disseminated in publications, as causal pre-crime elements, is needed if we wish to know the full extent of this problem. Meanwhile, every example uncovered is proof it has occurred one more time. That so many examples can be found in peer reviewed articles, text books and monographs is confirmatory evidence it has become a meme. To provide just one example, we can see how one writer has mistakenly taken Felson's three 'chemical' elements as representative of the central meaning of RAT:

> *'… the three central elements of routine activity theory, motivated offenders, suitable targets, and the absence of capable guardians, represents a heretofore ignored synthesis and improvement of previous theoretical attempts at explaining corporate crime (Cohen & Felson, 1979).*'
>
> Anderson (2000: 3)

Marcum (2008) is another example, among so many others, of an author making the exact same three chemical elements at the core of RAT crime causality mistake and then disseminating it as veracity in the peer reviewed literature:

> *'…Routine Activities Theory is excellent for the examination of predatory or exploitative crimes, which is precisely the type of deviant behavior examined in this study. According to the Routine Activities Theory, three elements must be present in order for a crime to occur: • Exposure to motivated offenders, • A suitable target, and • Lack of capable guardianship (Cohen & Felson, 1979). The purpose of this study was to investigate Internet usage in a sample of college freshmen, and to consider their experiences with online victimization, through variables representing the three constructs of Routine Activities Theory.'*
>
> Marcum (2008: 347)

To necessarily repeat the point already made, realistic definitions of personal opportunities are dependent upon the premise that potential benefits and a person's capabilities to secure them are in some way dependent upon having being first perceived by them. In the real world, opportunities perceived by people, as opposed to a mere textbook descriptions of the outcome of mixing together certain chemical elements, obviously at the same time in the same place, are always subject to commonly occurring expected or unexpected beneficial or, at worst, deadly detrimental contingencies (e.g. Taylor et al 2003, Marshall 2015).

As further real-life examples in the paragraph you are reading are about to prove, where crime is concerned, a potential offender can have a pre-crime accident, get injured or otherwise thwarted during a criminal attempt. Yet the crime of attempt to commit the crime is still a crime. The certain capabilities of any guardian can never be fixed (known) in advance of a crime happening. If you doubt this, just read any of the hundreds of real life newspaper stories of have-a-go-heroes who turned the tables on offenders after the commission of an offence of attempted robbery (e.g. Buckland 2012), or burglary (e.g. This is Grimsby 2011).

Similarly, whilst the fantastical little piggy in the house of bricks may have been justified in boiling the pig eating Big Bad Wolf in a pot of boiling turpentine, in real life offenders who are mid-act in their offending can become crime victims themselves at the hands of their victims. The case of Tony Martin (see Knepper 2007: 38) is just one such example proving how a so-called 'incapable guardian' against a burglar's forced entry can almost immediately criminally victimise the burglar by 'capably' shooting him dead the moment he gains entry. That all happened in real life. And it happened because of the the capably armed householder's incapability of stopping the offender/victim from illegally breaking-in to face his unperceived illegal execution which he, the original burglar offender, was in turn, incapable of guarding against. In essence, what such more complex real-life cases insensibly mean, according to the *Chemistry Model*, is that even a viciously capable guardian is incapable of preventing an offender, who is capable of being both an ultimately incapable offender and incapable guardian of themselves, from capably committing an offence of attempting to commit a crime and then being in-turn illegally shot dead for doing so.

On a rather lighter, though logically identical note, one of the most hilarious examples I prefer to use to demonstrate the ridiculousness of the tautological *Chemistry Model* being a post-hoc truism masquerading as a useful theory of crime causation is the case of Dean Gardiner and Jason Fender (Daily Mail 2009). Both young men were convicted for their abusive words and behaviour during an attempt to assault two cross-dressing men in Swansea, Wales. It all happened one lively Saturday night in the city centre. Their crime was a capably thwarted attempted assault, which resulted in Gardiner and Fender being on the receiving end of two lightening quick concussive punches from one of their intended victims. Ludicrously, Gardiner and Fender are deemed in turn by the always true after the event *Chemistry Model* to be capable offenders in succeeding against incapable guardian victims with their initial criminally abusive words, behaviour and over-ambitious pugilistic attempts, which led to their own later absence of capable guardianship against said lawful rapid defensive punches being landed on target heads in return by said incapable guardian victims of abusive words and behaviour. The at turns incapable/capable guardian cross-dressers were champion cage fighters on a fancy-dress night out carrying handbags, wearing dresses, high heels, long wigs and makeup. I hope the critical heuristic humour of why the reality of imperfect human perception, revealed in this real story, is not lost on those who would otherwise uncritically parrot in scholarly publications the mindless '*Chemistry Model'* post-crime irrefutable truism as a causal explanation for crime.

Staying with humour a little longer to provide another critical explanatory analogy, the *Chemistry Model* is an Elk theory of the kind parodied on the Monty Python television series (BBC 1972), in which a fictional pseudo scientist named Anne Elk has a 'theory' for brontosauruses.

Elk's 'theory' is simply that brontosauruses are all fat in the middle and get increasingly narrower towards both ends. The comedic point being that no matter how minimally precise, mere descriptions of things known to exist are ludicrously useless accounts that cannot explain their existence, predict their occurrence, reduction in number or disappearance.

The *Chemistry Model* is a theory for crime proposing that crimes occur because offenders get what they want when nothing stops them. Were such an approach ever to be proposed as a causal theory for disease, it would need to claim that viruses infect hosts when nothing stops them from doing so, which is actually only partially useful in explaining what a virus does to very young children. My point being, even very young children know offenders exist. So what's the point of the *Chemistry Model*?

Real life case studies prove Felson's *Chemistry Model* is pseudoscientific. It is pseudoscientific because it will always be right, even when the offender tries but fails altogether. Most importantly it is not always right because Felson's notion of a 'crime opportunity' is a wonderfully brilliant water-tight explanation incapable of being refuted. Instead, the fact of the matter, which is seemingly lost on so many criminologists, is that good explanations *must* be capable of being refuted. If an explanation for causality cannot potentially be refuted then it is not an explanation for causality, instead it is pseudoscience dressed up as causality (Popper 1976) and is most likely merely an accurate description of what needs to be explained. Therefore, the reason Felson's *Chemistry Model* must always be always right, one way or the other, is because it is merely an accurate and elegant, necessarily after the event, description of the essential components of any completed crime, even a completed failed attempt to commit a crime. It is a mere description masquerading as causality.

Words appear more important than pictures

Importantly, it is the words alone of the 'Chemistry Model' described by Cohen and Felson (1979) that are cited most often by those in Table 1, with no reference made whatsoever to Felson's predatory crime triangle. Moreover, Felson (1994) does not even include his Predatory Crime Triangle diagram in the first edition of Crime and Everyday life. Rather, in that now classic publication he writes in Chapter 2 'The Chemistry for Crime':

> 'Predatory crime incidents depend on the physical convergence of these three elements:
>
> - a likely offender,
> - a suitable target, and
> - the absence of capable guardians.'
>
> Felson (1994; 30)

After 21 years, little appears to have changed in Felson's original thinking on his *Chemistry Model*. The latest and fifth edition of his book (Felson and Eckert 2015) retains the three bullet pointed 'elements', simply adding *'against the offence*' at the end of the third. Felson (2002: 21) wrote the same ideas in the third edition of the book, again with no triangle diagram.

Whether or not Felson's Predatory Crime Triangle diagram has an independent influence on what others write is beyond the scope of this paper. What we can be sure of is that the independently verifiable facts of the publication record, in the works cited in Table 1, confirm that words alone on the topic of the 'three elements of the chemistry of crime' appear to influence the thinking of many others. For example:

> '*For its part routine activities theory seeks to explain the minimum conditions necessary for a crime to be committed. In its simplest and original form these conditions include a suitable target, a likely offender and the absence of a capable guardian*.'
>
> Gill (2005: 308)

By way of another example, Robinson (1998) in a peer reviewed article in the prestigious British Journal of Criminology reveals exactly how literally and minimally many criminologists, and by association their expert anonymous journal article peer reviewers, have interpreted the actual full prose of the three 'chemistry' elements, not any abbreviated representation of it in the Predatory Crime Triangle, to comprise a rational model of crime causation:

> '*Criminal victimization is more likely to occur, and in fact only possible, when three elements converge in time and space: (1) presence of motivated offenders; (2) presence of suitable targets; and (3) absence of capable guardians (Cohen and Felson 1979: 589). Crime prevention can be achieved effectively when any one of these elements is absent. Thus, if we can identify which potential targets in any given environment are most suitable for victimization, then we can design and implement crime prevention strategies to make them less suitable. This will prevent criminal victimization, or at least lessen the likelihood that a target will be victimized*.'
>
> Robinson (1998: 80).

Gill and Robinson are far from alone in taking and using Felson's *Chemistry Model* without reservation about reality. For example, Ken Pease (Pease 2005) and yours truly (Sutton 2005) do so in different chapters of the same handbook of crime prevention and community safety. And we were not writing about the minimal conditions that the law uses to define a crime. Had we been doing that in 2005, we would not have included the incapable guardianship 'element'. That is so because, as we have seen with reference to real life criminal events, guardian-protected and otherwise thwarted attempted crimes are still crimes.

In support of the more important words of criticism and in this article, I think Figure 2 is a more realistically contingent pre-potential crime summary of the things the *Chemistry Model* depicts. However, it must be stressed that none of the three components on my 'improved' triangle are presented as being in any way crime 'causal'. My triangle is merely a description. And, just like Felson's post-hoc description, it's merely a truism. Even the 'Real Opportunity for Crime' in Figure 3 is not a potentially refutable causal explanation for crime. Potential

offenders perceive potential targets all the time in what they perceive to be absence of capable guardianship, but they do not always act on that, they can choose not to because they choose to have other things to do. On the other hand, if put together under the right conditions the atoms of chemical elements such as hydrogen and oxygen, which have no brains and therefore no free will, will combine to form water. Humans, however, are not simple chemical elements and crimes are not chemical compounds. Chemistry is a bad analogy to explain the various complex causes of crimes.

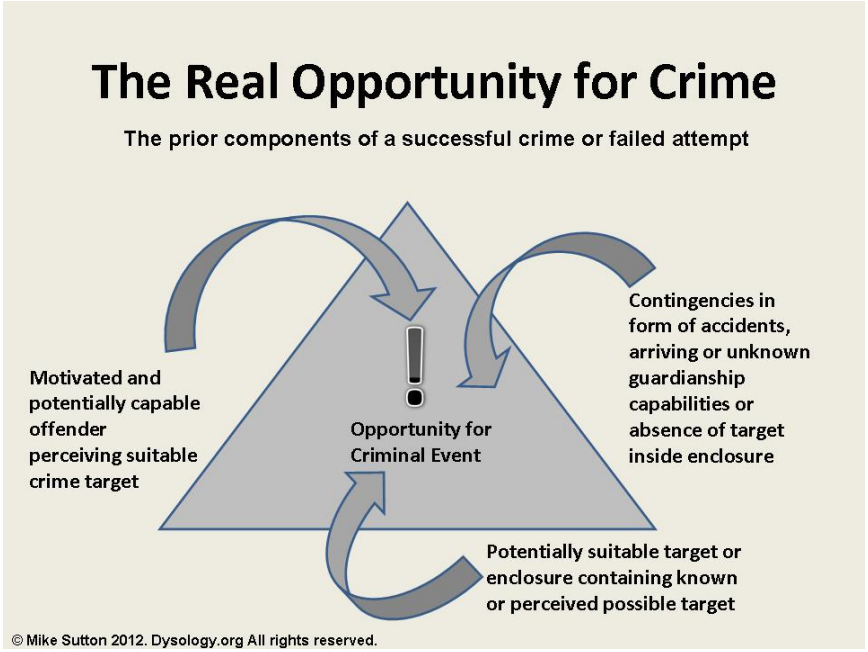

Figure 3: A More Realistic Depiction of just some Pre-crime Cognitive Processes, Uncertainties and Contingencies.

The Dysology Hypothesis

The *Chemistry Model* is not the only example we have of highly respected crime opportunity theorists relying upon and disseminating as veracious their literal interpretation of over-simplistic falsehoods as causal factors. Clarke and Hough's (1984) back of an envelope arithmetical portrayal of beat police officers as essentially randomly patrolling headless zombies was misinterpreted by many criminologists as real evidence based on findings about real beat police officers, leading to the widely disseminated myth that real-life beat patrol policing is ineffective because only once every eight years would a typical foot patrol officer come within 100 yards of a burglary in commission (Sutton and Hodgson 2013). Taking police officer perceptions out of their weird arithmetic had, it seems, similar human-brain free chemistry envy 'natural science appeal' to all those credulous social scientists eagerly parroting it throughout the literature as an important example of veracious real policing research knowledge.

Any scholars who unquestioningly parrot un-evidenced knowledge beliefs are a problem because they potentially hold-up veracious progress in their own discipline.

In the field of biochemistry, the now busted *Spinach, Popeye and Iron Decimal Point Error Supermyth* (Sutton 2010) is a famous example (e.g. Arbesman, 2012, Kruszelnicki 2012, Schwarcz, 2015) of such dysology from another field of enquiry. A supermyth is a myth about a myth that entrenches the original. The spinach supermyth discovery is one of great irony. It uncovered the fact that many scholars simply parroted, as though it were a fact, an un-evidenced claim that a failure by others to check published data led to widespread dissemination of a mistaken calculation, based on a misplaced decimal point in the iron content of spinach, leading to generations of children being forced to eat it and Popeye's creator making it the secret of Popeye's strength. In reality, actually bothering to doggedly check the facts of the entire story and its historic sources reveals that no such decimal point error ever existed and that Popeye's creator only once explained why Popeye ate spinach and that was for Vitamin A, never for iron.

The dysology hypothesis, was born of the Spinach Supermyth discovery. I propose it here for the first time in an open peer-reviewed article. It borrows heavily from Kelling's and Wilson's (1982) Broken Windows Theory:

> *Letting scholars get away with publishing fallacies and myths signals to others the existence of topics where guardians of good scholarship might be less capable than elsewhere. Such dysology then serves as an allurement to poor scholars to disseminate existing myths and fallacies and to create and publish their own in these topic areas, which leads to a downward spiral of diminishing veracity on particular topics.*

Confirmatory evidence for the Dysology hypothesis comes by way of a far more serious case in the history of scientific discovery and the strangely under-explored criminological field of science fraud by plagiarism and falsehood. The case in question concerns a tale knowingly started by Charles Darwin (1860, 1861a, 1861b) as an untruth.

Darwin claimed in his own defence, when challenged in the press by the originator, that no naturalist and no one at all had read Patrick Matthew's (1831) original and prior publication of the complete hypothesis of macroevolution by natural selection before he and Alfred Wallace (Darwin and Wallace 1858, Darwin 1859) supposedly independently replicated it. Darwin's lie was discoverable, in the literature at the time to have been written knowingly as a fiction. A fiction because Darwin had been prior informed in print (Matthew 1860a, 1860b), that the very opposite is true. If any other person discovered that truth, they kept it to themselves. And so Darwin's self-serving fiction was parroted as 'the truth' for 154 years by the most esteemed scientists and historians of science. Parroted, that is, until the actual truth was uncovered in the literature by a criminologist doggedly checking the independently verifiable facts and then publishing them (Sutton 2014a, 2014b 2015b 2017).

There is a lesson to be had here for eminent writers it seems, and it is this: Don't misrepresent complex reality with simple fallacies via words in the main body of your own published text, or by way of heuristic devices to explain it, unless that is you want people who respect you to parrot those falsehoods into knowledge myths. The lesson for the less eminent among us is another. And that is to abide by the motto *Nullius in Verba*, the meaning of which is that we should take nothing simply on the word alone of anyone. Essentially, the Latin term, which has been the motto of the Royal Society since 1663, is taken from a longer quotation: '*Nullus addictus jurare in verba magistri*', meaning: 'I'm not committed to

swearing by the words of any guru.' Obviously, the latter lesson is a particularly old and important one in the habitat of the natural scientist. Arguably, it needs re-visiting by some biologists and historians of science. Equally, it needs adopting by social scientists. Or else, we get fallacies parroted into myths, which are then disseminated as though veracious knowledge by unquestioning devotees of dogma, otherwise known as 'the zombie horde'.

Discussion

In the social sciences as in the natural sciences, mere descriptions of things, if they are accurate, cannot be refuted. Moreover, mere descriptions, no matter how correctly precise and elegant they might be, cannot causally explain the occurrence or cessation of the things they merely describe. To be absolutely clear, they most certainly cannot predict them in advance of their coming into being. Popper explained why this is so:

> '…the problem of demarcating science from pseudoscience. …My main idea in 1919 was this. If somebody proposed a scientific theory he should answer, as Einstein did, the question:
>
> "Under what conditions would I admit that my theory is untenable?"
> In other words, what conceivable facts would I accept as refutations, or falsifications, of my theory?'
>
> (Popper, K. 1974)

Many books and peer reviewed articles uncritically parrot Cohen and Felson's (1979) and Felson's numerous other publications, to claim that predatory crime incidents depend upon the actual pre-crime physical convergence of 'likely offender', 'suitable target' and 'absence of capable guardian against the offence'. Whilst it is beyond the scope of this paper to provide an up-to-date definitive list of all the publications that portray this irrefutably un-falsifiable mere truism as a cause of crime, the 100 examples provided in Table 1 in this article are typical of the many hundreds of others, perhaps many thousands, which present the *Chemistry Model* as plausible rather than impossible. Notably, some writers (e.g. Wikström et al 2009) do note that it does not explain offender perception, but those writers fail to insist it has to be co-dependent with rational choice theory/situational crime prevention to make any rational sense as a causal explanation. Consequently, Wikström et al (2009), like all the other authors in Table 1, inadvertently legitimise it as a potentially useful causal explanation in its own right by apparently failing to recognise it is a mere truism. Others, such as Guerette et al (2016) and Farrell et al (1995), whist remarking that the *Chemistry Model* complements the rational choice component of the situational crime prevention approach, apparently fail to understand it makes no sense as a standalone causal explanation. Accordingly, they also present it unquestionably as though it does.

Even writers who are most scathingly critical of Felson's 'Chemistry of Crime' (e.g. Garland 1999) are included in Table 1 for disseminating it as a foregone conclusion causal explanation without, apparently, noticing it can be no such thing.

I have tried to be conservatively fair-minded in deciding which work to include in Table 1. For example, writers such as Hopkins Burke (2001: 45) are excluded because they wrote, correctly, that the elements in the 'Chemistry of Crime' have only the 'potential' to result in a

crime. And Sorensen (2003) is not included in Table 1 because, like others, he independently interprets the 'Chemistry of Crime' as requiring human 'perception', including rational choice, to have any possible rational meaning as a causal explanation:

> *'Routine activities theory (Cohen and Felson, 1979) compliments rational choice theory by specifying the factors necessary for crime to occur. Crime, it says, requires the interaction of a motivated offender, a suitable target, and the absence of a capable guardian. Since motivated offenders are everywhere – and therefore taken for granted - routine activity theorists argue that the occurrence of any specific crime is wholly dependent on an offender's cost-benefit perceptions of target suitability and availability, and on the level of guardianship protecting that target. The simple, though arguably effective, implication of these positions is that removing and/or hardening specific targets can prevent specific crimes. While such approaches have sometimes been criticized as little more than "common sense," it is surprising how few people employ common sense systematically.'*
>
> Sorensen (2003: 7)

Others, such as Edwards and Levi (2008), who appear to have no critical problem with 'the Chemistry of Crime' presented me with no particular problems in deciding whether or not to include them in Table 1. This, despite the fact they failed to note the fact the *Chemistry Model* is a mere truism. In their particular case, in line with my attempt to be as fair and conservative as possible, scholarly deployment of the word 'contingent' was quite sufficient to exclude them.

> *'…intensive research questions focus investigation on substantial relations of connection, both necessary and contingent, involving causal actors. In these terms, routine activities theory represents a significant breakthrough in thinking about crime causation, in so far as it identifies interactions between motivated offenders, suitable targets and absent or incapable guardians as being necessary for crime commission at all or in large volumes (…). Such approaches, however, are incomplete without a qualitative understanding of the contingencies that form the elements of the 'crime triangle'.*
>
> *Edwards and Levi (2008: 368).*

To be even handed, it is important to stress that my research into the literature on this topic reveals a large body of the literature recognises the important role played by offender perceptions of suitability of crime targets and potential guardian perceptions and calculations regarding their own and potential offender capabilities. We can know this simply because many authors use the word 'perception' to explain that target suitability, and absence of capable guardianship, are things potential offenders perceive. Other authors use the word 'potential' in their own reasoning (e.g. Byers Crider 2002, Yar 2005, Laycock 2009, Hollis-Peel et al 2011, Miro 2014, Hopkins Burke 2001) to bring the reality of perception and contingent events to the *Chemistry Model*. That said, it is necessary to insert a caveat at this juncture, namely that despite my best efforts to be fair and objective, the decision making process regarding what works to include and exclude from Table 1 was unavoidably subjective, personal and possibly open to alternative viewpoints regarding fairness.

The authors cited in Table 1 are a mere sample of many others that I think should be included. For benevolent reasons, which I hope are understandable, I excluded all published Ph.D theses, masters and graduate dissertations from inclusion. Ideally, readers should not take my world alone for it that the publications in the table do what I say they do. Instead, please do examine the original text on this topic from the sources cited in Table 1 and then judge for yourself whether I am right that those cited have disseminated as veracious the nonsensical *Chemistry Model* meme that all successfully completed crimes are a cause of their own successful completion.

One of the most insightful and thoughtful publications I found in this particular foray into the literature is a chapter by Cave (2012) on terrorism. It goes way beyond the deterministic post-hoc truism of the *Chemistry Model.* Instead, Cave goes to some considerable depth on the meaning and real-life flux of guardianship. However, despite Cave's and so many other authored examples of thoughtful critical scholarship on this topic, the data in Table 1 is, arguably, sufficient to verify the claim that dissemination of the *Chemistry Model* fallacy exists in sufficient number in the published literature to be considered a detrimental criminology meme.

It seems that crime opportunity scholars have confused the usefulness of the wider RAT to explain certain crime rates at the area level with theorising about the causes of individual crimes. Area level research reveals that crime incidence can increase in line with measurable high quality potentially vulnerable targets in certain areas (Cook 1986). Most importantly, Cohen et al.'s (1980) regression analysis of area level population data, at least in the areas they chose to look and tell us about, concluded that the number of objectively measurable potentially vulnerable targets for theft, such as length of time homes are unoccupied each day, appeared to play a causal role in increasing the number of burglaries and other thefts in the areas studied.

One might ask at this juncture 'So how does concluding that this wider RAT area level, measurable vulnerabilities, explanation is sensible, but the individual crime level *Chemistry Model* explanation is not, help us?' I think, I answered this question several years ago in 2012, when following the publication of my web article on this topic (Sutton 2012), an eminent professor of criminology, who I have known personally for several decades, kindly engaged with me in an email discussion on the topic. We later met for an amicable meal in Nottingham to discuss it a little further. He took forward our discussions by referring humorously to my work in this area as "the scourge of Sutton" essentially asking:

> *"…how would anyone's actions change if we configured the world a la Sutton as compared with a la Felson?"*

Below this paragraph are the words I wrote in an email by way of my considered reply. I include most of my reply here because I think such information helps others to see how and when networks of scholars first engage in unpopular debunking of long-cherished theoretical premises and the newly punctured paradigms they support, when such problems are identified and when they are first disseminated and discussed outside the pages of peer reviewed articles and books. Although it is both polite and ethical to respect the right to anonymity of our email correspondents and the content of their emails, which I do here, if we don't share any of our own correspondence, future generations of scholars will know less about who influenced anyone at all with their original ideas. Knowledge contamination occurs in a

variety of ways (see Sutton 2015b). Providing access to private correspondence, diaries and notebooks is just one way academics have informed past generations about how their original ideas were first shared. Suitably anonymised emails can be treated similarly:

> *'The question about how the world would be configured differently has two very distinct yet important parts (a) what it means for Crime Science, RAT and Crime Opportunity theory in general and those who work in those fields and (b) what it means for crime reduction.*
>
> *I think that as a matter of intellectual principle we should not base our intellectual endeavours on absurdly irrational ideas. As you know, I believe the RAT notion of opportunity to be completely absurd. And think this holds true to a much more important degree if you are calling yourself a 'scientist'.*
>
> *With regards to the "so what?" question you raise. Let's look at the possible implications (1) so what is the harm if we continue to confuse data with theory (1a) in regards to the issue of crime opportunities and (1b) any future work where we do the same because we have set a precedent that we feel this is OK to do in our discipline?*
>
> *In terms of (1a), I think because it 100 per cent fails to understand what causality is that those who believe it is a cause will use the RAT notion of opportunity as though it is causal and use that (wrongly) to look at underlining causes. The Felson World outcome = an obsession with security that will not pay-off in many areas (such as domestic burglary) and personal assault because the best locks in the world are useless if they are so cumbersome the door has to left ajar. And the most secure procedures in the world are useless if they are so life-inhibiting we would rather run the risk of victimization (Clarke has written about this himself) . But if 'ratortunity' is still deemed (wrongly) to be a cause and the most important cause of crime then where have you left yourself to go in terms of why you would want to address this problem by broadening your horizons from what you think (wrongly) to be the most important cause of crime?*
>
> *As you can see (1a) – shows how the world of Crime Science will be configured in a different way to other more rigorous scientific disciplines if you were to continue to think the RAT notion of 'opportunity' (ratortunity if you will) is acceptable. In effect, you are likely to be seen by everyone else as a bunch of pseudoscientists (based on Poppers definition). After all if you believe in ratortunity then what would stop you from making the same mistake again and again in other areas where you also confuse your data with explanations of your data unless you fez up to this early mistake and fix it in your work and teaching?*
>
> *As we all know, security is nothing new – and yet Crime Opportunity Theorists with the Rat triangle underpinning a notion of causality are effectively telling themselves and everyone else that offenders commit crimes because they can. That's pretty useless as an explanation that might enable mankind to identify areas for more effective intervention in a range of circumstances.*
>
> *OK so that's the issue of how the world is likely to be configured one way or the other for Crime Scientists and others who believe in ratortunity.*

> *We need next to ask: so how might this criticism of ratortunity actually be transfigured into some kind of crime reduction benefit over believing in it? Well it might help us to rationally decide where we wish to spend money on (a) security and (b) the various underlying causes of successful attempts made on that security. I think accepting that ratorunity is wrong is important and will make a difference because Crime Opportunity theorists (and the various national and local government departments, police organisations and others) would have to accept that guardianship and offender capabilities are perceptions (not fixed entities) in advance of successful and unsuccessful crimes. The three elements in the RAT crime triangle are perception of offenders – and where guardians are human they are perceptions belonging to guardians. Here then there is a whole new area to explore in terms of how different things impact upon perceptions to reduce crime and what the outcome is. Likewise for how perceptions cause crime to increase. It also means that we should no longer take motivation as 'given' and it also means that we need to explore how motivation (say an increase in the price of scrap metal) facilitates offenders becoming more likely or capable than they were before.*
>
> *I guess the bone of contention is this: You might have always considered ratortunity to be contingent (re our emails last week – I sent you a couple of publications where you do write that) but (a) does Felson and does Clarke consider it to be based on perception or contingency? And if so where have they written that? Because I can't find it.*
>
> *And (2) more importantly – how has the ratortunity myth (identified by the scourge of Sutton) been swallowed by others who have clearly not considered it to be subject to contingency and perception? And how, if at all, has that impacted on policymaking and teaching? This second point is something I am currently writing up...'*

Arguably it is a good thing that a criminologist spotted this dysology, because the social sciences have, deservedly, come under much fire from our colleagues in physics, biology and chemistry (e.g. Gross, Levitt and Lewis 1996). That has happened for a variety of other instances of our great foolishness. Surely, it is best that we be honest and not engage in de facto fact denial and other punctured paradigm protecting behaviour? Unless we wish to attract and enjoy the mockery of other disciplines, we can most effectively set our own discipline in order with our own sound scholarship and widespread dissemination of the lessons learned from our own mistakes.

I will now conclude this article with that *writing up*, which I promised my anonymised correspondent some five years ago. Between then and now, my original published criticisms of the *Chemistry Model* have been cited courageously by Roger Hopkins Burke (2014: 69-70) in his excellent text book *An Introduction to Criminological Theory*. Critical criminologists Jeff Ferrell, Keith Haywood and Jock Young (2014): 69-70) similarly put their heads above the parapet and published my no punches pulled criticism of what's wrong with the chemistry of crime meme in the second edition of their equally excellent book *Cultural Criminology: An Invitation*. Readers looking for further scholarly sources to cite this critique of the *Chemistry Model*, could do worse than read my peer-reviewed essay on stolen goods markets in the Springer Encyclopedia of Criminology and Criminal Justice (Sutton 2014b).

Conclusion

Despite the fact that many scholars have avoided the pitfall of essentially claiming every successfully completed crime caused itself to happen, many others have fallen into *the Chemistry of Crime Truism Trap*. Widespread published literal interpretation of the *Chemistry Model,* and uncritical parroting of it representing the claimed veracious essential ingredients of potential offender and potential victim dynamics in pre-crime completion situations, means it has taken on the status of meme. Today, there is a myriad of published peer reviewed articles, academic textbooks and practitioner guides disseminating minimalist descriptions of the obvious outcome of intended, successfully completed, predatory crimes as nonsensical explanations for their cause.

The introduction to this article includes a lengthy quote to define RAT. It was penned by Wikström (2009) a renowned leading expert on the topic. Revisiting the following extract from his work, we can see he wrote *'Routine activity theory is sometimes combined with rational choice theory, an action theory that explains human action as the result of rational choice (i.e. acting on the best available option perceived).'* The important point being that in writing only "sometimes" rather than "only sometimes", Wikström fails to make it clear that those who disseminate it as a stand-alone theory of crime causation so frequently combine the *Chemistry Model* of RAT with nothing else at all. The result is a large body of populist irrational and conveniently simplistic criminology, devoid of the complex reality of human perception and contingent events. Formulated on the ludicrous premise that the successful outcome of every intended crime caused itself to happen, this meme is a mere truism masquerading as causality, an un-testable over-simplistic chemistry envy driven degradation of our discipline. Colleagues, students and crime reduction practitioners who read and cite our work, deserve better criminology than a so-called 'Chemistry of Crime', as does society in general.

We should take no pseudo-scholarly prisoners. Sound scholarship is more than a popularity contest. To try to deter others from repeating, recycling and tolerating dysology this reason and fact-led denunciation of the de-humanised *Chemistry Model* should be trumpeted from the rooftops. Will it be? That is the telling question.

References

Alexander, R. (2010) Human Behavior in the Social Environment: A Macro, National and International Perspective. Thousand Oakes. Sage

Anadarajan, M., D'ovidio, R. and Jenkins, A. (2013). Safeguarding consumers against identity-related fraud: examining data breach notification legislation through the lens of routine activities theory. International Data Privacy Law, 3(1), pp. 51-60.

Anderson, J. G. (2000) LADY JUSTICE AND THE CORPORATE VISOR: AN APPLICATION OF ROUTINE ACTIVITY THEORY AS A SYNTHESIZED THEORETICAL FRAMEWORK FOR EXPLAINING CORPORATE CRIME. Independent publication. MSCJ Program, University of Alabama at Birmingham. June 15: http://oai.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=ADA378703

Arbesman, S. (2012) The Half-Life of Facts: Why Everything We Know Has an Expiration Date. New York. Penguin.

Argun, U. and Dağlar, M. (2016) Examination of Routine Activities Theory by the property crime. *International Journal of Human Sciences*. Volume: 13 Issue: 1 pp. 1188-1198.

Badiora, A. I. (2014) Crime Site Selection and Implications for Prevention Planning in Nigeria, Journal of Applied Security Research, 9:3, 338-347

Barnes, J. (2013) Technological Profiling of Cyber-bullying. Forensic Magazine. November 9. http://www.forensicmag.com/article/2013/09/technological-profiling-cyber-bullying

BBC (1972). Miss Anne Elk. *Monty Python's Flying Circus*. Episode 31.

Bell, P. Frain, F. M. and Lauchs, M. (2013) Investigating International Bribery and the Applicability of Routine Activity Theory: A Literary Review. International Journal of Business and Commerce Vol. 2, No.10: pp. 79-94.

Branas, C.C, Richmond, T. S. Schwab, C. W. (2004) Firearm Homicide and Firearm Suicide: Opposite but Equal. *Public Health Reports*. Volume 119. pp. 114-119.

Brock, D. and Walker, D. (2008) HOTEL SECURITY AND THE ROUTINE ACTIVITIES APPROACH. The Police Journal, Volume 81. Pp. 144-153.

Bruce, C. W. (2001) Killing Crime at Its Root: An Introduction to Cause Analysis, In Bair, S. Boba, R. Fritz, N Helms, D. and Hick, S. (eds) Advanced Crime Mapping Topics. Crime Mapping & Analysis Program (CMAP), National Law Enforcement & Corrections Technology Center (NLECTC). University of Denver. http://www.iaca.net/Resources/Articles/advancedcrimemapping.pdf

Brunsdon, C., Corcoran, J. Higgs, G. Ware, A. (2009) The influence of weather on local geographical patterns of police calls for service Environment and Planning B: Planning and Design, volume 36, pages 906 -926.

Buckland, L. (2012) You picked the wrong guy! Mugger floored after he attacks 84-year-old... who happens to be an ex-boxer. Daily Mail. January 8. http://www.dailymail.co.uk/news/article-2083828/Mugger-floored-attacks-84-year-old-ex-boxer.html#ixzz4d0UbNZWv

Bullock. K. and Tilley, N. (2011) Introduction - Problem oriented policing: The concept implementation and impact in the UK and USA. In Bullock. K. and Tilley, N. (Eds) Crime Reduction and Problem Oriented Policing. London. Routledge.

Byers, B. D. and Crider. B. W. (2002) Hate crimes against the Amish: a qualitative analysis of bias motivation using routine activities theory, Deviant Behavior, 23:2. pp 115-148.

Case, S. Johnson, P. Manlow, D. Smith, R. Williams, K. (2017) Criminology Oxford. Oxford University Press.

Cave, B. (2012) Counterinsurgency and Criminology: Applying Routine Activities Theory to Military Approaches to Counterterrorism. In Lum, C. and Kennedy, L. W. (eds) Evidence-Based Counterterrorism Policy. Springer.

Ceccato, V. Introduction. (2012) In Ceccato, V. (ed) The Urban Fabric of Crime and Fear. Springer.

Cherise, M. F. (1997). Situational crime prevention: Techniques for reducing bike theft at Indiana University, Bloomington. Journal of Security Administration, 20(2), pp. 1-14.

Clarke, R. V and Felson, M. (1998) Opportunity Makes the Thief: Practical theory for crime prevention. Home Office. Police Research Series, paper 98. London. Home Office.

Clarke, R. V. and Hough, M. (1984) Crime and Police Effectiveness. Home Office Research Study No. 79. London. HMSO.

Cohen, E., and Felson, M. (1979), 'Social Change and Crime Rate Trends: A Routine Activity Approach'. *American Sociological Review*, 44/4: 588-608

Cohen, L. E., Felson, M., and Land, K. (1980), 'Property Crime Rates in the United States: A Macrodynamic Analysis, 1947-1977; with Ex Ante Forecasts for the Mid-1980's', *American Journal of Sociology*, 86/1: 90-118.

Cook, P. J (1986), 'The Demand and Supply of Criminal Opportunities'. *Journal of Crime and Justice, 7: 1-27.*

Copes, H. (1999) ROUTINE ACTIVITIES AND MOTOR VEHICLE THEFT: A CRIME SPECIFIC APPROACH, *Journal of Crime and Justice*, 22:2, 125-146.

Corcoran, J. Zahnow, R. and Higgs, G. (2016) Using routine activity theory to inform a conceptual understanding of the geography of fire events. Geoforum 75. pp. 180–185.

Crank. J. P. Murray, R. K. Irlbeck, D. M. Sundermeier, M. T. (2011).Mission-Based Policing. Taylor and Francis.

Crawford, A. (2010) Conceptual links and policy challenges. In: Restorative Justice and Crime Prevention: Presenting a theoretical exploration, an empirical analysis and the policy perspective. Final report of the European project 'Restorative Justice and Crime Prevention' Department of Juvenile Justice (Italian Ministry of Justice). http://euforumrj.org/assets/upload/Restorative_Justice_and_Crime_Prevention_Final_report.pdf

Curtin, L. Tilley, N. Owen, M. ad Pease, K. (2001). Developing Crime Reduction Plans: Some Examples from the Reducing Burglary Initiative. Crime Reduction Research series paper 7. Policing and Reducing Crime Unit. London. Home Office.

Daily Mail (2009) Thugs attack two transvestites…who turn out to be cage fighters wearing fancy dress. 7 October.

Darwin, C. R. and Wallace, A. R. (1858) On the tendency of species to form varieties; and on the perpetuation of varieties and species by natural means of selection. Journal of the Proceedings of the Linnaean Society of London.

Darwin. C. R. (1859). On the Origin of Species by Means of Natural Selection. Or the Preservation of Favoured Races in the Struggle for Life. London. John Murray.

Darwin, C. R. (1860) Natural selection. Gardener's Chronicle and Agricultural Gazette no. 16 (21 April): 362-363.

Darwin, C. R. (1861a) On the Origin of Species by Means of Natural Selection. Or the Preservation of Favoured Races in the Struggle for Life. (Third Edition) London. John Murray.

Darwin, C. R. (1861b), Letter to Quatrefages de Bréau, J. L. A. De. 25 April, *Darwin Correspondance Project*, http://www.darwinproject.ac.uk/entry-3127

Davies, T and Johnson, S. D (2015) Examining the Relationship Between Road Structure and Burglary Risk Via Quantitative Network Analysis. *Journal of Quantitative Criminology* 31:481–507.

Dillenburger, K. (2007). A Behavior Analytic Perspective on Victimology. International Journal of Behavioral Consultation and Therapy Volume 3, No. 3. pp. 433-448.

Dubey, N. Chaturvedi, S. K. (2014) International Journal of Engineering Research and Applications Vol. 4, Issue 3. pp.396-40.

Durrant, R. Ward, T. (2015). Evolutionary Criminology: Towards a Comprehensive Explanation of Crime. London. Academic Press.

Edwards, A. and Levi, M. (2008) Researching the organization of serious crimes. Criminology & Criminal Justice. Vol 8, Issue 4, pp. 363 – 388.

Ellis, D.I. Muhamadali, H. Allen, D. P. Elliott, C. T. Goodacre, R. (2016) A flavour of omics approaches for the detection of food fraud. Current Opinion in Food Science. 10: pp. 7–15.

Erdoğan, A (2010) What do place-based crime prevention strategies mean for the Turkish planning system and urban. Journal of Geography and Regional Planning. Vol. 3(11), pp. 271-296.

Farrell, G. Phillips, C. and Pease, K. (1995). Like taking candy: why does repeat victimization occur? *British Journal of Criminology*, 35(3), pp. 384-399.

FARRELL, G., CLARK, K., ELLINGWORTH, D. and PEASE, K., 2005. Of targets and supertargets: a routine activity theory of high crime rates. Internet Journal of Criminology. https://media.wix.com/ugd/b93dd4_fb29958195674be1a633b70c36ee051c.pdf

Felson, M. (1994) Crime and Everyday Life: Insights and Implications for Society. (first edition). Thousand Oaks. Pine Forge Press

Felson, M. and Clarke, R. V. (1998) Opportunity Makes the Thief: Practical theory for crime prevention. Police Research Series Paper 98. London. Home Office.

Felson, M. (1998) Crime and Everyday Life. (Second edition). Thousand Oaks. Pine Forge Press.

Felson, M. and Eckert, M. (2015) Crime and Everyday Life (fifth edition) Los Angles. Sage.

Ferrell, J. Hayward, K, and Young, J. (2015) Cultural Criminology: An invitation. (Second edition) London. Sage.

Fiala, R. and LaFree, G. (1988) Cross-National Determinants of Child Homicide Robert Fiala *American Sociological Review*, Vol. 53, No. 3 (Jun., 1988), pp. 432-445.

Frailing, K and Wood Harper. D. (2013) Fundamentals of Criminology: New Dimensions. Durham. Carolina Academic Press.

Freisthler, B. Kepple, N. J. Sims, R. (2013) Evaluating Medical Marijuana Dispensary Policies: Spatial Methods for the Study of Environmentally-Based Interventions. American Journal Community Psychology. 51(0): pp. 278–288.

Garland, D. (1999) The Commonplace and the Catastrophic. Interpretations of crime in late modernity. Theoretical Criminology. 3 (3): pp. 353-364

Gill. M. (2005) Reducing the capacity to offend: restricting resources for offending. In In Tilley, N. (ed) *Handbook of Crime Prevention and Community Safety*. Cullompton. Willan.

Grover, C. (2008) Crime and Inequality. Abingdon. Routledge

Goc, N. (2013) Women, Infanticide and the Press, 1822–1922: News Narratives in England and Australia. Routledge.

Gorman DM, Gruenewald PJ, Waller LA. (2013) Linking Places to Problems: Geospatial Theories of Neighborhoods, Alcohol and Crime. Geo Journal. 78(3) pp. 417-428.

Graham, K and Homel, R. (2011) Raising the Bar: Preventing aggression in and around bars, pubs and pubs. Abingdon. Taylor and Francis.

Grana, G. and James Windell, J. (2017) Crime and Intelligence Analysis: An Integrated Real-Time Approach. Boca Raton. Taylor and Francis.

Graycar, A. Sidebottom, A (2012),"Corruption and control: a corruption reduction approach", Journal of Financial Crime, Vol. 19 (4) pp. 384-399.

Griffiths, E. and Chavez, J. M. (2004) COMMUNITIES, STREET GUNS AND HOMICIDE TRAJECTORIES IN CHICAGO, 1980-1995: MERGING METHODS FOR EXAMINING HOMICIDE TRENDS ACROSS SPACE AND TIME. Criminology. 42(4) pp. 941-978.

Gross, P. R., Levitt, N. and Lewis, M. W. (eds.) (1996) The Flight from Science and Reason. Baltimore. John Hopkins University Press.

Guerette, R. T. Johnson, S. D. and Bowers, K. (2016) Situational Crime Prevention. In Blomberg, T. G. Brancale, J. M. Beaver, K. M. and Bales, W. D (eds) Advancing Criminology and Criminal Justice Policy. Abingdon. Routledge.

Hagan, F. E. (2010) Crime Types and Criminals. Thousand Oakes. Sage.

Hamilton-Smith, N and Kent, A. (2005) The prevention of domestic burglary. In Tilley, N. (ed) *Handbook of Crime Prevention and Community Safety*. Cullompton. Willan.

Hope, T. (1995) Community Crime Prevention. *Crime and Justice*. vol. 19. pp. 21-89.

Harris, D. Benson, M. L. (2006). Maltreatment of Patients in Nursing Homes: There Is No Safe Place. London. Howarth Press

Hindelang, M., Gottfredson, M. and Garofalo, J. (1978). *Victims of personal crime: An empirical foundation for a theory of personal victimization*. Cambridge, MA. Ballinger.

Hollis-Peel M. E Reynald, D. M, van Bavel, M. Elffers, H. and Welsh, B. C (2011) Guardianship for crime prevention: a critical review of the literature. *Crime Law and Social Change* Vol 56, Issue 1: pp. 53–70.

Holcomb, J. and Pizam, A. (2011) Do Incidents of Theft at Tourist Destinations Have a Negative effect on Tourists' Decisions to Travel to Affected Destinations. *Tourism, Security and Safety: From theory to practice.* Abingdon. Routledge.

Hopkins Burke, R. (2001) An Introduction to Criminological Theory. (first edition). Collumpton. Willan

Hopkins Burke, R. (2014) An Introduction to Criminological Theory. (Ffourth edition). Abingdon. Routledge.

Hutchings, A. Hayes, H. (2009) Routine Activity Theory and Phishing Victimisation: Who Gets Caught in the 'Net'? Alice and Hennessey. Current Issues in Criminal Justice. Vol. 20. No. 3. pp. 1-20.

Jegede, A. E. (2014) CYBER FRAUD, GLOBAL TRADE AND YOUTH CRIME BURDEN: NIGERIAN EXPERIENCE. Afro Asian Journal of Social Sciences. Volume V, No 4. pp. 1-21.

Kelling, G, L and Wilson, J. Q. (1982) Broken windows: the police and neighborhood safety. *Atlantic Monthly*. Mar; 249(3): pp. 29–38.

Kigerl, A. (2013) Cybercrime: Hi tech Crime in the Information Age. In Criminal Psychology. Helfgott, J. B. (ed). Preager.

Knepper, P. (2007) Criminology and Social Policy. London. Sage.

Kohm, S, A. (2006) "Welfare is the Second Last Resort. The Last Resort is Death (1)". an Exploratory Analysis of Social Assistance, Victimization and Crime. Canadian Journal of Urban Research. Summer, 15(1).

Kruszelnicki, K. (2012) 50 Shades of Grey Matter. Sydney. Macmillan.

Kupatadze, A. (2012) Organized Crime, Political Transitions and State Formation in Post-Soviet Eurasia. New York. Palgrave Macmillan.

Lab, S. P. (2016) Crime Prevention: Approaches, Practices, and Evaluations. (9th edition). Routledge.

LaFree, G. (1999) DECLINING ANNUAL VIOLENT CRIME RATES IN THE 1990s: Predicting Crime Booms and Busts. Annual Review Sociology. 25: pp. 145–168.

Laycock, G (2001). Research for Police: who needs it? Australian Institute of Criminology. Trends and Issues in Crime and Criminal Justice. Report 211. http://www.aic.gov.au/media_library/publications/tandi_pdf/tandi211.pdf

Laycock, G. (2009) Science in the Context of International Crime Control, International Journal of Comparative and Applied Criminal Justice, 33:1, 1-15

Leclerc, B. (2013) Script Analysis for Crime Controllers: Extending the Reach of Situational Crime Prevention. In Caneppele, S. and Calderoni, F. (eds) Organized Crime, Corruption and Crime Prevention: Essays in Honor of Ernesto U. Savona. Springer.

Lombardo, R. and Lough, T. (2016) Community Policing: Broken Windows, Community Building, and Satisfaction with the Police. The Police Journal . Vol 80, Issue 2, pp. 117–140.

Long, B. (2012) The Criminological Theory-Video Nexus: A Quasi-Experimental Design to Test the Effectiveness of Using the Movie “Freeway” as a Teaching Aid. International Journal of Business and Social Science Vol. 3 No. 10 [Special Issue – May] pp. 192-201.

Mabika, M. Dube, B. (2017) Understanding the Prevalence and Forms of Cyber Bullying at Univen: A Pilot StudyOnline Journal of Communication and Media Technologies Volume: 7 – Issue: 1. Pp. 174-190.

Macmillan, R. (1995) Changes in the Structure of Life Courses and the Decline of Social Capital in Canadian Society: A Time Series Analysis of Property Crime Rates. The Canadian Journal of Sociology / Cahiers canadiens de sociologie, Vol. 20, No. 1 pp. 51-79

Mannon, J. M. (1997) DOMESTIC AND INTIMATE VIOLENCE: AN APPLICATION OF ROUTINE ACTIVITIES THEORY Aggression and Violent Behavior, Vol. 2, No. I, pp. 9-24. 1997.

Marchione, E., Johnson, S.D. and Wilson, A. (2014) Modelling Maritime Piracy: A Spatial Approach. Journal of Artificial Societies and Social Simulation 17 (2) 9.

Marcum, C. D. (2008). Identifying Potential Factors of Adolescent Online Victimization for High School Seniors. *International Journal of Cyber Criminology*, **2**(2), pp. 346-367.

Marquart, J. W. Mullings, J. L.Davila, M , Hartley, D. Hughes, M. (2004) Texas Crime Victimization Survey Report. The Crime Victims' Institute. Sam Houston State University. Criminal Justice Center.
http://dev.cjcenter.org/_files/cvi/texas_crime_victimization_report_04.pdf

Marshall, T. (2015) 'Burglar' trapped in chimney dies after homeowner lights fire. The Evening Standard. November 29. http://www.standard.co.uk/news/world/burglar-trapped-in-chimney-dies-after-homeowner-lights-fire-a3125556.html

Martinez-Prather, K. and Vandiver, D.M., 2014. Sexting among Teenagers in the United States: A Retrospective Analysis of Identifying Motivating Factors, Potential Targets, and the Role of a Capable Guardian. *International Journal of Cyber Criminology*, 8(1), pp. 21-35.

Matthew, P. (1860a) Letter to the Gardeners Chronicle. Nature's law of selection. Gardeners' Chronicle and Agricultural Gazette (7 April): 312-13.

Matthew, P. (1860b) Letter to the Gardeners Chronicle. Nature's law of selection. Gardeners' Chronicle and Agricultural Gazette (12 May) p. 433.

Maxfield, M. G. and Babbie. E. R. (2012) (Third edition) Basics of Research Methods for Criminal Justice and Criminology. Wadsworth.

McElvain, J P. Augustine J. K, and Gray, B. C. (2013) Testing a Crime Control Model: Does Strategic and Directed Deployment of Police Officers Lead to Lower Crime? *Journal of Criminology*

Meier, R. F. and Miethe, T. D. (1993) Understanding Theories of Criminal Victimization. Crime and Justice, Vol. 17 pp. 459-499

Merton, R. K. (1957) Priorities in Scientific Discovery: A Chapter in the Sociology of Science. American Sociological Review. Volume 22. Number 6. December. pp. 635-659.

Merton, R. K. (1963) Resistance to the Systematic Study of Multiple Discoveries in Science. *European Journal of Sociology*. 4. pp 250-82.

Merton, R. K. (1968) The Matthew Effect in Science: The reward and communications systems of science are considered. *Science.* 159 (3810) pp. 56-63. January 5.

Messner, S. F. and Blau, J. R. (1987) Routine Leisure Activities and Rates of Crime: A Macro-Level Analysis. *Social Forces*, Vol. 65, No. 4), pp.1035-1052

Miethe, T. D. Stafford, M. C. and Long, J. S. (1987) Social Differentiation in Criminal Victimization: A Test of Routine Activities/Lifestyle Theories. *American Sociological Review*, Vol. 52, No. 2. pp. 184-194

Miró, F. (2014) Routine Activity Theory**.** The Encyclopedia of Theoretical Criminology. 1-7. Wiley.

Murray, A.T and Grubesic, T. H. Mack, E.A. Wei, R. Rey, S.J., Anselin, L. Griffin M. L. (2013) in Leitner M. (ed) Crime Modeling and Mapping Using Geospatial Technologies. New York. Springer.

Näsi, M., Räsänen, P. Kaakinen, M. Keipi, T. and Oksanen, A. (2016) Do routine activities help predict young adults' online harassment: A multi-nation study . *Criminology & Criminal Justice*. pp. 1-15.

O'Connor, T. R. (2009) The Criminology of Terrorism: Theories and Models. In Borgeson, K. and Valeri. R. (eds.) Terrorism in America. Sudbury. Jones and Bartlett.

Ozkan, M. (2016). A paradigm shift in policing: Crime reduction through problem oriented policing. International Journal of Human Sciences. Volume: 13(1) pp. 2032-2039.

Padhy, P. (ed) (2006) Crime and Criminology. Vol.1. Delhi. ISHA Books.

Pease, K. (2005) Science in the service of crime prevention. In Tilley, N. (ed) *Handbook of Crime Prevention and Community Safety*. Cullompton. Willan.

Pelfrey, W. V. (1998) Tourism and crime: A preliminary assessment of the relationship of crime to the number of visitors at selected sites, International Journal of Comparative and Applied Criminal Justice, 22(2), 293-304.

Popper, K. (1976), *Unended quest: An intellectual autobiography*. Open Court. file:///C:/Users/SOC3SUTTOMR/Downloads/Unended%20Quest%C2%A3%C2%BAAn%20Intellectual%20Autobiography.pdf

Quick, M. Law, J. and Luan, H. (2016) The Influence of On-Premise and Off-Premise Alcohol Outlets on Reported Violent Crime in the Region of Waterloo, Ontario: Applying Bayesian Spatial Modeling to Inform Land Use Planning and Policy. *Applied Spatial Analysis*. pp 1-20.

Regoli, R. M. Hewitt, J. D. and Delisi, M. (2011) Delinquency in Society: The Essentials. Jones and Bartlett.

Reynald, D. (2011) Guarding Against Crime: Measuring Guardianship within Routine Activity Theory. Farnham. Ashgate.

Robinson, M. B. (1998) Burglary Revictimization: The time period of heightened risk. British Journal of Criminology. Vol 38. No. 1. pp. 78-87.

Rogerson, M. and Armitage, R. (2014) The Impact of Housing Design on Crime. In: *Encyclo paedia of Quality of Life and WellBeing Research*. Springer, Berlin, Germany, pp. 3105-

3111.

Sampson, R. J. (2000) Crime, Criminals, and Cures: Medical Model Revisited. *Journal of Personality*. Vol. 68. pp. 607–613.

Schwarcz, J. (2015) Monkeys, Myths and Molecules: Separating Fact from Fiction in the Science of Science of Everyday Life. ECW Press.

Setterlund, D., Tilse, C, Willson, J. and McCawley, A. (2007) Understanding financial elder abuse in families: the potential of routine activities theory. *Ageing and Society.* Vol. 27 (4) pp. 599-614

Sherman, L. W. (1995) "Hot Spots of Crime and Criminal Careers of Places." pp. 35-52 in Eck. J. E. and Weisburd, D. (eds)., Crime and Place. Crime Prevention Studies, Vol.1. Monsey, NY: Criminal Justice Press.

Sidebottom, A. and Wortley, R.(2016). Environmental Criminology. In Piquero. A. R. (ed.) The Handbook of Criminological Theory. Chichester. Wiley.

Somerville, P. (2009) Understanding community policing. *Policing: An International Journal of Police Strategies & Management*, Vol. 32 (2) pp. 261 - 277

Sorensen, W. M. (2003) *The Nature and Prevention of Residential Burglary*: A Review of the International Literature with An Eye Toward Prevention in Denmark. Report Financed by and prepared for Denmark's Ministry of Justice: http://www.sikkerhedsbranchen.dk/billeder/2003%20Nature%20and%20prevention%20of%20Residential%20Burglary.pdf

Spink, C Moyer, J. D Park, H. (2014) and Heinonen, J. A. Development of a product-counterfeiting incident cluster tool. Crime Science. 3 . pp. 1-8.

Stack, S. Wasserman, I. and Kern, R. (2004) Adult Social Bonds and Use of Internet Pornography, *SOCIAL SCIENCE QUARTERLY*, Volume 85, Number 1, pp. 75-88.

Stahura, M and Sloan, J. J. III (1988) Urban Stratification of Places, Routine Activities and Suburban Crime Rates. *Social Forces*, Vol. 66, No. pp. 1102-1118

Stein, R. E. (2009) Assault Victimization: A Comparative Analysis of the United States, the Netherlands, and England & Wales. *International Journal of Criminal Justice Sciences*, 4(1), pp. 44-59.

Stummvoll, G. (2012) Changing concepts of security: The preventive turn in defensive design. In Edelbacher, M.. Kratcoski, P. and Theil, M. (eds) *Financial Crimes: A Threat to Global Security.* CRC Press.

Sung, H.E. (2002) A convergence approach to the analysis of political corruption: A cross-national study. Crime, Law and Social Change 38: 137-160.

Sutton, M. (2005) Complicity, trading dynamics and prevalence in stolen goods markets. In Tilley, N. (ed) *Handbook of Crime Prevention and Community Safety*. Cullompton. Willan.

Sutton, M. (2010) Spinach, Iron and Popeye: Ironic lessons from biochemistry and history on the importance of healthy eating, healthy scepticism and adequate citation. Internet Journal of Criminology. http://media.wix.com/ugd/b93dd4_1fe4a4c3e82444d1986c4ef560a91e28.pdf

Sutton, M. (2012) Opportunity Does Not Make the Thief: Busting the Myth that Opportunity is a Cause of Crime. http://dysology.blogspot.co.uk/2017/12/opportunity-does-not-make-thief-busting.html
Original article no longer available online. BestThinking.com
https://www.bestthinking.com/articles/science/social_sciences/sociology/opportunity-does-not-make-the-thief-busting-the-myth-that-opportunity-is-a-cause-of-crime .

Sutton, M and Hodgson, P. (2013) The Problem of Zombie Cops in Voodoo Criminology: Arresting the Police Patrol 100 Yard Myth. Internet Journal of Criminology: https://docs.wixstatic.com/ugd/b93dd4_1e07a756cb2e42c4a12d55788a9e81e9.pdf

Sutton, M (2014a) *Nullius in Verba: Darwin's greatest secret.* USA. Thinker Media. http://archive.is/NIEDR

Sutton. M. (2014b**)** Fencing/Receiving Stolen Goods. In Bruinsma, G. and Weisburd, D. (eds) Encyclopedia of Criminology and Criminal Justice. New York. Springer.

Sutton, M. (2014c) The hi-tech detection of Darwin's and Wallace's possible science fraud: Big data criminology re-writes the history of contested discovery. Papers from the British Criminology Conference 14. pp 49-64.

Sutton, M. (2015a) The Routine Activities Theory of Crime-Opportunity is a truism masquerading as causality. International CPTED Association International Conference (Crime prevention through environmental design) Calgary, Canada. October 19-20. (ICPTED Honorarium speaker)

Sutton, M. (2015b) On Knowledge Contamination: New Data Challenges Claims of Darwin's and Wallace's Independent Conceptions of Matthew's Prior- Published Hypothesis. *Filozoficzne Aspekty Genezy.* vol. 12. pp. 167-205.

Sutton, M. (2017) Nullius in Verba: Darwin's greatest secret. Vol.1 in paperback. Vae Victus.

Taylor, A. J., McGwun, G Jr., Brissie, R. M., Rue, L. W. 3rd and Davies, G. G. (2003) Death during theft from electric utilities. American Journal Forensic Medical Pathology. 24 (2). pp:173-176.

This is Grimsby (2011) Burglar caught by householder after he returned to steal TV http://www.grimsbytelegraph.co.uk/burglar-caught-returned-tv/story-11528997-detail/story.html#cig36OBwlqJiuPFU.99

Tilley, N. and Hopkins, M. (2008) Organized crime and local businesses. *Criminology and Criminal Justice*. Vol 8, Issue 4, pp. 443 – 459.

Van Tran, X. V. and Bridges, F. S. (2009) Tourism and Crime in European Nations. e-Review of Tourism Research. Vol. 7, No.3,

Vito, G. F. Maahs, J. R., Holmes, R. M. (2017) Criminology: Theory, Research, and Policy (second edition) Sudbury. Jones and Bartlett.

Walker, D Brock, D. and Stuart, T. R. (2016) Faceless-Oriented Policing: Traditional Policing Theories are Not Adequate in a Cyber World. The Police Journal. Vol 79, Issue 2, pp. 169–176.

Wikström, P. H. (2009). Routine Activity Theories. In *Oxford Bibliographies* in Criminology, http://www.oxfordbibliographies.com/view/document/obo-9780195396607/obo-9780195396607-0010.xml

Wikström, PO.H., Ceccato, V., Hardie, B. Treiber, K/ (2010) Activity Fields and the Dynamics of Crime: Advancing Knowledge About the Role of the Environment in Crime Causation. Journal of Quantitative Criminology Volume 26, Issue 1, pp 55–87

Willison, R (2000),"Understanding and Addressing Criminal Opportunity: The Application of Situational Crime Prevention to IS Security", Journal of Financial Crime, Vol. 7 Iss. 3 pp. 201.

Willison, R and James Backhouse, J. (2006) Opportunities for computer crime: considering systems risk from a criminological perspective *European Journal of Information Systems*, Volume 15, Issue 4, pp 403–414.

Wortley. R. and Townsley, M. (2008) Situating the theory, analytic approach and application. In Wortley. R. and Townsley, M. (eds) Environmental Criminology and Crime Analysis. London. Routledge.

Xu, J. (2009) The Robbery of Motorcycle Taxi Drivers (*Dake Zai*) in China: A Lifestyle/Routine Activity Perspective and Beyond. *British Journal of Criminology*. 49 (4): pp. 491-512

Yar, M. (2005) The Novelty of 'Cybercrime' An Assessment in Light of Routine Activity Theory. European Journal of Criminology. Vol 2, Issue 4. Pp. 407-427.

Zandbergen, P. A. Levenson, J. S. and Hart, T. C. (2010) RESIDENTIAL PROXIMITY TO SCHOOLS AND DAYCARES: An Empirical Analysis of Sex Offense Recidivism. CRIMINAL JUSTICE AND BEHAVIOR, Vol. 37 No. 5. pp. 482-502.

Open Peer Reviewer's Reviews Follow

Open peer reviews are clearly significantly different from the usual blind version. The paper is already published so any suggestions whether positive or negative tend to be irrelevant. The author of the paper is known to the writer of the review and at the same time the latter is known to the former. In this case author and reviewer occupy adjoining offices in the same higher education institution and have discussed the contents of this paper on many (indeed *very* many) occasions. In the spirit of transparency that this open review process promotes it would seem important to make this reality apparent at the outset. Now to more substantive issues.

This paper is ostensibly a critique of interpretations of Marcus Felson's crime triangle where it appears (apparently to many, according to this paper) that the meeting in time and space of a motivated offender and a suitable crime target in the absence of a capable guardian will inevitably lead to a crime occurring. The critique centers on the apparent direct causality of events. If these factors come together then a crime *will* occur. It is virtually *predestined*. It is a determinist argument. The author of the paper uses his 'big data' methodology - which he has used elsewhere for example to expose the famous biologist Charles Darwin as a plagiarist - to discover and list those many criminology writers who have fallen for the crime triangle determinist fallacy and have apparently taught it in that fashion. The author was motivated to write this paper because a third party academic when challenged had scathingly refused to believe that anyone had fallen intro this determinist trap. This reviewer had managed like some others to avoid that shaming by the simple use of the word 'potential'; thus, in doing so rescues the crime triangle - 'the chemistry of crime' according to Felson - from accusations of determinist causality and by introducing the notion of 'contingency'. The author produces a revised crime triangle. In other words, whether a crime will take place will depend on a whole range of factors involving the possible offender, target and protection. A criminal act is clearly not inevitable.

When I wrote my first edition of 'An Introduction to Criminological Theory' published in 2001 it was fairly clear in my mind that the routine activities triangle involved calculating people making a decision whether or not to offend which was rational to them in the circumstances in which they found themselves. Whether or not to take advantage of, what they considered to be, a possible (or even probable) but not certain opportunity, to commit a crime. Not that a successful crime would be inevitable. That would make no logical sense. Thus, crucially, events criminal or otherwise, are dependent on human agency and (mis)calculation. That is why I included discussion of routine activities in my discussion of the rational actor model of criminal behaviour, a logical progression from contemporary rational choice theories. No one to my knowledge has ever challenged that placement in what is a best-selling book. The revised crime triangle presented in this paper is very similar to the original – thus, possible offenders, possible targets and an apparent absence of guardianship do tend to come together in time and space for a criminal event to take place - but with the notion of contingency included on each side of the geometric figure. This is of course important – choice and contingency rather than determinism – is a very significant issue in the social sciences and criminology is no exception. There are however other wider implications which this paper recognizes.

First, there is the key issue of the veracity of knowledge and its implications for teaching at all levels. The paper addresses this issue. Widely read texts repeat fallacies as do teachers while university researchers in the social sciences can use these accepted misjudgments as the basis of their proposed

incremental development of knowledge. Research and knowledge in this scenario thus build on fallacies and indeed worse. What is to be expected of 'the teacher' in these situations? Is the individual to question every knowledge claim? How many teachers in the contemporary 'university' have the time and capacity to challenge these well-established certainties and indeed invariably unquestioned 'facts'. Perhaps when writing PhD theses, but these tend to involve a very limited and restricted area of knowledge where the writer becomes an 'expert' on that which they seek to build a career enhancing nexus of work, on that which their reputation will be based and their access to the research grants on which continuing success is so highly dependent. But what about the other areas of knowledge which they will need in order to teach the next generation of undergraduates – repeating and reproducing the facts and certainties of their undergraduate days, which may well include unquestioned fallacies?

This is of course nothing new. Organised religion only works on this principle although interestingly large well-established religions have come under immense pressure in recent years from increasingly questioning educated individuals and groups – the secular tradition. Organised religion nevertheless continues to exist although increasingly challenged and these observations of mine probably at least partially explain the growth of fundamentalist groups seeking to protect the very existence of their tradition from growing and all-encompassing secularism by going back to basics.

Wider issues of the unquestioning reproduction of knowledge – the accepted truth claims of the discipline and others - have become more apparent and problematic in the contemporary neoliberal higher education institution. Student numbers have grown considerably in recent years and the numbers on popular courses are both high and growing. When the reviewer started teaching criminological theory to postgraduates nearly thirty years ago there were no undergraduate criminology programs in Britain with two commencing shortly afterwards. Criminological theory was taught on postgraduate programs by a small group of 'experts' to students who at least appeared interested and motivated. Now there are many courses in most institutions throughout the country with many students with a lot of staff and many of these are required to teach criminological theory to some extent. But in many institutions – if not most – such teaching is far from high status. Students do not usually like theory, it is seen as boring and taught often by far from charismatic staff who also tend not to like it and would prefer to be working on something more significant within their narrow focus of knowledge and expertise. What possibly could be interesting in discussions around what exactly constitutes a crime in its many manifestations and the equally multiple motivations for offending? Crime is that which breaks the law stupid! Those who do it are naughty people who choose to break the law. Simple stuff really. Much moreover is taught from the more accessible and easy to read textbooks with knowledge claims rarely challenged. Why would you do this anyway? Where is the motivation? You are young and trying to build a career in a very difficult and challenging working environment. Such teaching gains no kudos in the contemporary academy. Getting in the research grants is what is needed to have career prospects unless you want to opt out and go down the alternative management route. That itself is still very competitive and success is still very hard to achieve and equally you will need to make some very hard decisions and carry them out. It is not a job for those who have difficulty sleeping. Managers used to be academics. We even used to take turns. It was a bit of a collective. Hierarchies existed but they were less noticeable. I have distant recollections of academic discussions with very senior managers. But not now. Management is another world with its accompanying pressures but there appears to be no interest whatsoever in challenging facile knowledge claims. If your staff do this sort of thing, then it had better not get in the way of their ticking the appropriate boxes that will keep them in a job – Readers or renamed Associate Professors in my institution are expected to publish five articles per year in top class journals or more accurately twenty-five over a five-year period – if you do not you will be downgraded and lose your status and pay scale. If you offend interested others outside the university with your

academic investigations and publications, you may well be investigated and even if you are deemed to be right, you may well be considered to have brought your institution into disrepute, while bringing yourself to the attention of those who come to consider you a problem with the resulting extra surveillance that such behaviour brings. It is all rather inevitable in the contemporary higher education institution in neoliberal society. No blame is attached by me to individuals. It is what happens in an increasingly competitive world both within the education industry and outside. It's what you have to do to survive and there are plenty of available techniques of neutralization to enable you to both justify your actions and make you right. But it is not my idea of a university. Sorry. But the world moves on.

Would this paper be published in a 'high status' journal such as the British Journal of Criminology? No. It is far to contentious and the editors would be extremely unlikely to take the risk. Is it worth publishing? Yes, because it raises some very interesting academic and pedagogical issues. Well worth an airing!

Roger Hopkins Burke, Senior Lecturer in Criminology Nottingham Trent University. Summer 2017.

~~~

Open Peer Review (Practitioner and academic)

Sutton's expansion of his earlier 2012 work about the flaws of 'Opportunity Theory' identifies an important failing in a substantial body of literature to identify the critical component of perception in applying Routine Activity Theory (RAT). Sutton's assessment of which documents have failed to highlight the importance of perception appears fair in its leniency and I would suspect that much of the literature the author deliberately omits still imply the reductionist model that Sutton is critiquing. Some of the analogies that Sutton uses, such as that of the Elk Theory and applying the Chemistry Model framework to explain disease, are very effective at identifying the Model's problem.

The paper is mostly well written, though some paragraphs can be jarring to read (e.g. p10 para 3 discussion about the Tony Martin case and when discussing 'crimes of failed attempts to commit a crime', such as on p6 para 5). Furthermore, the section outlining Dysology doesn't seem to fit well with the rest of the paper and instead reads like an attempt to signpost readers to the author's other works. Whilst I appreciate that it is an attempt to evidence that the pseudo-scientific Chemistry Model does not stand alone in its bold if misguided claims to fame, I think that the section could be condensed into passing (rather than fully explained) references as examples of why *Nullius in Verba* remains relevant and elaborated on instead in a separate article.

As a criminology undergraduate, I was taught the reductionist approach by several of my professors and have been guilty of parroting this. Following discussions with the author of this piece, however, I have since adapted my teaching to ensure I am not regurgitating the same mistakes to my students. As an academic exercise, this paper thus identifies an oversight that, as Sutton rightly states, must be highlighted and corrected if social science is to maintain its credibility alongside its sister disciplines.

On the other hand, Sutton may be underwhelmed by the impact this shift in understanding will have on crime reduction practice. Whilst perhaps a feature of only some of the literature, the marriage between RAT and Rational Choice Theories (RCT) in approaches like Situational Crime Prevention and Broken Windows Theory have long been a staple of pragmatic crime reduction. Methods of target
~~~

hardening have been used to successfully raise the perception of risk and effort involved with offending, which stands as a fundamental in contemporary proactive policing and regulation. The inappropriate use of the Chemistry Model that Sutton identified in his email to a colleague seemingly ignores the rather more considered and thoughtful crime prevention applications that have emerged from RAT, RCT and environmental criminology.

This paper is a worthwhile and valuable piece of literature to shine a spotlight on an academic oversight that nobody else appears to have previously considered in any kind of depth. In crime reduction practice, however, the shortcomings of the Chemistry Model have (in my experience) been plugged organically to a certain degree with the help of other theories.

Jordan Cashmore is a Tasking and Intelligence Officer at Nottingham City Council and a sessional lecturer at Nottingham Trent University. Summer 2017