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Striking Sparks: Fresh and Evolving Ideas from the Collision of Situational Crime Prevention and Design

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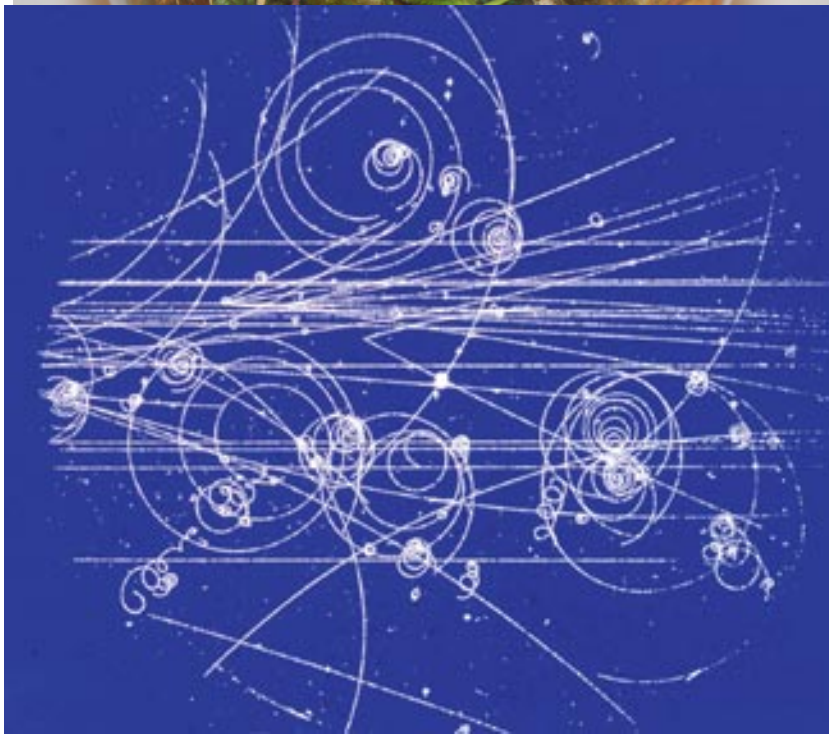
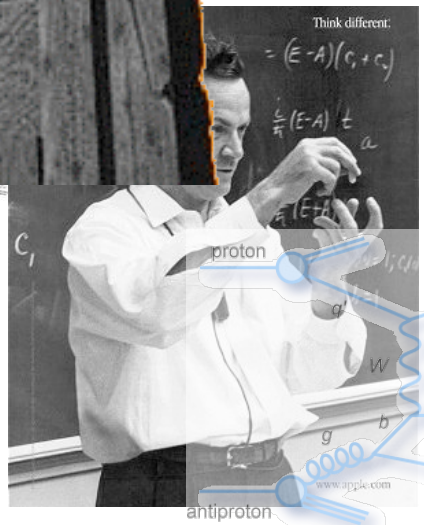
The Grippa research programme, mainly funded by AHRC, is a collaboration between the Design Against Crime Research Centre, Central Saint Martins College of Art & Design, University of the Arts London, and the UCL Jill Dando Institute of Security and Crime Science. Papers and other materials from the programme are at www.grippaclip.com and wider practical and research material on preventing bag theft at www.inthebag.org.uk

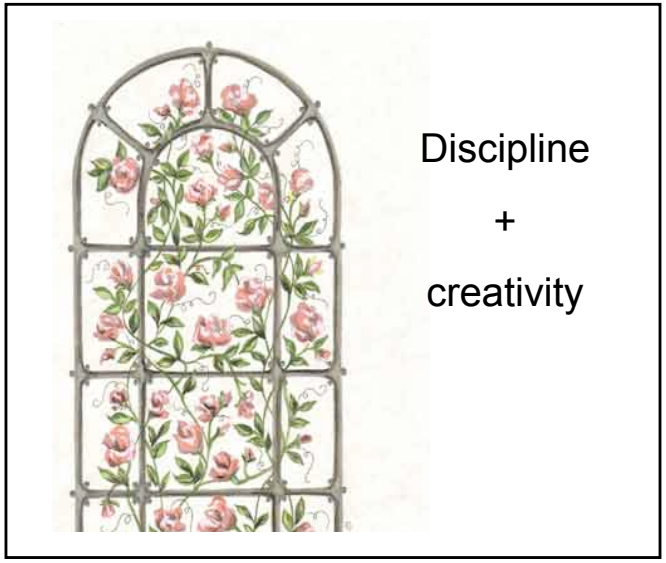
A productive clash of cultures

- DAC Research Centre and JDI have been collaborating on a range of projects – both practical and conceptual – more later
- We have been bringing together the agendas, discourses, methods and knowledge of design and crime science
- This has been stimulating a lot of new ideas, and quite a few arguments - striking sparks off each other
- Design comes later… we first cover a pot-pourri of implications for Situational Crime Prevention
- Some are greenfield sites, others digging up the roads



Science progresses not just through research & theory b… n development of clear definiti… ameworks – tools for th… ication





Clear definitions and frameworks

Problems in Crime Science/SCP that need resolving before we can progress – 2 illustrations

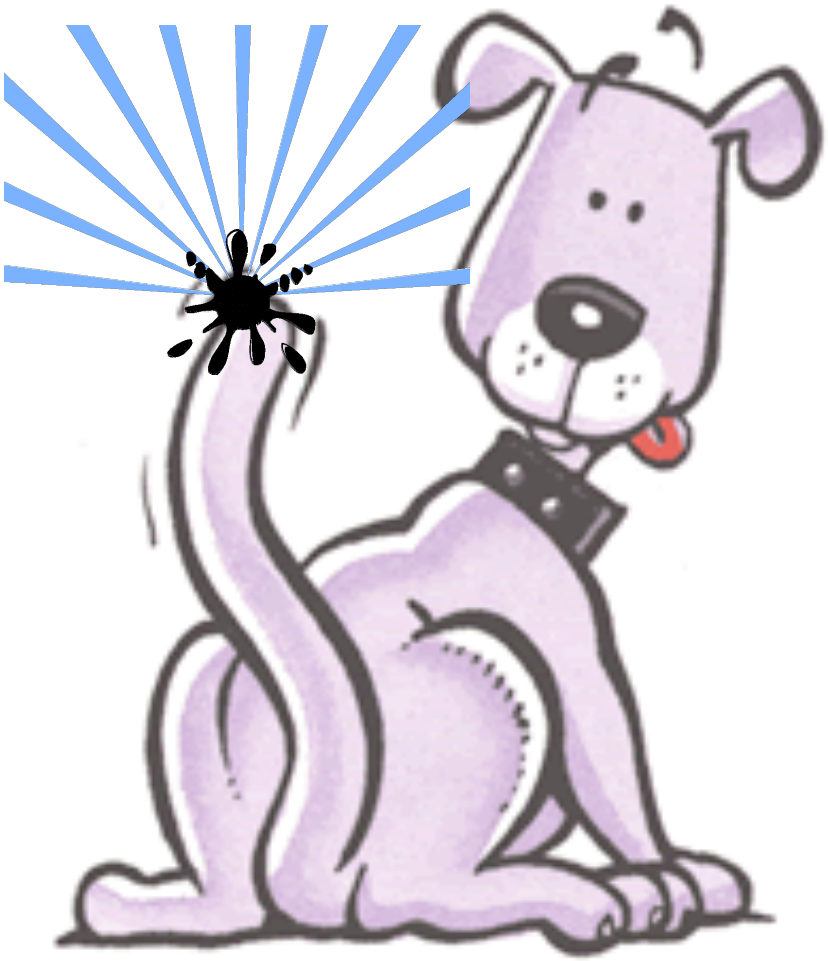
- Project MARC – crimeproofing electronic products at design stage to ensure their **security** level matches their **risk** of theft
  - Experts had difficulty judging security…
  - Clash between *Functional* & *Technical* languages/discourses
    - ***Valid means of unique identification of product***
    - ***BIOS password, Cable-lock***
  - Terminology was unclear – eg 4 different meanings of *vulnerability*

- DAC-JDI 2006-8 – Bikeoff – developing standards & guides for design of secure bikes/ bike parking
  - Using Conjunction of Criminal Opportunity framework to organise enquiry…
    - ambiguous
    - not dynamic enough
    - not user-oriented enough

Main message: Design should primarily be *user*-centred

- Don’t let the abuser-unfriendly tail wag the user-friendly dog!

- Therefore try to develop frameworks that apply to **users** as well as offenders/ abusers

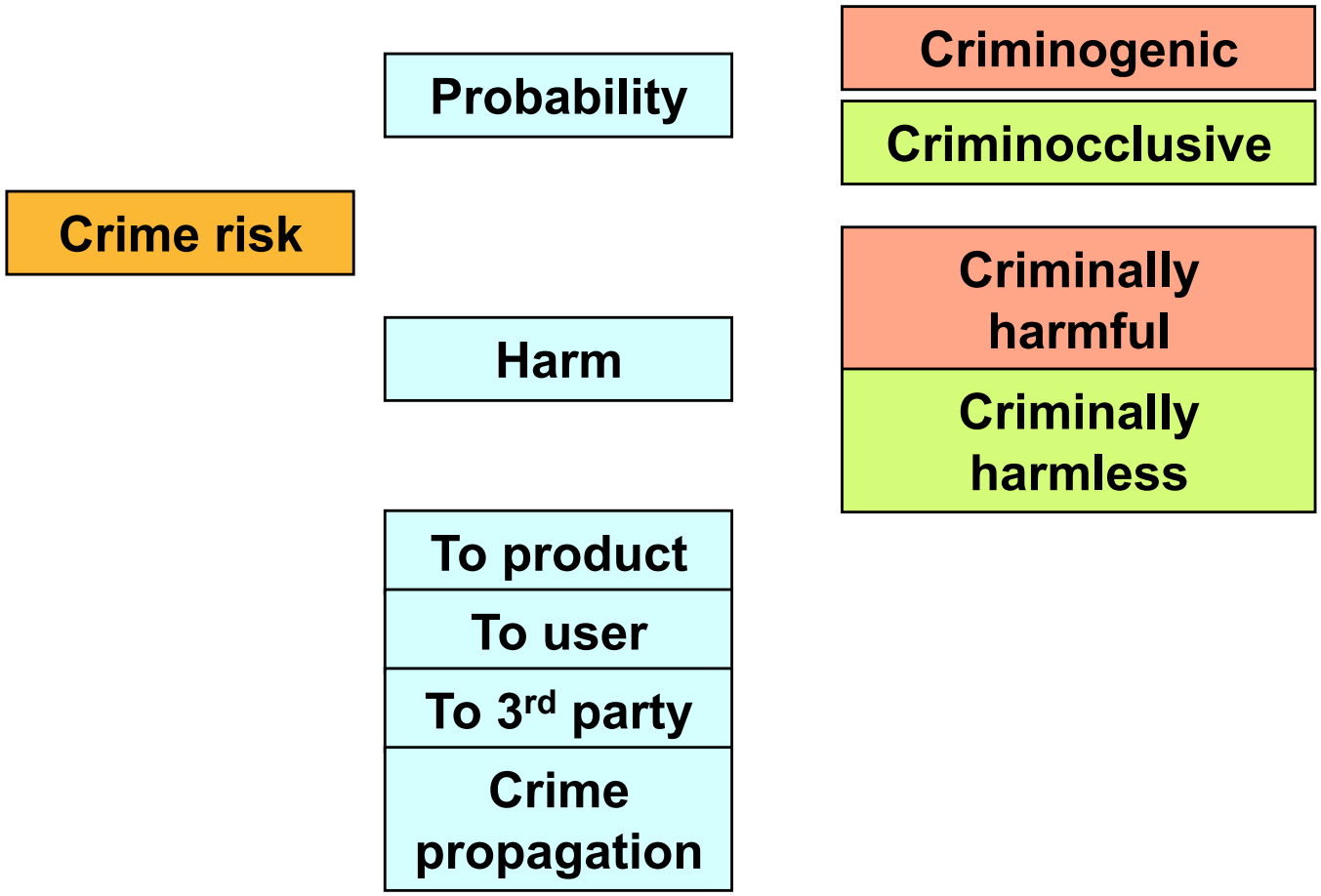


Clear definitions and frameworks

Responses

- Post-MARC – *What do you mean, is it secure?* 2007
  - Suite of interlocking **Definitions** of risk, security, vulnerability, susceptibility etc
  - Acknowledge different **Discourses**, & deliberately move between them
- Ongoing – *Bikeoff* design standards and guides
  - **User dog** now wagging abuser tail
  - Blend rationality with causality – concept of the **Caused agent**
  - Bring in dynamics – mix CCO with **Scripts**
  - Clarify **Discourses** of design intervention
  - Develop thinking through arguing over **Graphics**
- Ongoing – Grippa – design/evaluation of anti-bag theft designs
  - Tormenting designers with frameworks to articulate what they are doing to tackle theft – including **Definition of theft/ theft prevention**
  - Tinkering with **TRIZ** – inventive **Solutions**

Defining Risk



Risk and the rational offender's foraging agenda

- Classically – **Risk, Effort, Reward** – but grown a bit lazy
- **Risk** is involved in each:
  - **Probability** of **harm** (arrest, victim resists, fall thru skylight, guilt/fear)
  - **Probability** of **excess effort**
  - **Probability** of **losing reward –** failure
- Should we be **relabeling/ refining the calculus** – eg probability/size/nature of **harm**, **opportunity cost** relative to alternative choices (not just offend : don't offend), **benefit.** How do **real** criminals make choices?
- Be aware of the **convertible currency** issue – I can risk more harm to get a bigger reward; I can forego reward to save effort and risk…the squeak may move when greased

Discourses

- Many ways to describe **preventive interventions** – no single best one
  - **Functional** – purpose – serving user, crime reduction
  - **Performance** – purpose + target criteria
  - **'Reverse-functional'** – frustrating offender's purpose eg *disrupting plans*
  - **Problem-oriented** – specific problem in specific place
  - **'Ideal Final Result'** – *solution*-oriented descriptions in terms of **all** the functions and/or performance criteria – more later
  - **'Reverse-causal'** – the causes the intervention aims to remove, weaken, divert
  - **Mechanistic** – how the intervention is supposed to work
  - **Technical/structural** realisation of intervention through a practical method
  - **Constructional/instructional** – how to manufacture, implement, install method
  - **Delivery** – targeting of interventions (eg *'primary, secondary, tertiary prevention')*
  - **Mobilisation** – how to get people to implement the intervention – eg publicity
- Which are suitable for which stage of the iterative design process – from **requirements capture** to **concept design** to **lab trial** to **field trial** to **roll-out**?
- Which are suitable for **standards and guidelines**?

Structure of environment – contributing to revamp of CPTED

- Properties
  - Space
  - Movement
  - Manipulation/force
  - Shelter/refuge
  - Perception/prospect
  - Understandability/inform
  - Motivation/emotion
  - Competition and conflic

- Structural Features eg
  - Nodes
  - Paths
  - Barriers /screens
  - Enclosures/ containers
  - Furniture

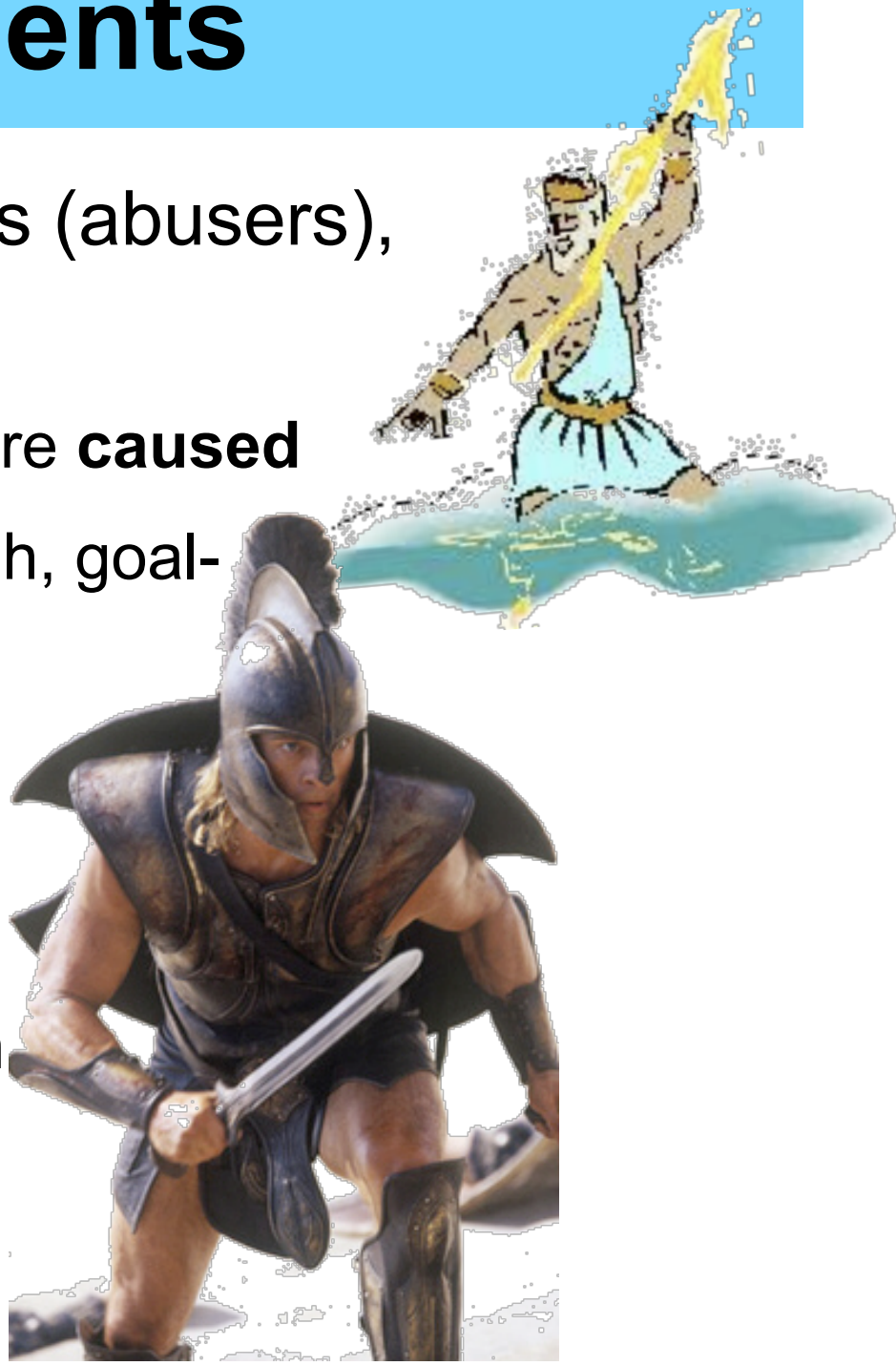
Expanding detail of properties and/or features that confer them

- **Sight**
  - Light
  - Sightlines
    - » *features affecting this property:*

      Dog-legs, Sight screens, Barriers, Recesses, Enclosures, Containers
  - Discrimination – camouflage etc

Caused agents

- Parallel discourses for offenders (abusers), preventers, promoters (users):
  - Perception, emotion, motivation are **caused**
  - Simultaneously, we are rational-ish, goal-oriented, **causing**
- Links to
  - Wortley's 2-stage **precipitation & opportunity** model
  - **risk/effort/reward + provocation** in 25 techniques of SCP
  - Wikström's **agency** model
  - Ekblom **Rich Offender** idea



The challenge of DAC: **Troublesome Tradeoffs**

Can we design secure products *without* jeopardising their main purpose and *without* their being

- Inconvenient?
- User-unfriendly?
- Ugly? Effective but hideous & clunky engineering solutions
- A threat to privacy?
- Environmentally unfriendly?
- Unsafe?
- Too expensive?

User-Friendly, Abuser-Unfriendly

Boosting inventiveness to cut crime whilst respecting the tradeoffs

- **TRIZ** – a theory of inventive principles
- Based on analysis of **oodles** of patents
- 40 generic **Inventive Principles**
  - Including the comb-over?
- 39 **Contradiction Principles** – the sharper-expressed the contradiction, the easier the problem to solve…link to troublesome tradeoffs
- **Lookup tables** – what inventive principles solved what contradictions in past?
- Analysis of **evolutionary trends** of invention (solid > segmented > flexible > field) – look for what's likely to be next to limit search for next solution

Bringing together *Clarity and Contradiction* : One that Jane Austen missed

- Defining theft problem
- Analysing causes of problem
- Defining solution
- Realising solution

Defining theft problem for designers

- **Be problem and context specific**… not just theft, but theft of bikes… in short/med/long stay parking facilities
- **Theft is…**
  - The **Illegitimate permanent possession** of the target object, information, services etc
  - The **illegal transfer event or process** that brings the illegitimate possession about; which may lead to a further transfer in sale of stolen goods (another offence)
  - The **criminal intent** of the offender – ie the act is goal-driven, not inadvertent, based on a misunderstanding or caused in any kind of involuntary way.
  - The **stealthy** nature of the transfer (in contrast to robbery)

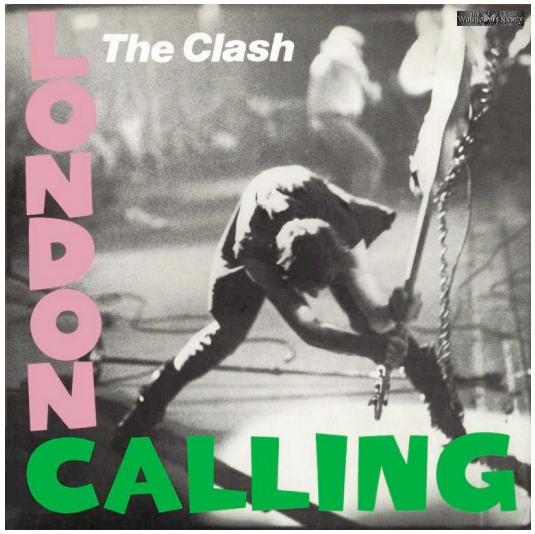
Analysing causes of theft problem 1

Conjunction of Criminal Opportunity framework – breaks criminal event into 11 **causes**, matched by 11 **intervention principles**. Basically:

- **Agents** – Offender, Preventers, Promoters
  - Predisposition, motivation, perception, resources
- **Entities** – properties, features, combinations, configurations
  - Target (eg bike)
    - Valuable
    - vulnerable
  - Setting
    - motivates offender – lots of attractive bikes; demotivates preventer?
    - favours offender over preventer

Analysing causes of theft problem 2

- Dynamics of interaction among these causes
  - Decision making/ goal pursuit
  - Scripts
    - user: **seek, see, park bike, leave, return, find bike, use it**
    - abuser: **seek, see, take bike, escape, sell**
    - Apply CCO at each stage to identify interacting causal elements
  - Script **clashes** – contradictions
    - Surveill v conceal
    - Exclusion v entry
    - Wield v resist force
    - Challenge v plausible response
    - Surprise v warning
    - Pursuit v escape…
  - Clashes can flip at each stage of script - eg **CRAVED:**
    - **Concealable** criminocclusive at **seek** stage; criminogenic at **escape**



Defining theft solution

- Key to theft prevention is some kind of **discriminating** function between user and abuser in the script clashes, creating or enhancing an **asymmetry** between user and abuser … ultimately over **value**, and **access to value**
- **Ideal final result**: Want a bike stand which is simultaneously
  - Economical
  - Easy to manufacture/install/maintain
  - Aesthetic
  - Effective at supporting bike
  - Easy for user to employ
  - Hard for abuser to remove bike
  - Hard for abuser to damage
- Focus on **solution** is interesting contrast with **Problem-Oriented Approach**

Realising theft solution

- Alter **properties** of entities in crime situation, adding **features**, **combinations** and **configurations** …
- Alert, Inform, Motivate, Empower, preventers
- Demotivate offenders and disrupt their scripts …
- The above stated in a way to maximise design freedom in designing intervention and resolving tradeoffs/contradictions whilst customising to context
- ***Over to science, technology, engineering and design!***