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Bridging Levels of Analysis in Risk Perception Research: The Case of the Fear of Crime

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Abstract: This paper offers a theoretical treatise that bridges the social and the psychological in risk perception research. We first outline research into the psychology of risk. We then speculate on the idea that people develop a structured narrative to risk, which includes morality, trust, and the dense social meaning of a danger and its impact. From this vantage point, we are better placed to move from psychological analyses of risk perception to the sort of analysis of culture that Mary DOUGLAS provides. Throughout the article we lean on crime as an example.

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1. Introduction

This paper offers a theoretical treatise that bridges the sociological and the psychological in risk perception research. Our motivation is the set of disconnected and partial explanations contained within the two main traditions of enquiry in this field. Orientated by THOMPSON and DEAN'S (1996) competing conceptions of risk, we develop a framework that integrates psychological and sociological analyses, setting out a variety of individual features of risk perception that interact with and gather meaning within a social context. The overall goal is to advance a contextualistic formulation of risk that reaches across traditional disciplinary boundaries—that affords a more complete understanding of public opinion on a range of vexed social and political issues. [1]

This paper is also a companion piece to *Introducing fear of crime to risk research* (JACKSON in press). That article presented a speculative model that considered the psychology of risk, how risk is constructed and information circulated, the institutional processes and interests at play in amplification and attenuation, and the social meaning of crime that infuses and inflects public perceptions of risk. The paper finished by considering whether perceptions and responses to crime risk reveal and comprise a whole host of subtle and symbolically charged evaluations of moral and social order. If one accepts this argument, public perceptions of the risk of crime emerge as a lay seismograph of social disorganisation and anomie. [2]

This paper continues the motif of interdisciplinary enquiry in risk research; it retains fear of crime as an example. But our focus here is on risk perception research as a whole rather than any specific substantive area. We attempt to integrate key sociological and psychological theories and, along the way, speculate about what is gained by bridging these two levels of analysis. Tetchy disputes about mismatches between lay and expert perceptions often define risk in a narrow technical sense. But the public bring more to the notion than just probability and a narrow sense of consequence. The question is: What? Equally: How do individual assessments of uncertainty interact with the social context? [3]

But first, what is this trendy buzzword "risk" and where does its roots lie? [4]

2. Origins of "Risk"

The word risk derives from the early Italian word risicare, which means "to dare". It speaks to the idea of choices, decisions that may carry downsides but may also reap rewards. BERNSTEIN (1996, p.2) regards the connection between "daring" behaviour and rational analysis as a central feature of modernity:

> "The ability to define what may happen in the future and to choose among alternatives lies at the heart of contemporary societies … the capacity to manage risk, and with it the appetite to take risk and make forward-looking choices, are key elements of the energy that drives the economic system forward." [5]

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In his account of the origin of modern understandings of risk, BERNSTEIN focuses on the development of probability theory. This he sees as the means by which social and individual decision-making has become more rational. He does not equate this with the idea that we as people are becoming more rational—rather, that "our understanding of risk enables us to make decisions in a rational mode" (BERNSTEIN 1996, p.4). [6]

By the middle of the 18th century, with probability theory developing, a flourishing insurance market had sprung up in London. In order to make money from insuring a vessel and its cargo, insurance underwriters needed a workable estimate of the probability that it would reach its destination intact. And the realisation that "fate" and "chance" were not entirely capricious was not lost on LEIBNIZ, who wrote to BERNOULLI that "[n]ature has established patterns originating in the return of events, but only for the most part" (BERNSTEIN 1996, p.4). During the past 200 years, from BERNOULLI's Law of Large Numbers to BAYES' theorem, GALTON's regression to the mean to MARKOWITZ's portfolio theory, this account of risk is synonymous with the development of techniques for rational decision making in the face of uncertain futures. As such, it is an account of the harnessing of "upside" risk for economic and social gain. [7]

A complementary story is told by Judith GREEN (1995). She traces "the accident" as it has been constructed through history. GREEN defines accidents as misfortunes that satisfy two criteria. Firstly, the event must have been unmotivated (or, at least seen as such). In other words, no person or agency willed the event to take place. Secondly, it must be unpredictable. If it was predictable and unintended, the accident would most likely have been prevented or the conditions for its existence would not come about. [8]

So, while BERNSTEIN characterises risk chiefly as opportunity, GREEN looks at risk from the perspective of accidental losses. She traces a parallel story of risk that centres on historical discourses of accidents. The accident is not only a pivotal category of misfortune in contemporary times; it is also a blank slate on which various cultural concerns about uncertainty, responsibility and culpability are inscribed (GREEN 1995 p.196). [9]

GREEN follows HACKING's interpretation of the development of probability or "chance" (HACKING, 1987). Prior to 1650, in the West, the accident, as we might understand the term today, simply did not exist. There was no room for chance in a universe governed by an omnipotent God. Indeed, its absence in the cosmologies of "primitives" like those studied by LEVY-BRUHL (LEVY-BRUHL & CLARE 1923) or EVANS-PRITCHARD (1937) was seen as one of the defining points of difference between the "primitive" and the "modern" mind. For the "primitive" mind, every "accidental" event is invested with ulterior meaning. Causes of misfortune are ascribed to angry Gods, witchcraft or some such. Mere coincidence is not an admissible category. [10]

After this time, Enlightenment thinking and its discourse of science transformed the notion of the accident. New ways of explaining the world, through deduction,

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evidence and, increasingly, statistical reasoning, meant that accidents came to mark the boundary of rational explanation. They represented, in some sense, a residual category of event, or, as GREEN (1995, p.197) puts it, "[r]ationality … produced a space for accidental events at the margin of its explanatory reach". By the end of the nineteenth century, a marker of modernity was the idea that some events like train crashes, or being struck down by illness were inexplicable, or, at least, random and unpredictably distributed. [11]

The middle of the Twentieth century saw another shift. Green suggests, again following HACKING (1987), a probabilistic revolution in science and in the philosophy of science that filtered into other forms of discourse—business, governmental, legal. In this view, deterministic laws and ways of understanding the world are replaced by "autonomous laws of chance" (GREEN 1995, p.198). In this climate, discourses of risk management and containment flourish. Accidents become reconfigured as the outcome of complex sets of risk factors. The regulation of mass transport, energy and public health for example, can all now be technically oriented around (among other things) the prevention of accidents. And this is the point at which the accounts of BERNSTEIN and GREEN converge. For BERNSTEIN, profits and economic growth can be maximised through the use of quantitative models and probabilistic models. The same logic underpins the present state of risk management, where the "accident" is coming to be seen as a failure of systems or individuals to take the necessary steps to prevent misfortune. [12]

Risk has thus become a fundamental aspect of modern life in many countries. And interestingly, if the analyses of GREEN and BERNSTEIN hold, the present situation has almost led us back to LEVY BRUHL's primitive cosmology, superimposed on contemporary Western societies. In harnessing the power of probabilistic ways of viewing the world, we return to a state where all misfortunes have "causes" where some person or agency is culpable. Add the factor of extensive media coverage of accidents, health scares, crime and the like, and one can clearly see why risk qua problem is a prominent issue for politicians and for social scientists alike. [13]

3. Risk: An Issue for Society, Policy, and the Social Sciences Alike

More knowledge leads to more risk. Now, how can this be? A risk must be identified and appraised. Without human attention it is not a risk in the modern sense of the word, for risk is a measurement, an estimation of exposure, likelihood and extent of loss or gain, as well as an attempt to control the future (ALTHAUS 2005). Attention and judgement create a risk in this sense: modern systems of risk assessment classify, select and respond, bringing attention to bear on a danger or opportunity, giving a newly formed risk meaning and technical precision. [14]

And as DOUGLAS and WILDAVSKY (1982, p.3) note: "The advance of science increases human understanding of the natural world. By opening up new realms

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of knowledge, however, science simultaneously can increase the gap between what is known and what it is desirable to know." [15]

A similar refrain is found in the "Risk Society" thesis (BECK 1992), which places notions of man-made risk to the foreground in an understanding of what GIDDENS (1991) referred to as "high modernity". In this view:

> "[t]o live in the universe of high modernity is to live in an environment of chance and risk, the inevitable concomitants of a system geared to the domination of nature and the reflexive making of history. Fate and destiny have no formal part to play in such a system" (BECK 1992). [16]

High modernity is characterised by the production and distribution of risks from an increasingly complex technico-scientific system. It is one where every citizen is exposed, to some degree, to technological dangers such as radioactivity, airborne and waterborne pollution, and hazards from mass transportation such as airline, automobile or train crashes. The nature of modern societies is such that risks multiply with the increasing "complexification" of societal systems of production, consumption, governance and technological control. [17]

4. Risk Perception

The topic of this paper is of course risk perception, so our focus is on public rather than expert assessments of risk. And at first glance risk perception is a curious moniker. First, the focus on gains seems to have been lost: the vast majority of research focuses on public perceptions of losses rather than benefits (see GASKELL et al. 2004). Second, a bias is implicit in "perception". Differentiating between the soft judgements that normal people make and the hard technical systems that experts employ to assess likelihood and consequence, the analogy of "perception" of an object (in this case an "objective risk") speaks to a privilege of expert judgements. And a striking political charge is seen in the motivation of early risk perception research. This work assessed how and why the public are often so irrational in their assessments of risk. Study after study showed that the average person is bad at judging the probabilities and relative risks regarding a range of issues. Lay perceptions just did not seem to "cut it" compared to expert assessments. [18]

Yet often such divergences remind us that a risk has consequences for humans and what humans value. As DOUGLAS (1990, p.10) says: "… risk is not only the probability of an event but also the probable magnitude of its outcome, and everything depends on the value that is set on the outcome. The evaluation is a political, aesthetic and moral matter." Different individuals and different communities might judge a risk more or less seriously because they value the consequences differently—they value differentially what is being harmed, who is doing the harm and who is responsible in any other way. In this way, the identification of a threat or danger, and the appraisal of its possible consequences, are inherently moral and depend on its cultural charge. More than this, the production of knowledge about risk creates a capacity to act according to

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principles, responsibility and accountabilities; more and more, risk carries connotations of accountability and blame (DOUGLAS 1992). [19]

Social scientists have broadened the definition of risk since the early days of risk perception research, in part because the public seem to bring more to a given risk than narrow and dispassionate judgements of probability and consequence. Yet tensions remain between expert and public, especially when circumstance dictates a more technical definition of risk. For example, fear of crime seems out of kilter with the reality of crime, and can damage the quality of life of individuals, harm community cohesion at a group level, and even contribute to crime itself. Should we be educating the public about falling crime levels, about the trivial nature of most crime, and about the rarity of more dramatic and frightening incidents? Would this correct misperceptions? [20]

Let us turn to the work of THOMPSON and DEAN (1996), for their insightful distinction between probabilist and contextualist conceptions of risk sheds some light into what at first seem rather muddy waters. [21]

5. Probabilist and Contextualist Dimensions of Risk

One formulation of risk, THOMPSON and DEAN (1996) write, is probabilist. From this standpoint, risk is purely a matter of the probability of an event or its consequences (THOMPSON & DEAN 1996). Broadly mapping onto the scientific/quantitative approach and on the dominant mode of Governmental rationality, the hazard that gives rise to the possibility of this possible event is real, independent of our perception of it. Any particular risk will be laden with other characteristics, e.g. GM food may engender fears about infection and illness, nuclear power risks may invite horror of environmental catastrophe. However, just as the colour of an eye plays no part in deciding whether something is or is not an eye, these "accidental" attributes of a risk do not provide criteria in themselves for deciding whether something is, or is not, a risk. [22]

On the other hand is a contextualist formulation of risk. This opens the door to a wide range of other questions that colour public understanding and response, including control, the cultural resonance of a risk and its consequences, and aspects of trust and blame. As such, risk has no single determining criterion. A risk will always be associated with a number of characteristics such as whether it is voluntarily undertaken, whether it is familiar or unfamiliar, or whether it involves societal or personal danger. Probability, in this view, is simply one among a number of risk attributes, none of which is singularly a necessary condition for something to be classified as a risk. [23]

According to THOMPSON and DEAN (1996), the distinction between these poles is most apparent in informal discussion. When a probabilist talks of the "risk of an earthquake" occurring, he really speaks of the probability of the event occurring. By contrast, a contextualist would speak of the risk of an earthquake according to the particular danger relevant from a given perspective. For example, the risk would be different for someone who had no choice but to live in the hazardous

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area compared to the risk as seen by a geologist who chose to move to the area in order to study it. The implication of the strong contextualist position is that probability estimation may be irrelevant to determining the existence of a risk, much less for understanding it or communicating related information to others. [24]

The practical result of these competing conceptions of risk is that misunderstandings and disputes occur that are difficult to resolve. Within a more contextualist understanding of risk, it is apparent that people who raise questions about particular risks—for instance of violent crime—may be using risk language to articulate all kinds of legitimate claims dependent on the context in which these claims are made (THOMPSON & DEAN 1996). For the probabilist, such claims will likely as not make little sense because probability is the single essential component of any discussion about risk: i.e. how probable is it that one will become a victim of such crime? Furthermore, it is generally experts that incline towards the probabilist pole. The communication of quantified probability estimates as input to public deliberations on such risks may sometimes, as a result, be simply irrelevant. [25]

In a recent paper (THOMPSON 1999), THOMPSON suggests that the language of risk has been adopted by scientists doing risk assessment and is, in general functionally equivalent to the language of probability. The practical use for such language is in the field of decision-making. Risk analysis utilises mathematical and scientific techniques to arrive at the best estimate of likely costs and benefits to any course of action. This process is highly deliberative, in the sense that people are engaged explicitly in evaluating and weighing the options. [26]

But much human behaviour and cognition is not deliberative. It is habitual, even unconscious that any particular course of action is being adopted. Risk in lay or "everyday" usage, THOMPSON argues, "functions as a cognitive gatekeeper between the deliberative and the non-deliberative dimensions of practice … in this respect, the concept of risk functions as a category for organising or prioritising the expenditure of deliberative resources" (THOMPSON 1999, p.499). In this account, in the practice of risk assessment, once something is categorised as being a risk, the deliberative process of determining probabilities and weighing costs and benefits begins. Where risk or risk language enters lay discourse, it can be dysfunctional in the sense that once something is categorised as risky, the layperson no longer acts as if there is zero or negligible risk, but often neither has the resources, nor the information to arrive at a more "rational" judgment. [27]

6. Developing a Contextualist Notion of Risk that Bridges the Social and the Psychological

Risk perception research has grown considerably over the years with numerous reviews of the literature speaking to distinctive and largely independent psychological and sociological strands. Psychology has tended to focus on cognitive and emotional appraisals of probability and consequence and issues of familiarity. Currently in vogue is the role of emotion and how different styles of information processing may direct reason and affect. Sociology (and here we

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include cultural anthropology) has focused on the role of culture in determining which risks people feel are salient and the ways in which social organisation bring charge and meaning to particular risks. Grander social theories have examined the notion of risk in the context of the development of modern societies (e.g. BECK 1992) or have applied FOUCAULT (1991) in the idea that responses to risk operate as part of the apparatus by which power is exerted and society is regulated. [28]

The relative independence of sociology and psychology would not be a problem if it was not limiting, however. But it is. One stream misses the social context of public perceptions (and has an overly narrow conception of risk); the other avoids individual assessments and responses to uncertainty (the notion of risk loses clarity and specificity). Consequently, the rest of this paper offers one attempt to develop a fuller account of public perceptions of risk. This synthesis integrates psychology and social meaning; it draws together social and cultural theory and the psychology of risk. We build a contextualist approach to risk for psychologists that reaches outside of narrow appraisals of likelihood and consequence; we develop a contextualist approach to risk for sociologists that retains the individual focus on uncertainty and the impact and resonance of a possible event. Along the way we seek to shed further light on arguments over divergent expert and lay perceptions. As THOMPSON and DEAN (1996) argue, the public bring more to bear on the notion of risk than tight conceptions of likelihood and consequence. But what, exactly? [29]

7. The Psychology of Risk

7.1 A probabilistic conception of risk: heuristics and biases

In early risk perception research, conceptions of risk were limited largely to risk as likelihood; studies were partly motivated by concerns that an irrational public had difficulty judging probabilities. Cognitive psychology examined how people do not follow the principles of probability theory when judging the likelihood of uncertain events, employing instead heuristics or "rules of thumb". Often these heuristics lead to fairly good estimates of the probability of an event. Often, though, they do not. The most complete summary of the approach of two influential psychologists, TVERSKY and KAHNEMAN, is contained in the collection of articles reprinted in book form (KAHNEMAN, SLOVIC & TVERSKY 1982). [30]

The procedure followed by TVERSKY and KAHNEMAN was to use very simple examples where the statistical properties of the distribution are well known—e.g. tosses of a coin, the distribution of people's heights within the population. Subjects' estimations were compared with those made according to the principles of probability theory. The heuristics and biases observed under these conditions are also thought to apply to the way people estimate the probability of events that cannot be statistically estimated. Empirically observed heuristics and biases include representativeness (people tend to evaluate the chance of X as originating from Y to the extent that X resembles Y) and availability (the size of a

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class tends to be judged by the ease with which instances of it can be retrieved from memory). [31]

KAHNEMAN and TVERSKY'S "Prospect Theory" (KAHNEMAN & TVERSKY 1979) is a more general framework for understanding why people's actual behaviour, in relation to risky decision making, departs from the predictions of rational choice theory. Prospect theory includes both a probability weighting function and a weighting function for utilities. The probability function captures the findings on systematic biases of estimates of fatalities. We tend to over-estimate (weight) low probability events and underestimate those with a high probability, essentially a regression to the mean effect. Although the availability bias is one possible explanation, in prospect theory it is proposed that over weighting of low probability events occurs regardless. That something is conceivable appears to be sufficient to give it a reality beyond its objective probability. The value function is defined in terms of gains and losses from a reference point or adaptation level. For gains, the function is concave and while the same holds for losses, in this context the slope of the curve is much steeper. In other words, the utility weighting leads to an asymmetry between "objectively" equivalent gains and losses. The pain from a small loss from one's current position will far outweigh the pleasure from an equivalent small gain. [32]

7.2 Enter dread and familiarity to the definition of "risk": risk as more than the likelihood of an event

During the period when KAHNEMAN and TVERSKY's research programme was developing, Chauncey STARR published what became a seminal paper in the history of risk research, setting the terms of reference for what became known as the "psychometric" approach to the study of risk perception (SLOVIC, LICHTENSTEIN & FISCHOFF 1979; STARR 1969). Early work by the Decision Research group at the University of Oregon (1978) showed that people's ideas of what is meant by risk and, consequently, what could be described as "acceptable risk", were complex and multi-faceted. The simple expedient of measuring risk magnitudes in terms of the number of fatalities per year was shown to be inadequate (Royal Society for the Prevention of Accidents 1992; SLOVIC 1987) as it failed to capture the way people—both experts and the lay public—actually understood the term. It was, during the late 1970s, and still is, possible to argue, as KAHNEMAN and TVERSKY had originally done, that lay perceptions of risk are subject to "biases" akin to making systematic errors in estimating knowable probability distributions. However, the most important result of the "psychometric" programme of risk perception research has been "to demonstrate that the public's viewpoint must be considered not as error but as an essential datum" (Royal Society for the Prevention of Accidents 1992, p.91). [33]

The psychometric approach to risk perception research is an individual-based approach. It is a research paradigm that elicits judgements about risks from individuals who are confronted by risk stimuli. In fact it is more appropriate to refer to these stimuli as hazard stimuli because one of the main objectives of risk perception research using this approach is to measure not only the quantitative

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judgements of persons about risks—for example how likely is the risk to lead to an undesirable outcome—but also the qualitative dimensions of what is subjectively understood by the term "risk" in relation to one or more hazards. [34]

From the large number of empirical studies carried out using this paradigmatic approach, two dimensions regularly emerge: "dread" and "unknown" risk. It is possible to see that one or both of two super-ordinate classes of hazards are involved in most psychometric studies. One is the class of hazards involving personal or societal exposure to dangers to health and well-being, and to financial and physical assets. The other concerns environmental dangers that do not necessarily physically threaten people directly but threaten the state of the environment, possibly with consequences for future generations (ROHRMANN, 1999). In general, what constitutes an acceptable level of risk is higher for natural than for technologically induced risks. Personal risk-taking activities such as driving or smoking, which are undertaken voluntarily and are more familiar, are seen as less risky and more acceptable still. Risks that are seen to have catastrophic potential, that are thought to impact unfairly on certain people and are unfamiliar to the public and scientists, all tend to be rated as "riskier", more probable and more serious than others. For example, people typically overestimate the dangerousness of air or rail travel and underestimate the dangerousness of cigarette smoking, relative to the actual fatalities, reported year on year. [35]

7.3 Emotion and risk perception

The psychometric paradigm hints at the affective appraisal of risk through the idea of "dread". Yet accounts lack theoretical work, failing to capture the processes involved in any interplay between emotion and cognition, or whether feelings and thoughts operate independently, shaped by different forces. Increased attention to the role of emotion over the past decade is therefore welcome. [36]

In the fear of crime literature, one formulation is that cognitive evaluations combine to produce a sense of vulnerability and appraisal of threat, and one then has an emotional response to that vulnerability or appraisal. Two studies have found that both estimates of the likelihood and consequence of risk, and a sense of control over falling victim, predict worry about crime (JACKSON 2004, 2005). [37]

Once one is emotionally animated by the possibility of an event, a knock-on effect may be that one's judgements about that event and surrounding issues are then influenced. Emotions can create and shape beliefs, amplifying or altering them and making them resistant to change (FRIJDA et al. 2000), providing information and guiding attention. Beliefs backed up by emotion additionally direct attention towards belief-relevant information (CLORE & GASPER, 2000). For example, those who worry may interpret ambiguous environmental cues or situations as threatening. In a heightened emotional state one might more quickly see risk in ambiguity; one might more readily associate people, situations and environments with criminal intention and threat. Preoccupied with negative information and

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future unpleasant outcomes, worriers scan the environment for salient material relating to threat (MATHEWS, 1990), making ambiguous events more threatening (BUTLER & MATHEWS 1983, 1987; RUSSELL & DAVEY 1993). [38]

Yet, rather than judgement shaping emotion (and then emotion feeding back into judgement), affective and cognition appraisals may instead operate side by side (LOEWENSTEIN et al. 2001). A stimulus could evoke images that have both affective and cognitive dimensions (SLOVIC et al. 2002, 2004). They may interact, but they may operate relatively independently. [39]

One example of interaction is when emotions infuse more formal and numeric appraisals. The affect heuristic describes when a representation becomes tagged with affect—a good or bad quality—and this affective assessment displays greater influence on the overall judgement of risk than cognitive appraisal (SLOVIC et al. 2004). Readily available images of GM food that are tagged with "badness", for example, are more likely to increase judgements of riskiness and decrease the perceived level of benefit (FINUCANE et al. 2000). [40]

Alternatively, emotion and cognition may show independence, being shaped by different things, feelings arising without cognitive mediation, thoughts arising without emotional mediation. Cognitive evaluations may tend to be composed of assessments of likelihood and cost, but emotional reactions may involve the vividness with which consequences can be imagined, mood and prior experience with the event (LOEWENSTEIN et al. 2001). When cognition and affect diverge, there may be a tendency for feelings to hold sway, perhaps because of an evolutionary makeup shaped by the survival benefits of fear responses and threat appraisals. [41]

Important here is the distinction between two modes of information processing. On the one hand is a formal, logical and numeric style of reasoning, a style more applicable to conscious cognitive assessments of risk. On the other hand is a type of thinking that EPSTEIN (1994, p.710) calls "intuitive, automatic, natural, non-verbal, narrative, and experiential". For SLOVIC et al. (2004), the "experiential" system is affect-laden rather than formally logical like the "analytic system", involving rapid processing and the encoding of reality in images and metaphors rather than abstract symbols and numbers. SLOMAN (1996) suggests that such associative processing operates by using more rapid pathways based on context and similarity rather than the conscious use of logic and evidence. [42]

With fear of crime, threat may be judged cognitively and emotionally. Someone may process information using the analytical and the associational route. When the emotional response to the threat of crime, which uses the associationist mode of information processing, differs to a cognitive sense of its likelihood, feelings are expected to hold sway. Equally, if crime is judged to have severe consequences, and the outcome is vivid and affect-laden, then that individual is likely to be insensitive to probability variations (ROTTENSTREICH & HSEE 2001). That individual is unlikely to feel better if he or she is told that their chances of victimization are rather slight. [43]

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7.4 Personal images of risk

There are many types of criminal victimization: property crimes; personal crimes in public space by strangers; personal crime in private space by intimates; to name but a few. Upon reflection, perceptions of the risk of crime seem to carry some individual representation of the event itself—its impact, its causes, its personal resonance. When people think about the risk of being burgled, for example, they plausibly have some sense of the event and its impact. The prospect of falling victim may carry out radically different meaning from one person to the next and from one type of crime to the next. [44]

This speculation speaks to the importance of particular mental images of the event in lay perceptions and responses to risk. People may worry partly because they can easily bring to mind a resonant and vivid image of themselves being targeted and victimised (or, alternatively, their worry, over time, leads to a resonant and vivid image of the risk event). RUNDMO and SJOBERG (RUNDMO & SJOBERG 1998; SJOBERG 2000; RUNDMO 2002; SJOBERG in press) argue that such an image is some kind of "underlying mental substrate [that] drives the elicited beliefs and values connected to a concept or an object" (SJOBERG in press, p.3). LOEWENSTEIN et al. (2001, p.279) suggest: "To the extent that anticipatory emotions are generated in response to mental imagery about the experience of decision outcomes, factors that influence the occurrence or vividness of mental images are likely to be important determinants of anticipatory emotions." As such, worry about crime may be shaped by the vividness of the image of the victimization event and perceptions of the severity of the consequences, alongside feelings of control and perceptions of likelihood (JACKSON 2005). [45]

Again, the type of information processing may be important. The risk of rape, for example, may be appraised through the affective route because of its severe consequences, constituted by a sense of the resonance of the consequences, the vividness of the event, and the ease with which one can summon up a frightening image. By contrast, another crime, such as car crime, may be appraised through the cognitive route, with the perceived likelihood of it happening more important than any resonant image of the impact of the event. A feedback system might then mean someone already emotionally animated by risk builds over time a more extensive and vivid image of the risk event, fleshing out effects, protagonists and relevant causes and circumstances, making the risk more substantial, structured and relevant to that individual. Emotional systems may lead to a particular structure and differentiation of risk image—personalising them, fleshing them out, bringing affect into the picture. [46]

Moreover, attached to the image of crime risk may be some sort of outrage at the specific nature of this hazard. Crime is most often intentional, in the sense that someone is seeking to deprive someone else of something, or to damage them physically, psychologically or emotionally. The "how dare they" factor may add a certain inflection to the risk of crime, an extra layer of significance and importance, not to mention an emotional response. [47]

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Overall then, the risk image perspective predicts that people attach different weightings of consequences, likelihood, control and affect to a given risk. One individual may imagine that being burgled, for example, would involve serious material, physical and psychological effects; another may feel that the consequences would be comparatively manageable. For the first individual the risk may be weighted by consequence more than likelihood; for the second likelihood may be most important in their composition of perceived risk. What is important is the composition of the representation of that risk. While speculative, this approach offers a potentially powerful explanatory tool; future research will hopefully test its validity and utility. [48]

7.5 Circulating images of risk

Now, where do such images of risk originate? How are they circulated? The mass media and interpersonal communication are obvious sources. And here, the loose but inclusive set of concepts organised by the Social Amplification of Risk Framework (SARF, see PIDGEON et al. 2003) may be useful. According to this framework, risk signals are received, interpreted and passed on at a series of "amplifier" stations and diffused through different channels. KASPERSON et al. (2003, p.15) state that: "as a key part of [the] communication process, risk, risks events, and the characteristics of both become portrayed through various risk signals (images, signs, and symbols), which in turn interact with a wide range of psychological, social, institutional, or cultural processes in ways that intensify or attenuate perceptions of risk and its manageability." While the media are primary amplifiers, stations can also include individuals, groups and organizations such as activist groups of government agencies, driven by their interests and functions. The results are signals that can be increased or decreased in intensity, as well as transformed in their cultural content. [49]

Individuals may pick up from media and interpersonal communication circulating images of the event, the perpetrators, victims and motive—namely, particular images of the risk event. The notion of "stimulus similarity" may be crucial here (WINKEL & VRIJ 1990). If the reader of a newspaper, for example, identifies with the described victim, or feels that their own neighbourhood bears resemblance to the one described, then the image of risk may be taken up and personalised. In a related study, STAPEL et al. (1994) found subjects who received car crash information and who shared social identity with the victims provided elevates estimates of risk compared to those who had no basis for assumed similarity. [50]

8. A Narrative to Risk: Populating an Event with "Flesh and Blood"

So far, this paper has discussed whether the public bring more to bear to a given risk than narrow judgements of likelihood and consequence. We have suggested that people establish and develop a personal image of an uncertain event or danger, an image that generates a personal charge, resonance and vividness, all attached to the threat attributed to persons, technologies or nature. Such representations may originate in mass media and interpersonal communication; over time they may become more structured, salient and vivid as people mull over

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the possibilities and uncertainties and apply them to their everyday lives. Moreover, different routes of information processing may result in different pathways of assessment of risk—formal and numeric, or associationist and narrative. These alternative pathways may result either in emotional assessments operating relatively independently to cognitive assessments, or in some complex interplay between the two. Feedback may occur where feelings and thoughts about the danger influence beliefs about its context, direct attention to ambiguous stimuli, and encourage the appraisal of threat in ambiguity. [51]

The rest of the paper speculates whether the analytic net (a contextualist definition of risk) should be cast still further. Might people define and respond to risk in more varied and nuanced ways than so far discussed? We advance one way to proceed, based around the idea of a narrative to risk in lay perceptions. Our speculative framework—which we hope will be put to empirical test—states that people populate a risk with "flesh and blood". [52]

For the public, a risk does not exist in a vacuum: people do not view the possible exposure to harm separate from its context; rather, this context soaks the risk with meaning. Consider why people select one risk as worthy of their attention but not another. One explanation is that they particularly value what is being threatened. Another is that the exposure to harm is directly attributable to certain individuals, groups or institutions, which raises issues of responsibility, blame and social justice. All such issues are not separable from lay values, beliefs and cultural views. Instead, they come back to an often quoted formulation of DOUGLAS (1990, p.10): "The evaluation [of the outcome of a risk] is a political, aesthetic and moral matter." [53]

When a risk such as victimisation captures an individual's attention, we suggest they construct a narrative that puts a face to the danger, specifying who is responsible for its commission or regulation. They put it in its place (crime occurs in specific areas, under certain conditions), and have a sense of what is threatened and why (crime damages the well-being of individuals and of communities). Crime also dramatises their perceptions of social order and cohesion. Notions of outrage and morality; trust and blame; the politics of regulation and power—all then flood into perceptions and responses (DOUGLAS 1990); they are as much part of public perceptions of risk as are estimates of likelihood and consequence (see GIRLING et al. 2000; SPARKS 2001). [54]

Or so we propose. We hope such thinking will contribute to empirical study that draws together concepts from psychology and sociology, putting into the field a full contextualistic formulation of risk. Then we can see how a synthesis such as this fares. But first, let us consider the social meaning attached to a given risk. [55]

8.1 Evaluating the context of a risk: who presents the danger, and where?

Some risks involve a danger from certain individuals, in certain situations; crime is a good example. Much criminological research has demonstrated that fear of crime is a response to day-to-day encounters with "symbols associated with

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crime". These symbols generate a sense of the risk of crime: people make judgements about who commits crime and where it occurs; perceptions of the likelihood of victimisation are shaped by these individual evaluations of the social and physical environment (FERRARO 1995; INNES 2004; JACKSON 2004). And key are perceptions of social cohesion, trust and informal social control, interpretations of incivilities or "broken windows", and judgements about the values, norms and morals of the people who make up the community (JACKSON 2004). [56]

As such, the risk of crime is projected onto individuals in a given environment and on that environment itself: it is given a face and a context; it is rooted and situated. A key process in fear of crime is consequently the evaluative activity that links crime with individuals or groups, who are judged by the observer to be hostile to the local social order, untrustworthy, who are seen as representative of some sort of social breakdown. Perceptions of risk express this evaluative activity, because this evaluative activity lies at the heart of these perceptions of risk. In other words, perceptions of the risk of crime disclose a host of subtle evaluations of and responses to the social world—a way of responding to variable levels of social order and control, a sense of unease in an unpredictable environment, the association of particular individuals or conditions with deviance and hostile intent—just as much as they comprise specific appraisals of being attacked in the street, being burgled, or having someone stolen one's car. [57]

If it is true that perceptions of crime risk reveal processes of designation (where certain groups, behaviours or community conditions are labelled as potentially criminal and dangerous) then another aspect moves into view on a contextualistic definition of risk. Crime may be used as a way of articulating evaluations of people, community conditions and social control, a lens through which people understand social order, low-level deviance and diversity. Stereotypes of particular groups may operate as distancing strategies for placing others, perpetuating normative boundaries of social conduct, roles and judgements, strengthening one's own social identity. Scapegoating may also arise, where one group comes to embody a particular social problem. Such evaluative activity, if this analysis is correct, reveals how people define social order and what they think is hostile to social order. It also means that risk is culturally conditioned: what one defines as dangerous depends on where one stands. [58]

Fear of crime may also be a visceral response to the symbols associated with crime even in the absence of specific inferences about the threat of crime—a diffuse sense of unease and lack of control within an unpredictable and disorderly environment (cf. TULLOCH 2003). As GOFFMAN (1971) describes: "… the minor incivilities of everyday life can function as an early warning system; conventional courtesies are seen as mere convention, but non-performance can cause alarm". Threat can be signalled by the presence of certain persons who act counter to the "minor civilities of every day life", who behave in ways that are "improper or appear out of place". Such people or behaviours may signal an "absent, weakened or fragile local social order" (INNES 2004). Other signs of the violation of norms of behaviour and symbols of the lack of informal social controls—such

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as graffiti, and vandalism—may generate the sense that the social order is in flux (FERRARO 1995; INNES 2004), that there has been a loss of authority over space. People may feel they lack a sense of control over what may or may not happen, being unsure how to read a situation, leading to a lack of trust that screens out negative interpretations in the people around them. [59]

Such tentative analyses move into the foreground the context and social meaning of a hazard and danger. Risk perceptions quickly encompass how people make sense of a danger in its context—how they evaluate a range of aspects attached to that danger, and how they respond to these evaluations. Such an analysis draws attention to whoever is responsible for a given danger, where it occurs and under what conditions. And as we will argue, we are quickly confronted with public evaluations of what a risk threatens, who regulates it, and who is to blame. It reminds us that risk can quickly become a political and moral issue (DOUGLAS 1992). [60]

8.2 Responding to the implications of a risk: Morality and outrage

By definition, a hazard or danger presents harm. This often raises issues of fairness and morality. Take a rather straight-forward example. Terrorism expresses a disdain for human life and the desire to damage a way of life. We may be outraged by terrorist acts or the risk of further terrorist acts partly because of what they express (consider how less outraged we are by car accidents that result in a comparable number of fatalities). First, our outrage may give it a charge and a resonance: the very idea that it is possible strikes at our sense of justice. Second, our identification of terrorism as a salient risk may be partly a defence of what it seeks to destroy: we give the risk of terrorism special significance because of the value we place on what terrorists seek to threaten. [61]

Crime may be similar. There may be something about the intentionality of crime that moves people, making it a more salient and symbolically charged risk. The "how dare they" factor speaks to the ways in which victimisation strikes at our deep-seated sense of fairness and cooperation, the value we place on the sanctity of property and liberty, our desire to censure those who defect. Moreover, crime damages the community. Transgression of the shared moral values of society challenges the authority and appropriateness of a moral and social structure, harming social cohesion, moral consensus and informal social controls. If transgression goes unpunished they further erode social order, tainting group identity. Thus, the desire to punish and censure defectors reflects our desire to protect order, stability and organisation. [62]

Indeed, designating as criminal and dangerous an individual or group, a behaviour or set of norms, or a community and its conditions may itself be a semi-moral act. The identification of dangerous individuals may operate to establish "moral communities" by locating "immoral communities" (cf. DOUGLAS 1990, pp.4-5). It may also reinforce and identity the boundaries of a given community by identifying what that community is against: e.g. certain troublesome individuals, or particular groups defined by their social class or their

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ethnicity. Social psychology shows that the identification of an out-group operates the strength solidarity within the in-group. [63]

Genetically modified (GM) food and crops present a slightly different scenario. Opposition to GM may be traced back to the evaluation that this particular application of technology "messes with nature"; risk perceptions may be sourced back to concerns that scientists and regulators behind GM food are somehow threatening nature, intentionally damaging something that an individual values (in this case the sanctity of nature). Some may claim that GM food is dangerous because they see it expresses a certain view of nature subordinate to man in quite specific ways—a view that conflicts with their own sense of a fragile nature that should be meddled with. Ensuing outrage may animate the salience and meaning of that risk, comprising an important element of risk perception. What is valued is under threat (a fragile nature), and some people are responsible for that threat (perhaps multinational companies who benefit from the technology but leave the risks to be faced by others). [64]

Often then, risks seem to have a sharp moral edge. Risk, says the Oxford English Dictionary, is "exposure to mischance or peril." If the observer determines that they have been exposed to potential harm by others, whether through intention, laxity in regulation or action, or by pursuing their own interests to the detriment of others, then it clearly becomes a matter of fairness and social justice, and can quickly become politicised. [65]

8.3 Judging the regulators: Trust and clashes of values

Of course, many risks are regulated. Individuals, groups and institutions are responsible for controlling and regulating unknown losses and gains associated with new technologies, the safety of rail, etc. And if, as members of the public, we place trust and confidence in those regulators, then we reduce cognitive complexity. We place our faith in others to mitigate danger, so we do not worry. But with low trust and confidence comes uncertainty. Public anxieties about GM food, BSE, rail safety, mobile phone transmitter masts and a host of other risks may consequently be explained by a lack of trust or confidence in those responsible and a loss of legitimacy of certain public institutions. At the heart of risk perceptions may be complex assessments of the competence, social and fiduciary responsibility, and social values of a given institution or group. [66]

Empirical research on the role of trust in risk perception includes work by FREUDENBURG (1993) on the effect of trust on the concerns of local citizens and by SLOVIC on the asymmetrical effects of trust building and trust destroying information. SLOVIC showed that the effect of negative information on trust "destruction" is much greater than positive information on "trust building" (SLOVIC, 1993). Trust is related to beliefs and expectations that some possibly remote institution or actor will act in a particular way in a particular context. A lack of trust that leads people to see risks as greater may be based on expectations about risk managers' competencies. They share the general assumption of LUHMANN (1979) that the function of trust is to reduce complexity. However,

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they point out that in many conceptions of trust, people actually require rather a lot of information about actors and institutions in order to decide whether or not to grant trust. So while the function of such trust may be a reduction of cognitive complexity, the basis on which it would be granted would itself require considerable cognitive effort. [67]

EARLE and CVETKOVITCH (1995) argue that trust is often a form of social trust, based on salient value similarity (SVS). This is "groundless", needing no justification. Rather than deducing trustworthiness from direct evidence, people infer it from "value-bearing narratives". These could be information shortcuts, available images, schema and the like. People, so the perspective goes, trust institutions that tell stories expressing salient values that are similar to their own. Salient values consist of "the individual's sense of the important goals (ends) and/or processes (means) that should be followed in a particular situation" (SIEGRIST, CYETKOVICH & ROTH 2000 p.355). This yields a general basis for trust only to the extent that situations are perceived as being similar. Hence one might think that equal sharing is a salient value in relationships with family members but that competitiveness is important in business situations. Similarity of values between trustor and trustee is inferred from the trustee's words, actions, perceived cultural/social group membership. The key point is that trust is conferred not on the basis of a detailed appraisal of the likely competence and fiduciary responsibility of the actor but on the perception of shared salient values —the evaluation of "value-bearing narratives" regarding the roles, intentions, goals and behaviours of the trusted. [68]

Perhaps battles between experts and the public over the risks of GM food may be seen as but a small part of a battle over conflicting value systems—over conflicting narratives about the robustness of nature and whether man should be "meddling". Certain groups may feel that the Government, scientists and regulators have a different position on the environment, and through their actions and development of such technology, are expressing rather forcibly their perspective. They may want to strike back, to defend their view of nature, by arguing that the opposition is being irresponsible in its generation of danger and potential harm. [69]

8.4 Revisiting the mass media

Let us return for a second to the mass media, and try and integrate some of our thoughts so far. A plural set of media may amplify or attenuate risks if they resonate with public feelings and mood—if the symbols and representations deployed capture existing public concerns and frames of reference. The mass media are important agenda-setters and providers of information, and a key concept here is framing (MURDOCK et al. 2003; PETTS et al. 2001). Issues are more likely to receive media attention if they can be easily integrated into a narrative that motivates interlinked processes: (a) connecting; (b) contextualising; and, (c) anchoring. In the first, links are made between new events and already familiar instances and narratives, providing a readily available frame in which to understand novel phenomena. In the second, links are made to more abstract but

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still resonant contemporary issues. In the third, the imagery and connotations of an event are placed within popular anxieties and fears. [70]

Symbols are important in shaping and reproducing the social meanings attached to risks. One interpretive account of lay perceptions can be found in HORLICK-JONES et al. (2003). They were interested in the "thick descriptions" (GEERTZ 1973) that communicate, for them, so much of the meaning and interpretation present in how people make sense of risk. For example, a risk issue might stimulate a set of concerns and debates quite apart from a narrowly conceived idea of the risk object itself. This is because the issue might involve a set of "symbolic tangles" (HORLICK-JONES et al. 2003, p.284). WIEDEMANN et al. (2003) stress a narrative structure, arguing that laypersons see risks "primarily in a social and relationship-oriented context … based on common patterns for interpreting events, which are heavily influenced by the media, such as scandal stories, investigative exposes, tragedies, and disaster reports" (ibid., p.289). At the heart of such narratives is a range of regularities, they argue. These include: the designation of heroes and villains to actors; the assignation of intentions and motives; dramatizing the conflict by filling out a logic to its build-up; drawing out a moral of the study, particularly around the consequences; and, bringing in other instances that strengthen and clarify the "moral of the story". [71]

Consider crime: the reception and engagement with media reporting of serious criminal events may make the risk more available and salient, especially when crime chimes with existing public concerns and debates about social cohesion and moral consensus. People may attend to information about crime risk from the mass media and interpersonal communication because crime speaks to and dramatises their concerns about social cohesion, relations and change. Crime may get into such a symbolic tangle with issues of cohesion because the act of crime communicates hostility to the social order of a community and damages its moral fabric. The prevalence of crime may thus signal the community to be suffering from deteriorating standards of behaviour, diminishing power of informal social control, increasing diversification of norms and values, and decreasing levels of trust, reciprocity and respect. [72]

A similar analysis could be made over GM food and crops. People may attend to mass media articles on this subject because those article generate a symbolic tangle containing issues of trust and outrage regarding "meddling with nature", big business making profits by creating dangers for others to face, etc. [73]

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9. Bridging the Social and the Psychological in Risk Perception Research

In this final section, we offer some further notes on how to bridge sociology and psychology in this field of enquiry. We begin with the work of Mary DOUGLAS, because in our opinion her work is the strongest analysis of culture and the perspective closest to the synthesis we develop here in this paper. [74]

9.1 The work of Mary DOUGLAS

Mary DOUGLAS offers an explanation for why different social groups have different attitudes towards technological and natural dangers. In her earlier work, DOUGLAS claims that the content of beliefs about purity, danger and taboo in any given culture are essentially arbitrary. Within a particular culture these arbitrary beliefs become fixed and henceforth serve to organise and reinforce social relations according to hierarchies of power. In her book, Purity and Danger, (DOUGLAS 1966), she advances the idea that different cultures denote certain activities as taboo not because of objective harm that may arise from carrying out these activities but as a way of maintaining and reinforcing the moral, political, religious or social order that binds members of that culture. She cites the example of the ancient Israelites who, on the command of Leviticus, prohibited the consumption of pork. Pork was not, in fact, dangerous to eat, but its prohibition served as means of reinforcing and maintaining a monotheistic society against the polytheistic nomadic culture that surrounded it (DOUGLAS 1966; RAYNER 1992). DOUGLAS and WILDAVSKY (1982) cite the example of the Hima of Africa who think that it is risky for women to come into contact with cattle. This belief functions to maintain a set of hierarchical relations in that culture regarding the role of women rather than reflecting any objective risks. In Western societies the picture is necessarily more complex but, according to DOUGLAS and WILDAVSKY, the same principles apply. An individual's beliefs about what constitutes an important risk are in part indicative of their place in society. [75]

Others, such as RAYNER (1992), have argued that this phenomenon is true not only at the societal level but can also be observed within smaller organisations such as firms, political parties and non-governmental organisations. The implication of this for the social study of risk is rather important because it shifts the emphasis away from individual differences or biases in perception of objective risks towards more fundamental types of inter-group cleavages. In the cultural theory view, people's conception of what constitutes danger, or a risk, varies according to the way their social relations are organised. People select risks as being important or trivial because in so doing they reinforce the established social relations within the culture in which they are located. DOUGLAS and WILDAVSKY proposed four prototypical cultural types within modern industrialised societies. These are located along two dimensions that describe firstly the degree of social incorporation constituted within the culture and secondly the nature of these social interactions. This analytic framework is known as grid/group, where grid is defined as a measure of the constraining classifications that bear upon members of any social grouping and group as the

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degree of social interaction and the extent to which people rely on social networks (RAYNER 1992). [76]

At high grid and high group, the modal form of organisation is hierarchical, where all individuals are strongly reliant on others but where movement between levels of authority is strongly constrained. In terms of risk perception, the key concern is for control and management. Rules and procedures are favoured responses to risk. For the egalitarian, there is an emphasis on strong cooperative relations and equality. The response to risk is highly precautionary, concerned to minimise possible harms by avoidance of risky activities rather than control and management. At low group and grid, the individualist sees risks as opportunities for gain. Market mechanisms are favoured rather than bureaucratic regulation. Potential losses can be mitigated by insurance. Finally, the fatalist perspective is that of the "atomised individual". Risks are seen as inevitable and whether or not one can avoid harm is simply a matter of luck. [77]

9.2 Some integration of the work of Mary DOUGLAS

Earlier in this article we speculated that people select one risk rather than another partly because they especially value what is under threat (crime damages one's personal sense of security but it also threatens the stability and organisation of one's community; terrorism attacks a way of life; the use of genetic modification threatens the "naturalness" of food). We also remark on the importance of responsibility and blame, suggesting that a risk may gather a particular salience and resonance because of the specific nature of accountability. For example, companies, scientists and regulators may be seen as imposing a particular view of nature through the development of technologies such as genetic modification. These technologies generate new dangers but equally, they impose a conflicting set of values and ethics on others, who have little power to resist or make their voice heard. [78]

This is compatible with DOUGLAS's line of thinking. She goes further of course, arguing that people's conception of what constitutes danger, or a risk, may vary according to the way their social relations are organised. People may select risks as being important or trivial because this reinforces established social relations within their culture, although they may revise their thinking over time. Moreover, beliefs about purity, danger and taboo are essentially arbitrary. Once they become fixed, they serve to organise and reinforce social relations according to hierarchies of power. [79]

But the key point is that people select risks because of the meaning attached to them (meaning that is as fundamental as estimates of likelihood and consequence) and because of the social organisation that defines and constrains that meaning. The "AIDS epidemic" brought with it a moralisation of misfortune because it quickly got linked to "immoral" behaviours that transgress social order. Crime threatens social cohesion and moral consensus, and quickly gets linked to individuals and behaviours that are seen to be hostile to social order. New and

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controversial technologies raise issues of what is natural and how humans should interact with nature. [80]

Such risks may quickly become battles over competing values and definitions of social order. Different groups select and dramatise dangers to make their points and maintain the solidarity of their group. As TANSEY (2004, pp.24-25) suggests: "… groups with marginal political or economic power can only exert their influence by appealing to the populace through accusations that those in power are responsible for exposing them to danger." He continues:

> "Risk becomes politicized not simply because it is a threat to life but because it is a threat to ways of life. Rather than ask how a risk comes to be magnified or how risk perceptions are influenced by heuristics, irrationality or pure emotion, this approach asks indirect questions: At whom is the finger of blame being pointed? Who is being held accountable? What is being rejected and what is being defended in a particular collective social action? This implies that for issues such as genetically modified organisms, research that seeks to demonstrate the safety of the technology will not dissipate political opposition since protest is in defence of a moral boundary" (TANSEY 2004, p.29). [81]

All this raises doubts on whether, as SPARKS (2001, pp.168-169) explains:

> "risk can be domesticated, kept strictly within the bounds of probability calculations … one consequence is that moments of intense controversy or recrimination (such as those engendered in debates about criminal sentencing or prison escapes or the release of convicted sex offenders) crystallize social anxieties and expose lines of division about the competence, trustworthiness and legitimacy of authorities. But this is also why, in Douglas's view, the vocabulary and associations of risk are always semantically denser, more culturally embedded, more episodic in their appearance and more open to politicization than attempts by specialists to numericize and rationalize them can admit. Risk does not 'unload its ancient moral freight'". [82]

10. Conclusions

In this paper we have argued for the benefits of integrating the social and the psychological in risk perception research. We believe that culture does not hover over individuals. A cultural analysis of risk perception needs to account for the psychology of an individual: sociology has tended to ignore individual judgements about uncertainty and danger. Equally, individuals do not operate in a vacuum. A psychological analysis of risk perception needs to account for the culturally embedded meaning of risk: psychology has tended to ignore why people select one risk and not another. We have argued that a contextualistic formulation of risk that bridges both levels of analysis offers a promising way forward. We hope the reader is convinced that this might present benefits. [83]

Much is brief. Much is speculative. We certainly hope to develop this synthesis. In particular, more thought must be given to the sociological end. But this and other work with similar aims (see TAYLOR-GOOBY & ZINN 2005) may well combine as

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a critical mass of scholarship, that looks beyond disciplinary boundaries, to better capture the intricacies and complexities of lay perceptions of risk. [84]

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