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THE SPECIFIC EVIDENCE RULE. REFERENCE CLASSES — INDIVIDUALS — PERSONAL AUTONOMY

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ABSTRACT: This paper grapples with the issue of naked statistical evidence in general and the reference class problem (RCP) in particular. By analysing the reasoning patterns underlying the RCP, I will show, first, that the RCP rests on theoretical presuppositions which we are by no means bound to accept. Such a presupposition is, what I will call, the wholesale approach in decision-making. Secondly, I will show that the very effort to increase the level of precision to a maximum so that a reference class contains a single member only is theoretically inconsistent insofar, as it deprives reference classes of their general (and thus scientific) character. Thereupon, I will argue, thirdly, that the decision to enact a specific evidence rule is a political one and reflects deep moral and jurisprudential values, not scientific propositions. Such a value is personal autonomy, which I go on to illuminate briefly. Whether the trier of fact will treat cases in a wholesale approach or not depends on constitutional arrangements and legal values putting emphasis on the individual and the latter's dignity.

KEYWORDS: reference class problem, individualisation, specific evidence, discretion, personal autonomy, statistical inferences.

SUMMARY: 1. INTRODUCTION: 1.1. Uncertainty about the Value of Probabilistic Evidence. 1.2. Is There a «Specific Evidence Rule»?— 2. THE REFERENCE CLASS PROBLEM: 2.1. The RCP as a Paradox. 2.2. Formal Logic. 2.3. Reference Classes and Individuals. 2.4. Fallibilism.— 3. THE VALUES OF LAW: 3.1. The Values of Criminal Law. 3.2. Personal Autonomy as a Legal Value. 3.3. Disccretion. 3.4. *Specific* Evidence and *Direct* Evidence.— 4. OUR CRAVING FOR GENERALITY.— 5. CONCLUSIONS.— BIBLIOGRAPHY.

«This requirement that evidence should focus on the defendant must be taken to be a rule of law relating to proof distinct from the general rule governing the quantum of proof.»

Glanville Williams

1. INTRODUCTION

1.1. Uncertainty about the Value of Probabilistic Evidence

There has been a long discussion on the aptness and usefulness of formal methods in general and numerical methods in particular in criminal adjudication. At its core, the discussion pivots around the requirements, quantitative or qualitative in nature, for sufficient proof of guilt. To what extent does (accurate) statistical evidence yield a specific inference to the individual (defendant) and warrant a criminal verdict?

A series of recent cases concerning the use of the most prominent member of statistical evidence, DNA profiles, exemplify the tension around the evidential rules regarding the sufficiency of a sole item of evidence. Can DNA evidence provide a safe basis for a criminal conviction? For example in England and Wales, the Court of Appeal seems to be oscillating between its original position [1], according to which DNA as a sole item of evidence provides an *in*sufficient basis for conviction, and the latter's diametric opposite proposition, according to which «there is no evidential or legal principle which prevents a case solely dependent on the presence of the defendant's DNA profile on an article left at the scene of the crime being considered by a jury» [2].

Legal uncertainty remains thus as regards the evidential value of DNA profiles and statistically analysed evidence more generally. Can a probabilistic piece of evidence like the grenade firing pin in *Jones*, the scarf in *Ogden* or the balaclava in *Grant*, even when taken at their *Galbraith* highest, provide sufficient evidential support to the *probandum*? Can statistical evidence warrant an inference to the specific individual? It is not clear what the law on that matter is both in England and Wales and in other jurisdictions nor what the solution to the problem should be.

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[1] See *R v Lashley*—unreported; CPS Policy Directorate, Guidance on DNA Charging, 2004, implemented in *R v Grant* [2008] EWCA Crim 1890; *R v Ogden* [2013] EWCA Crim 1294; *R v Bryon* [2015] EWCA Crim 997).

[2] *R v Tsekiri* [2017] EWCA Crim 40 at 21). For the *Tsekiri*-type of cases probative sufficiency of evidence is thus to be determined in relation to a non-exhaustive list of surroundings facts of the case. The open texture of the abovementioned list makes it difficult to determine whether a certain combination of elements should constitute a case to answer and provide a safe basis for conviction, especially in view of the *Tsekiri*-test according to which «each case will depend on its own facts». Recently, however, the same Court of Appeal has signified—although not in an entirely clear way—that we cannot single out the defendant/appellant as the source of the DNA to the exclusion of all others when we lack individualistic evidence (see *R v Jones (William Francis)* [2020] EWCA Crim 1021 (03 Aug 2020). See also Kotsoglou and McCartney (2021, p. 135-140).

1.2. Is there a «Specific Evidence Rule»?

One should not think that the problem of applying naked statistical evidence to the individual case is some idiosyncratic, theoretically cryptic or rather uncommon feature of criminal adjudication. For example, the ENFSI[3] in its recent roadmap understands biometrics as a technique which «allows a person to be *individualised* and authenticated, based on a set of recognisable and verifiable data, which are very distinctive»[4]. More fundamentally, as the abovementioned document made clear, «pattern recognition of features of comparison for individualisation and source attributions»—what is widely known as S.A.D. (Source Attribution Determination)—is still to be counted among the «fundamentals in forensic science»[5]. This policy document echoes thus the forensic science's credo, *i.e.*, individualisation—Kirk (1963, p. 236) dubbed individualisation the «essence of forensic science»— and manifests the latter's ubiquitous character. As Paul Roberts (2007) remarked, the reference class problem (hereafter: RCP[6]) is despite its «mathematical connotations […] pervasive in legal adjudication, and will have been encountered in some form or another by every legal practitioner and scholar of legal procedure» (p. 243).

From Justice Antonin Scalia, who noted that statistical evidence «is worlds away from "significant proof"»[7], over the German Federal Labour Court, which held that statistical data (in that case: a Monte-Carlo Simulation) is not conclusive for the individual case[8], to the U.S. Court of Appeals (Second Circuit), which regarded the application of naked statistical evidence to the individual as «surmise» and made clear that the latter «will not of course substitute for specific proof»[9], several higher courts in Western jurisdictions have continuously and consistently quashed decisions which were based entirely on naked statistical evidence. We seem to be able to detect the outlines of a hitherto not clearly articulated «specific evidence rule».

At the same time, our main question remains unanswered: What *is* the evidential weight of statistical evidence? And how do we resolve the conflict between higher courts (at least in the jurisdictions identified above) requiring «specific evidence», on

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[3] The European Network of Forensic Science Institutes [ENFSI] comprises more than seventy forensic Institutes from European countries (including the U.K.), whose overarching goal is to «ensure that the quality, development and delivery of forensic science throughout Europe is at the forefront of the world». See ENFSI, Vision of the European Forensic Science Area 2030.

[4] *Ibid.*, § 1.1. (emphasis added).

[5] *Ibid.*, § 1.3.

[6] As I will show the RCP is a theoretical account of the practice of individualisation.

[7] *Wal-Mart Stores Inc. v. Dukes et al.,* 564 U.S. 338 (2011), Opinion (Scalia), at 14.

[8] Although there was no mention of the reference class problem *eo nomine* in the decision, the Federal Court raised once again questions of sufficiency of proof by making clear that proof of unlawful behaviour hinges on «statistical data being conclusive for the employer in question», to wit: on specific evidence. Federal Labour Court [2009] — 8 AZR 1012/08, § 68.

[9] *United States v Shonubi*, 998 F 2d 84 (2d Cir. 1993) [*Shonubi* II], at 16.

the one hand, and the practice of regarding the individualisation of naked statistical evidence as part and parcel of free assessment of evidence, on the other? Surely, it would be a legalistic fallacy to assume that the «specific evidence rule» *is* conceptually and evidentially sound in England let alone elsewhere simply because for example the Court of Appeal (E+W) stresses that probabilistic statements warrant no conclusion «in relation to the individual case»[10]. As Judith J. Thomson (1986) put it concisely, «[f]riends of the idea that individualized evidence is required for conviction have not really made it clear why this should be thought true» (p. 206). The *Shonubi* case[11] neatly encapsulates the abovementioned tension. In *Shonubi V* the District Judge made clear that he was not ceding the main point in the argument about the evidential value of statistical evidence; he was merely deferring to the higher court's authority. «The specific evidence requirement of *Shonubi* I[I] and IV», he lamented, «is a denigration of the modern evidentiary principles of free admissibility and free evaluation of probative force by the trier»[12], accusing at the same time the U.S. Court of Appeals (Second Circuit) that it «distorts the Federal Rules of Evidence» and that it required a result which is «compassionate», alas lacked legal basis. There is no such basis, Judge Weinstein added, for the specific evidence rule[13].

This brings us to our main issue, the meaning of «specific evidence», and the contested validity of the RCP. *Should* statistical data—accurate as it can ever be—motivate action in general and warrant a legal decision in particular? The question at its kernel is whether an epistemic inference *from* a relevant population serving as a basis for calculating and assigning probabilities *to* an individual can ever be valid if the only evidence that we have is information about the reference class in question. Since we deal with the problem of factual generalisations and individualisation, we—rather unwillingly—have to raise fundamental questions about the nature of our reasoning processes. Unsurprisingly, these issues have spawned an extensive debate[14]—for very good reasons, since legal adjudication aspires to be rational. However, there is no consensus on what lessons to draw. The discussion between the opposing parties has stalled. It would not be exaggerating to say that we have reached the point «where one would like just to emit an inarticulate sound» (Wittgenstein, 2009, § 261).

This paper will provide a *theoretical diagnosis* of the RCP. I will show that the question of embracing and deploying formalised reasoning patterns as proxy for de-

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[10] *R v Jones (William Francis)* [2020] EWCA Crim 1021, at 31.

[11] In *US* v *Shonubi*, the prosecution relied on statistics to prove the amount of drugs Shonubi had smuggled into the USA. However, the appellate court quashed the sentence twice because it was not based on "specific evidence". See also *United States v Shonubi*, 802 F Supp 859 (EDNY 1992) [*Shonubi I*]. *United States v Shonubi*, 998 F 2d 84 (2d Cir. 1993) [*Shonubi* II]. *United States v Shonubi*, 895 F Supp 460 (EDNY 1995) [*Shonubi III*]; *United States v Shonubi*, 103 F 3d 1085 (2d Cir. 1997) [*Shonubi IV*]; *United States v Shonubi*, 962 F Supp 370 (EDNY 1997) [*Shonubi V*].

[12] *United States v Shonubi*, 962 F Supp 370 (EDNY 1997) [*Shonubi V*], at 375.

[13] *Ibid*., at 376.

[14] See the special issue edited by Allen and Roberts, (2007), for more discussion and further references. See also Colyvan *et. Al.* (2001, p. 168-181). Tillers (2005, p. 33-49).

cision-making cannot be addressed let alone answered in a normative vacuum, *i.e.,* independently of the procedural architecture of legal systems examining and validating, say, criminal charges. In other terms, the reference class problem is not an analytic one. By examining the reasoning patterns underlying the RCP*,* I will show, *first*, that the RCP rests on theoretical presuppositions which we are by no means bound to accept in Western, anthropocentric legal orders. Such a presupposition is the wholesale approach in decision-making (part 2). *Secondly,* I will show that the very idea of a group-to-individual inference is anything but inevitable or legitimate; the idea of a reference class containing a single member only is theoretically inconsistent insofar, as it deprives reference classes of their general (and thus valid) character (part 3). Thereupon, I will argue, *thirdly*, that the decision to enact a specific evidence rule is a political one and reflects deep moral and jurisprudential values, not scientific propositions. Such a value is human dignity and moral autonomy, which I go on to illuminate briefly. Whether the trier of fact will treat cases in a wholesale approach or not depends on constitutional arrangements and legal values, which in the case of England and Wales and other similar legal orders put emphasis on the individual and the latter's dignity (part 4). This theoretical diagnosis will show how the RCP dissolves once we look at it from the right angle.

2. THE REFERENCE CLASS PROBLEM

2.1. The RCP as a Paradox

The RCP boils down to the question of whether one is inferentially justified in drawing a group-to-individual inference, *if* all that we know is the latter's membership to the former. The question is thus whether we can apply naked *statistical* evidence to the *individual case* qua unique historical event.

As shown above, the RCP is—despite its philosophical provenance—ubiquitous in adjudicative contexts, indeed it surfaced in litigation early in the twentieth century[15]. However, it was not until a ground-breaking monograph by the philosopher J. L. Cohen (1977) that the *RCP eo nomine a*) could be articulated, and *b*) the paradoxical results of applying axiomatised inference patterns especially the axioms of the theory of mathematical probability in litigation, were fleshed out. Cohen's analysis sparked an *academic* interest in the foundations of evidence and proof in adjudication and in the RCP in particular (p. 74-81). To investigate the claim whether the adjudicative process indeed any vernacular decision-making context could ever be axiomatised, Cohen puts us in the setting of a rodeo and informs us that according to fully reliable information, among the 1,000 spectators only 499 paid for admission. At the same time, we learn that no tickets were issued and there can be no (reliable)

[15] See, *e. g.*, the American case *Smith v. Rapid Transit*, Inc. 317 Mass. 469, 58 N.E.2d 754 (1945).