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I. INTRODUCTION

ON DECEMBER 10, 1991 Charles Shonubi, a Nigerian citizen but a resident of the USA, was arrested at John F. Kennedy International Airport for the importation of heroin into the United States.¹ Shonubi's *modus operandi* was "balloon swallowing." That is, heroin was mixed with another substance to form a paste and this paste was sealed in balloons which were then swallowed. The idea was that once the illegal substance was safely inside the USA, the smuggler would pass the balloons and recover the heroin. On the date of his arrest, Shonubi was found to have swallowed 103 balloons containing a total of 427.4 grams of heroin. There was little doubt about Shonubi's guilt. In fact, there was considerable evidence that he had made at least seven prior heroin-smuggling trips to the USA (although he was not tried for these). In October 1992 Shonubi was convicted in a United States District Court for possessing and importing heroin. Although the conviction was only for crimes associated with Shonubi's arrest date of December 10, 1991, the sentencing judge, Jack B. Weinstein, also made a finding that Shonubi had indeed made seven prior drug-smuggling trips to the USA.

The interesting part of this case was in the sentencing. According to the federal sentencing guidelines, the sentence in cases such as this should depend on the total quantity of heroin involved. This instruction was interpreted rather broadly

*This publication reflects discussions held while Mark Colyvan was visiting the United States for research supported in part by a University of Tasmania Industry Collaborative Research Grant and by a Small Business Innovation Research grant to Applied Biomathematics from the National Cancer Institute (9R44CA81741). Any opinions, findings, conclusions or recommendations expressed in this publication are those of the authors and do not necessarily reflect the views of the National Cancer Institute. Earlier versions of this paper were presented to the School of Philosophy at the University of Tasmania, to the Philosophy Program of the Research School of Social Sciences at the Australian National University, and to the Department of Philosophy at Macquarie University. We would like to thank the participants in the subsequent discussions for their valuable contributions. We are also indebted to Phil Dowe, Alan Hájek and Peter Menzies for useful conversations and correspondence and to several anonymous referees for their insightful comments on, and criticisms of, an earlier draft of this paper. Correspondence should be directed to: Mark Colyvan, School of Philosophy, University of Tasmania, GPO Box 252–41, Hobart, Tas. 7001, Australia; email <mark.colyvan@utas.edu.au>.

¹Our discussion here follows Izenman (2000b); see that paper for further details of the Shonubi case.

in the Shonubi case so that the total quantity of drugs should include all eight of Shonubi's drug-smuggling episodes. It was estimated that the total quantity of heroin that Shonubi carried into the USA on his eight trips was $427.4 \times 8 = 3,419.2$ grams. This was above the crucial 3,000 gram threshold and so corresponded to a base offence level of 34 (which, in Shonubi's case, resulted in a sentence of 12 years and 7 months imprisonment). (Call this *Shonubi I.*)

Shonubi appealed this sentence and the Second Circuit Court of Appeals vacated the sentence because the total quantity of drugs smuggled by Shonubi had not been established by a preponderance of evidence.² This was in part because there was no "specific evidence" that Shonubi smuggled the quantity of drugs on which the sentencing was based. The case was sent back to Judge Weinstein in the District Court for resentencing. (Call this *Shonubi II.*)

In response to the lack of specific evidence, the prosecution offered data collected by the US Customs Service. This data consisted of the quantities of heroin seized from 117 Nigerian balloon-swallowing drug smugglers arrested at JFK airport between the dates of Shonubi's first- and last-known drug-smuggling trips: September 1, 1990 and December 10, 1991. The prosecution statistician used repeated sampling (with replacement) from the 117 data points and produced a Gaussian-like histogram for the quantity of drugs imported on Shonubi's seven prior trips. The statistician concluded that there was a 0.99 chance that on the seven previous trips Shonubi smuggled at least 2,090.2 grams of heroin. When this was added to the 427.4 grams found on Shonubi on his last trip, the total quantity of drugs imported by Shonubi was estimated to be about 2,500 grams. Based on this evidence, Judge Weinstein found that Shonubi smuggled between 1,000 and 3,000 grams of heroin in his eight trips for a base offence level of 32 which (after an enhancement added for Shonubi's lies and obstruction of justice) resulted again in a sentence of 12 years and 7 months imprisonment. (Call this *Shonubi III.*)

Once again Shonubi appealed and once again the sentence was vacated by the Second Circuit. Two very interesting points were made by the appellate court at this stage. The first was to reiterate the requirement for "specific evidence" and to point out that the Customs Service data did not constitute such evidence. The second point was that preponderance of evidence was too low a standard of proof for sentencing matters relating to disputed aspects of relevant conduct. In particular, when a significantly enhanced sentence was at stake, a more rigorous standard of proof was necessary. The court then referred the case back to the District Court for resentencing with the additional instructions that the prosecution had had two previous opportunities to provide specific evidence of

²There are three different standards of proof appealed to (in decreasing order): beyond reasonable doubt, clear and convincing evidence, and preponderance of evidence. While beyond reasonable doubt is required for conviction, sentencing requires only preponderance of evidence.

the total quantity of drugs imported by Shonubi and no further opportunity to provide such evidence would be allowed. (Call this *Shonubi IV*.)

Back in the District Court, Judge Weinstein had no choice but to sentence Shonubi based only on the 427.4 grams found on him on his last trip. This resulted in a sentence of eight years and one month imprisonment. (Call this *Shonubi V*.) The trial then moved out of the court and into the academic arena where it continues to this day.

The general consensus amongst commentators on this case seems to be that the Second Circuit Court's decision at *Shonubi IV* to vacate the sentence of *Shonubi III* was a poor one. In particular, most commentators suggest that this poor decision was due to lack of understanding of statistical methods. Moreover, some suggest that the real importance of the Shonubi case is in the lessons it holds for statistical evidence generally. Here is what some of the commentators have said:

The opinion of the court of appeals is interesting, important, and—above all—depressing because of what it suggests about the difficulties that many judges may have when they confront statistical methods and statistical evidence: it suggests that quite a few judges—including some very eminent and intelligent ones—still may not have a grasp of some basic characteristics of probabilistic and statistical methods and arguments.³

[T]he opinion of the court of appeals in *Shonubi IV* is not a distinguished one... [T]he Second Circuit's view that the statistical evidence relied upon by Weinstein was defective because it was not "specific" is most unfortunate. The notion that evidence of a person's actions must be somehow "specific," either to that person or to his [sic] behavior on a specific occasion, is at best otiose and, at worst, nonsensical.⁴

The Shonubi case illustrates the legal system's failure to fully appreciate statistical evidence.⁵

Judge Weinstein even suggested that the decision of *Shonubi IV* "represents a retrogressive step towards the practices relied upon from the Middle Ages to the late Nineteenth century."⁶

³Tillers 1998.

⁴Ibid.

⁵Gastwirth, Freidlin and Miao 2000, p. 405.

⁶Quoted in Tillers (1998).