LEGAL PROBABILISM

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NOTES ON CHENG AND NUNN'S 'BEYOND THE WITNESS'

INTRODUCTION (SEC. I)

1. Legal trials today are witnesses-centric. With few exceptions, any form of evidence, is mediated at trial by the testimony of a witness. This witness-centric approach is evident in the 6th Amendment to the Us Constitution:

   > "In all criminal prosecutions, the accused shall enjoy the right to . . . be confronted with the witnesses against him; to have compulsory process for obtaining witnesses

2. Cheng and Nunn argue that process-based evidence (see below) has grown in importance, and thus, the witness-centric approach is misplaced. It must be revised.

PERSON-BASED V. PROCESS-BASED EVIDENCE (SEC. II)

3. The witness-centric approach came about before the industrial revolution. Most evidence before the 18th century was in the form of humanly written documents, human testimony, or humanly-based expert testimony, such as medical expertise. Call it *person-based evidence*.

4. As mechanized and standardized procedures of production developed, *process-based evidence* became more prominent. Photographs, videos recording, tests results, business records, safety standards—these are examples of process-based evidence. The mechanism producing the evidence is no longer a human, but rather a machine-based standardized process.

5. For a list of features distinguishing process- and person-based evidence, see Table 1 on p. 13.

6. Despite the growing importance of process-based evidence, the Anglo-American trial still treats process-based evidence as though it is person-based evidence. This is a mistake, since the reliability of person- and process-based evidence should be assessed differently.

7. Cross-examination is the central instrument to test the veridicality and reliability of person-based evidence. Cross-examination works by raising objections specific to the individual circumstances of the witness testimony. Was it dark then? How far where you? And so on.

   > Because person-based evidence is dependent on the reliability of the source individual, traditional witness-focused methods of proof are the most natural option. The person responsible for the evidence—whether because the person is the eyewitness to the event, or the source of expertise—should appear in court, give testimony, and be subject to cross-examination. (p. 14)

8. Oddly, the legal system uses cross-examination to test the veridicality and reliability of process-based evidence, as well. More specifically, the reliability of process-based evidence is tested by cross-examining the expert who testifies about the process-based evidence in question. The problem is that this use of cross-examination is likely to be ineffective.

> Because the source of reliability arises from the process, the court needs information on that process, which may or may not come from a witness. We could learn about the operation of a video camera via an engineering expert from a leading manufacturer, but it may be far more convenient to learn about video cameras from a book. We could learn about a bank deposit from the teller who accepted it, but it may make more sense to look at the computer database that recorded the transaction. (p. 15)

9. Since the two forms of evidence are quite different, the methods to test their reliability and veridicality should be tailored accordingly.

PERSON-FOCUS AND ITS EVIDENTIARY CONSEQUENCES (SEC. III)

10. The witness-centric approach transpires most clearly in the hearsay rule, the rules about expert evidence, and most importantly, the Confrontation Clause:

> "Federal Rule of Evidence 801's hearsay rule strongly preferences having live witnesses, ones who can swear oaths, exhibit their nervousness on the stand, and be potentially torn apart on cross examination. The expert evidence rules, contained in FRE 702-704, contemplate expert witnesses (as opposed to a book or article) being the primary conduit for specialized information. And then there is the Sixth Amendment's Confrontation Clause . . . it emphatically requires that accusatory evidence in criminal cases be presented by a live witness." (p. 16)

11. Consider DNA evidence. It can be viewed as the result of a standardized process, DNA typing, which follows predefined laboratory processes and scientific standards. It can also be viewed as the result of the actions of a laboratory technician who applies the process. So is DNA evidence process- or person-based? Clearly, the former since the technician is there to execute the standardized process. The technician is a cog in the machine.

> "given the systematic, repetitive nature of her work, the analyst is highly unlikely to remember the specifics of a particular sample processed. And at least among more scientific forensic techniques, such as DNA testing, blood tests, and chemical identification, any serious laboratory will have tight controls. Excepting extraordinary cases, the technician will follow some preset laboratory procedure."(p. 19)

12. However, following the Confrontation Clause, the US Sup. Ct. mandated that laboratory results be inadmissible evidence unless a laboratory technician can testify in court about them and be subject to cross-examination. This is an example of fitting process-based evidence into the person-based paradigm.

13. Directing the scrutiny at the technician, not at the process itself is a mistake:

> "[requiring] the technician to appear in court rests precipitously on a logical fallacy, a fallacy that suggests that scrutiny of a lab custodian equates to scrutiny of the entire process. Process-based evidence is forced into a witness-centric system." (p. 19)

14. If the objective is to test the reliability and veridicality of process-evidence, cross-examining the laboratory technician seems the wrong target. Even if the technician has correctly applied the procedure and thus manages to survive cross-examination, this outcome tells us very little about the reliability of the process itself, which may still be unreliable.

15. Paradoxically, the US Sup. Ct. after *Dutton v. Evans* (1970) has admitted that the Confrontation Clause is not an instrument for testing the reliability and veridicality of the evidence, but rather, it is an end in itself:

> "the lengths to which the Supreme Court has gone to entrench its relatively new witness-centric view of Confrontation is startling, as the most recent Confrontation cases unequivocally state that the Confrontation Clause 'commands, not that evidence be reliable, but that reliability be assessed in a particular manner: by testing [a witness] in the crucible of cross- examination.'" (p. 20)

TOWARD PROCESS-BASED RULES (SEC. IV)

16. To overcome the witness-centric approach, two modifications to the rules of evidence are required: first, the scope of discovery should be expanded, and second, the hearsay rule and the Confrontation Clause should be amended.

17. The first modification is to broaden discovery and expand the reach of the compulsory process beyond just witnesses. The compulsory process may apply to documents or information about the evidence-generating process of interest:

> "Discovery of calibration results, performance reviews, standard operating procedures, company policies, design documents, and the like all enable an opponent to scrutinize the process that created the process-based evidence and challenge its reliability." (p. 32)

    But the compulsory process may have to go as far to compel the disclosure of the machine itself, data or samples used:

> "an opponent may want access to the machine or process itself. If a mass spectrometer provides critical evidence in a case, the opponent may wish to test that machine using known samples. If a laboratory used a standard procedure to test for cocaine, then the opponent may wish to send blinded (but known) test samples to challenge the lab's accuracy." (p. 32)

18. The second modification is to reconceptualize the hearsay rule and the Confrontation Clause.

> "The reconceptualized process-based hearsay rule would seek to achieve the same ends sought by the traditional, witness-based hearsay rule, namely the opportunity for opponents to test evidentiary assertions in court . . . Because the reliability of process-based evidence does not hinge on any one individual, it makes little sense to require some individual to take the stand; satisfaction of hearsay's normative demands requires a different process-based procedure." (p. 36)

    The upshot: hearsay process-based information should be admissible and subject to scrutiny.

19. The right to confronting one's accusers should be only slightly amended, by broadening the notion of 'accuser' to include not just individuals but also processes:

> "When it comes to process-based evidence, the functional accuser, the 'witness[] against [the defendant],' is the underlying process, not the various people who may have contributed to the process. And thus the right of confrontation involves the defendant's ability to challenge the process, not a talking head on the witness stand." (p. 36)

20. A lot of forensic evidence—hair comparison; fingerprints (?)—will still qualify as person-based and thus subject to the traditional Confrontation Clause and hearsay rule.

> "it surely cannot be the case that if a forensic hair analyst performs a microscopic hair comparison and writes a report "matching" hair found at the crime scene to the defendant, then that qualifies as process-based evidence and the analyst need not testify. . . . this example does not involve process-based evidence at all. The analyst made a subjective comparison of the crime scene evidence and the defendant's hair." (p. 36)

21. The final question: if reliability and veridicality of process-evidence should no longer be assessed through cross-examination in the traditional sense, how should they be assessed?

Testing Since the process generating the evidence is standardized, it will be repeatable under different scenarios. Therefore, it can be tested and its error rates should be available. The lower the error rates, the greater the reliability.

Transparency The process generating the evidence should be publicly observed and subject to scrutiny.

Objectivity The standards by which reliability is assessed should be objective.

22. For example, if a DNA match is the result of a computer program, the match should be accompanied by error rates and the defendant should be given the ability to access the code.

> "computer source code, such as the code used to determine whether a DNA match exists, has generally been exempted from scrutiny by litigants, even where that source code produces outputs that become evidence in the courtroom. Because it is the process, not any one person, that is generating the evidence, . . . the defense should have a limited right of access to examine the source code directly." (p. 33).

CONCLUSION (SEC. V)

23. Couple of open questions:

> "Will it [=the shift to process-based evidence] lead jurors to view evidence more atomistically, more in line with Bayesian models of proof, instead of today's holistic, story-based models?" (p. 49)

> "Will broader acceptance of process-based evidence lead the legal system to de-emphasize individualized justice in favor of systemwide efficiency and accuracy?" (p. 50)