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RECENT TRENDS

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THE ADMISSIBILITY OF SPECTROGRAPHIC VOICE IDENTIFICATION IN THE STATE COURTS

The admissibility of spectrographic voice identification evidence has been the subject of great controversy in the state courts[1] since its first appellate consideration in 1967.[2] Early courts rejected this evidence as failing the *Frye* test for admissibility[3] since the underlying scientific technique of spectrographic voice identification had not been generally accepted as reliable by the scientific community.[4] Later courts which were convinced of the reliability of the technique modified the *Frye* test so that the technique needed only to have been accepted by its proponents for identification testimony based thereon to be admitted.[5] In recent cases, however, several courts have returned to the traditional *Frye* test and rejected spectrographic voice identification evidence upon assessment of the views of the broader community of speech scientists.[6] Confirming this recent trend in the state courts, the Court of Appeals of Maryland concluded in *Reed v. State*[7] that the traditional *Frye* test best meets institutional concerns for consistent decisions and individual demands for fair prosecution. The court correctly determined that the validity of spectrographic voice identification has not yet been established to the satisfaction of speech scientists and, until the general acceptance is achieved, spectrographic voice identification evidence must be held inadmissible.[8]

In 1941, researchers at Bell Laboratories invented the spectrograph, an electromagnetic instrument that generates a spectrogram, a pattern on paper reflecting the frequency, time, and intensity of a recorded voice.[9] The spectrograph was developed as a tool for the study of speech, and it was not until 1960 that it was employed in attempts at speaker identification.[10] Lawrence G. Kersta claimed that his experiments at Bell Laboratories showed speaker identification from the comparison

[1] Spectrographic voice identification evidence also raises several constitutional issues but these have been resolved without controversy. *See, e.g.*, United States v. Dionisio, 410 U.S. 1 (1973) (compulsion of voice exemplar does not violate privilege against self-incrimination or constitute an unreasonable seizure).

[2] In 1967, spectrographic voice identification was considered by a military appellate court in United States v. Wright, 17 C.M.A. 183, 37 C.M.R. 447 (1967), and a state appellate court in State v. Cary, 49 N.J. 343, 230 A.2d 384 (1967).

[3] In Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923), the Court of Appeals for District of Columbia set forth the "general acceptance" test for the admissibility of scientific evidence:

> Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in the twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.

This test of admissibility was articulated in the consideration of the systolic blood pressure deception test but it has since been broadly applied to newly developed scientific techniques. *See* Reed v. State, 283 Md. 374, ___, 391 A.2d 364, 369 (1978).

[4] *See* notes 13–23 & accompanying text *infra*.

[5] *See* notes 31–34 & accompanying text *infra*.

[6] *See* notes 41–47 & accompanying text *infra*.
It is interesting to note that the trend in the federal courts is to reject the *Frye* test and admit spectrographic voice identification evidence. *See* United States v. Williams, 583 F.2d 1194 (2d Cir. 1978); United States v. Baller, 519 F.2d 463 (4th Cir.), *cert. denied*, 423 U.S. 1019 (1975); United States v. Franks, 511 F.2d 25 (6th Cir.), *cert. denied*, 422 U.S. 1042 (1975).

[7] 283 Md. 374, 391 A.2d 364 (1978).

[8] *See* notes 53–61 & accompanying text *infra*.

[9] A. MOENSSENS & F. INBAU, SCIENTIFIC EVIDENCE IN CRIMINAL CASES § 12.03, at 567 (2d ed. 1978).

[10] *Id.* Operating on the unproved assumption that each voice is unique, an examiner makes a subjective comparison of spectrograms. No two spectrographic patterns will be identical, but the examiner may declare a "match" if he finds sufficient points of similarity between two spectrograms.

of spectrograms to be ninety-nine per cent accurate.[11] Many members of the scientific community attacked Kersta's conclusions as based on questionable assumptions and deficient experimental methods.[12] This scientific controversy proved to be of critical importance in subsequent judicial consideration of the admissibility of identification evidence based on the comparison of spectrograms.

In *State v. Cary*,[13] the Supreme Court of New Jersey became the first appellate court to consider the admissibility of spectrographic voice identification evidence when it was called on to review a pretrial order to submit a voice exemplar for spectrographic analysis. The order was remanded for the trial court to determine whether spectrographic analysis was sufficiently accurate to produce admissible evidence and thus justify the intrusion of the test.[14] At a hearing before the trial court, only Kersta testified for the prosecution as to the accuracy of the identification,[15] while the defense produced two expert witnesses who testified that there was an insufficient scientific basis for the claim of reliability and that the technique was not generally accepted by scientists.[16] Applying "the time-honored rule of general scientific acceptance,"[17] the trial court concluded that spectrographic voice identification had not "attained such degree of scientific acceptance and reliability as to be acceptable as evidence."[18] This conclusion was affirmed by the state supreme court.[19]

In *People v. King*,[20] a California appellate court reviewed a trial court's admission of identification testimony by Kersta. The trial court had admitted Kersta's opinion, based on a comparison of spectrograms, that the voice of the perpetrator and the voice of the defendant were one and the same even though seven defense witnesses "testified that the method had not reached sufficient scientific certainty to be reliable as a positive means of identification in a court of law."[21] The appellate court found the identification technique to be without support in the scientific community[22] and, expressly applying the *Frye* test, rejected Kersta's identification testimony.[23]

Three years passed before the issue of admissibility of spectrographic voice identification evidence came before another appellate court. In the interim, Dr. Oscar Tosi of Michigan State University conducted a significant experiment to check Kersta's claims and to test various forensic models.[24] Tosi confirmed Kersta's claims of one per cent error in closed trials with contemporary spectrograms of clue words spoken in isolation.[25] Noting the Kersta model to be inapplicable to forensic situations, however, Tosi also tested the effect on accuracy of identification of several variables which arise in forensic situations.[26] Finding a range of error from .9% to 29.1%,[27] Tosi hypothesized

[11] Kersta, *Voiceprint Identification*, 196 NATURE 1253, 1256 (1962). The term "voiceprint" has recently been rejected in favor of the more neutral term "spectrogram." As noted in United States v. Baller, 519 F.2d 463 (4th Cir. 1975): "The use of the term 'voiceprint,' with its overtones of 'fingerprint,' gives voice spectrographic identification an aura of absolute certainty and accuracy which is neither justified by the facts nor claimed by experts in the field." *Id.* at 465 n.1.

[12] *See, e.g.*, Bolt, Cooper, David, Denes, Pickett & Stevens, *Speaker Identification by Speech Spectrograms: A Scientists' View of its Reliability for Legal Purposes*, 47 J. ACOUSTICAL SOC'Y OF AM. 597 (1970)[hereinafter cited as Bolt].

[13] 49 N.J. 343, 230 A.2d 384 (1967).

[14] *Id.* at 352, 230 A.2d at 388-89.

[15] Dr. Oscar Tosi, a speech scientist from Michigan State University, also testified for the state: "He was of the opinion that the technique has considerable potential as an aid to law enforcement, but before he would give a firm scientific opinion he felt that further experimentation and testing was required because of its infancy in the related scientific fields." State v. Cary, 99 N.J. Super. 323, 329-30, 239 A.2d 680, 683 (1968).

[16] *Id.* at 330, 239 A.2d at 683.

[17] *Id.* at 332, 239 A.2d at 684. Without citing the case by name, the court clearly applied the *Frye* test. *See* note 3 *supra*.

[18] 99 N.J. Super. at 333, 239 A.2d at 685.

[19] State v. Cary, 56 N.J. 16, 264 A.2d 209 (1970).

[20] 266 Cal. App. 2d 437, 72 Cal. Rptr. 478 (1968).

[21] *Id.* at 442, 72 Cal. Rptr. at 481. The tape of the voice of the perpetrator was obtained from a CBS documentary in which an unidentified man admitted committing arson during the Watts riots. The tape of the voice of the defendant was obtained by bugging the jail cell in which he was interrogated. The spectrograms developed from these tapes were compared by Kersta and provided the basis for his identification testimony.

[22] The court also noted that, as an engineer, Kersta was not a member of the community of speech scientists and was therefore unqualified to give scientific opinions in the area of speech identification. *Id.* at 457-59, 72 Cal. Rptr. at 491-92.

[23] *Id.* at 460-61, 72 Cal. Rptr. at 493.

[24] Tosi, Oyer, Lashbrook, Pedrey, Nicol & Nash, *Experiment on Voice Identification*, 51 J. ACOUSTICAL SOC'Y OF AM. 2030 (1972)[hereinafter cited as Tosi]. Kersta had conducted closed trials where there was a "known" spectrogram to match each "unknown" spectrogram in the comparison set. Each spectrogram depicted the utterance of the same ten words, with the words spoken in isolation rather than in context.

[25] *Id.* at 2041.

[26] The variables tested were (1) number of clue words; (2) number of utterances; (3) types of recording conditions; (4) context of the clue words; (5) number of "known" speakers; (6) intraspeaker variation; and (7) awareness of the examiners. *Id.* at 2033.

[27] A. MOENSSENS & F. INBAU, *supra* note 9, § 12.06, at 574.

that under actual forensic conditions the rate of error would be significantly lower.[28] The Tosi study was to become the most influential factor in changing the judicial attitude from scorn to endorsement of spectrographic voice identification.

In the five years after the release of the Tosi study in 1971, Tosi and his technical assistant, Ernest Nash of the Michigan State Police, testified throughout the country on the subject of spectrographic voice identification. Ordinarily, Tosi testified to the reliability of the technique and Nash testified to its application in the particular case. In seven of eight cases to reach state appellate courts during this period, the testimony of Tosi and Nash was accepted.[29] In only two of those seven cases did the defense present expert testimony refuting the reliability of the technique[30] and in no case did the defense present contrary expert testimony concerning the particular identification. Except in one case where the court called additional experts,[31] the courts made no note of the one-sided presentation of evidence. Indeed, the courts were so taken with the qualifications of Tosi and Nash that the standard of admissibility was tailored to accommodate their testimony.

In order to admit identification testimony based on the comparison of voice spectrograms, the state courts found it necessary to avoid the strictures of the traditional *Frye* test. In dicta, the first appellate court to consider spectrographic voice identification after the release of the Tosi study suggested that the opinion of a qualified expert should be admitted to assist the fact-finder, with the contrary testimony of others going only to weight and credibility.[32] This approach was subsequently adopted by those federal courts which admitted spectrographic voice identification evidence.[33] The state courts, however, fell short of rejecting the *Frye* test altogether. Rather, they modified the standard so that spectrographic voice identification could meet its requirements.[34] The Supreme Judicial Court of Massachusetts expressed this reformulation in *Commonwealth v. Lykus*:[35] "Limited in number though the experts may be, the requirement of the *Frye* rule of general acceptability is satisfied, in our opinion, if the principle is generally accepted by those who would be expected to be familiar with its use."[36] This definition of the relevant scientific community required the technique to be accepted only by those who specifically employed the spectrograph to identify speakers, *i.e.*, Tosi, Nash, and other proponents of the technique.

But this bootstrapping technique was not to continue indefinitely. In *People v. Kelly*,[37] the fact that Nash had been the sole witness to testify to the reliability of spectrographic examination as well as to the identity of the speakers prompted the Supreme Court of California to question whether a single witness could ever sufficiently represent or attest to the views of an entire community regarding the reliability of a new technique.[38] Furthermore, the court noted that Nash, like Kersta before him, had built his career on the reliability of the technique and "may be too closely identified with the endorsements of voiceprint analysis to assess fairly and impartially the nature and extent of any opposing scientific views."[39] The court maintained a modified *Frye* standard, but determined that its requirements had not been met by the testimony of a technician rather than a scientist.[40]

Nash had also been the sole witness in *Common-*

[28] Tosi, *supra* note 24, at 2041–42. No proof was offered to support the assertion that forensic conditions tend to decrease identification errors. Others contend that important unexamined factors may increase rather than decrease the error rate in forensic applications. Siegel, *Cross-Examination of a "Voiceprint" Expert: A Blueprint for Trial Lawyers*, 12 CRIM. L. BULL. 509, 521 (1976).

[29] *See* Commonwealth v. Lykus, 367 Mass. 191, 327 N.E.2d 671 (1975); Commonwealth v. Vitello, 367 Mass. 224, 327 N.E.2d 819 (1975); State *ex rel.* Trimble v. Hedman, 291 Minn. 442, 192 N.W.2d 432 (1971); State v. Andretta, 61 N.J. 544, 296 A.2d 644 (1972); Hodo v. Superior Court, 30 Cal. App. 3d 778, 106 Cal. Rptr. 547 (1973); Alea v. State, 265 So. 2d 96 (Fla. Dist. Ct. App. 1972); Worley v. State, 263 So. 2d 613 (Fla. Dist. Ct. App. 1972). *But see* People v. Law, 40 Cal. App. 3d 69, 114 Cal. Rptr. 708 (1974). It is significant to note that the spectrographic voice identification evidence was rejected in *Law* because mimicked voices were involved and that variable had not been considered in the Tosi study.

[30] *See* Commonwealth v. Lykus, 367 Mass. 191, 327 N.E.2d 671 (1975); State *ex rel.* Trimble v. Hedman, 291 Minn. 442, 192 N.W.2d 432 (1971).

[31] *See* State v. Andretta, 61 N.J. 544, 296 A.2d 644 (1972).

[32] State *ex rel.* Trimble v. Hedman, 291 Minn. at 456, 192 N.W.2d at 440. The recommendation of admissibility was dictum as this case involved a habeas corpus petition and required only a finding of probable cause to issue arrest and search warrants.

[33] *See* United States v. Baller, 519 F.2d 463 (4th Cir.), *cert. denied*, 423 U.S. 1019 (1975); United States v. Franks, 511 F.2d 25 (6th Cir. 1975). *See also* MCCORMICK'S HANDBOOK OF THE LAW OF EVIDENCE § 203 (2d ed. 1972).

[34] *See, e.g.*, Commonwealth v. Lykus, 367 Mass. at 203, 327 N.E.2d at 677; Hodo v. Superior Court, 30 Cal. App. 3d at 788, 106 Cal. Rptr. at 553.

[35] 367 Mass. 191, 327 N.E.2d 671 (1975).

[36] *Id.* at 203, 327 N.E.2d at 677.

[37] 17 Cal. 3d 24, 549 P.2d 1240, 130 Cal. Rptr. 144 (1976).

[38] *Id.* at 37, 549 P.2d at 1248, 130 Cal. Rptr. at 152.

[39] *Id.* at 38, 549 P.2d at 1249, 130 Cal. Rptr. at 153.

[40] *Id.* at 40, 549 P.2d at 1250, 130 Cal. Rptr. at 154.

wealth v. Topa,[41] where the Supreme Court of Pennsylvania clearly reasserted the propriety of strict application of the *Frye* test when determining the admissibility of spectrographic voice identification evidence at criminal trials. The court emphasized that the "[a]dmissibility of the evidence depends upon the *general* acceptance of its validity by those scientists active in the field to which the evidence belongs."[42] As the testimony of one witness did not satisfy this standard, the court reviewed cases and commentaries to conclude that "the reliability of the sound spectrograph and voiceprint identification has not, as yet, been generally accepted by the scientific community concerned with acoustical science."[43]

Both Tosi and Nash had testified for the prosecution in *People v. Tobey*[44] where the Supreme Court of Michigan reaffirmed its adherence to the *Frye* standard. Despite the testimony of both the scientist and the technician, the admission of spectrographic voice identification evidence at trial was held to be error because the requisite scientific recognition had not been established by "disinterested and impartial experts."[45]

With the state supreme court decisions in *Kelly*, *Topa*, and *Tobey*, it was clear that the *Frye* standard was to be strictly applied when interested witnesses present a one-sided view of scientific acceptance. The question remained, however, whether the more exacting standard was appropriate when the opposing views were well represented at trial. In *Reed v. State*,[46] the Court of Appeals of Maryland answered this question in the affirmative.[47]

In *Reed*, the trial court had employed a modified *Frye* test[48] and, after having heard the testimony of opponents and proponents of the technique,[49] admitted identification testimony based on the comparison of spectrograms. The intermediate appellate court found no error in the admission, being of the opinion that spectrographic voice identification had gained enough general acceptance to satisfy the traditional *Frye* test.[50] Furthermore, the appellate court, echoing the theory of McCormick and the federal courts,[51] expressed the view that "it is better to permit the introduction of relevant scientific evidence and allow the fact finder to assess its weight after cross examination and refutation."[52] The Court of Appeals of Maryland rejected the views of the lower courts, holding that the traditional *Frye* test was to be strictly applied and that spectrographic voice identification did not yet meet the test.[53]

The Court of Appeals of Maryland adopted the traditional "general acceptance" test as a legal standard to govern the trial judge's threshhold determination as to the admissibility of testimony based on a new scientific technique. The court was not content to leave the question of the reliability of the underlying technique to the discretion of each trial judge. As the answer to the question of the reliability of the underlying technique would not vary according to the circumstances of each case, the court considered it inappropriate to view this question as a matter within the discretion of each trial judge.[54] To foster uniformity and consistency of decisionmaking, the court saw the need for an articulated legal standard by which the reliability of a scientific technique could be established.[55] The traditional *Frye* standard of general acceptance in the relevant scientific community[56] was adopted to fill this need.

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[41] 471 Pa. 223, 369 A.2d 1277 (1977).

[42] *Id.* at 231, 369 A.2d at 1281.

[43] *Id.* at 232, 369 A.2d at 1282. In particular the court noted the disapproval expressed by speech scientists in Bolt, note 12, *supra* and in Bolt, Cooper, David, Denes, Pickett & Stevens, *Speaker Identification by Speech Spectrograms: Some Further Observations*, 54 J. ACOUSTICAL SOC'Y OF AM. 531 (1973)[hereinafter cited as Bolt].

[44] 401 Mich. 141, 257 N.W.2d 537 (1977).

[45] *Id.* at 145-46, 257 N.W.2d at 539.

[46] 391 A.2d 364 (Md. 1978).

[47] Four of the seven judges found the application of the *Frye* test appropriate in this case, but three judges joined in a vigorous and lengthy dissent.

[48] The trial court construed the *Frye* test to require

> general acceptance ... within the group actually engaged in the use of this technique and in the experimentation with this technique.... [W]e are restricting the relevant field of experts to those who are knowledgeable, direcly knowledgeable through work, utilization of the techniques, experimentation and so forth, that we are not taking the broad general scientific community of speech and hearing science. In that broad community there probably is not acceptance.

Reed v. State, 283 Md. at __, 391 A.2d at 377 (quoting the trial court in *Reed*).

[49] Dr. Oscar Tosi, Dr. Peter Jansen, Dr. John McClung, and Sgt. Lonnie Smrkovski testified for the prosecution. Dr. Donald Baker and Dr. Henry Hollien testified for the defendant. Reed v. State, 35 Md. App. 472, 372 A.2d 243 (1977).

[50] Rather than relying on the testimony or writings of scientists, the court looked to cases in which spectrographic analysis evidence had been sanctioned in order to conclude that the *Frye* test had been met. *Id.* at 483, 372 A.2d at 251.

[51] *See* notes 32 & 33 & accompanying text *supra*.

[52] 35 Md. App. at 483, 372 A.2d at 251.

[53] 283 Md. at __, 391 A.2d at 377.

[54] *Id.* at __, 391 A.2d at 367.

[55] *Id.* at __, 391 A.2d at 368.

[56] *See* note 68 & accompanying text *infra*.

Aware of criticism of the *Frye* test as inordinately restrictive of relevant scientific evidence, the *Reed* court compared the test to McCormick's proposal that disagreement in the scientific community regarding the reliability of a scientific technique should go to the weight rather than the admissibility of opinion testimony based on the technique.[57] The court rejected this view as failing to recognize that disputes as to scientific validity should not be resolved by laymen on a case by case basis.

> When the positions of the contending factions are fixed in the scientific community, it is evident that controversies will be resolved only by further scientific analysis, studies and experiments. Juries and judges, however, cannot experiment. If a judge or jurors have no foundation, either in their experience or in the accepted principles of scientists, on which they might base an informed judgment, they will be left to follow their fancy.[58]

Preferring all defendants to face the same burdens, the court considered the inconsistency which would result from leaving the determination of scientific validity to the fact-finder to be intolerable.[59] Application of the *Frye* test tends to equalize the burden since "the results of controversial techniques will not be admitted as long as the scientific community remains significantly divided."[60] In addition to meeting institutional concerns with consistent treatment among defendants, the *Frye* test meets the demands of the individual defendant that the validity of a scientific technique should be determined by the most qualified assessors before it is used against him in a criminal trial.[61]

Having established the applicability of the *Frye* standard, the *Reed* court reviewed scientific publications, cases and commentaries in addition to reviewing the expert testimony in the record to determine whether spectrographic voice identification had achieved general acceptance in the scientific community since the Tosi study. The court concluded that the kind and degree of divergence of opinion concerning the reliability of spectrographic voice identification indicated that it had not been generally accepted in the scientific community.[62]

The decision of the Court of Appeals of Maryland in *Reed* confirmed the recent trend in the state courts to reject spectrographic voice identification evidence. Rather than indicating a new direction in the treatment of this scientific evidence, however, the decision reflects a thoughtful reassessment of the views of the post-Tosi scientific community[63] and illustrates a return to the cautious standard of admissibility employed in earlier cases.[64] It is proper to employ the more exacting general acceptance test in criminal cases where the evidence based on the questionable scientific technique is offered to establish the ultimate issue of the case: the identity of the perpetrator.[65] The *Frye* standard has been criticized as unduly restricting the courtroom use of new scientific techniques, but this argument "assumes that the technique will prove scientifically valid and suggests that postponement of admission of voiceprint evidence may be harmful to the judicial process."[66] Clearly more harm will come to the judicial process, not to mention the individual defendant, if the technique proves unreliable after a hurried admission by the courts. In fairness to the defendant and in light of the inability of judge or jury to reach an informed decision, the determination of the validity and reliability of spectrographic voice identification is properly left to the relevant scientific community.[67] And the relevant scientific community for purposes of determining the validity of spectrographic voice identification includes "those whose scientific background and training are sufficient to allow them to comprehend and understand the process and form

[57] This view is held by several federal courts. *See* notes 32 & 33 & accompanying text *supra*. Since the Federal Rules of Evidence adopted the McCormick position and repealed *Frye*, 22 C. WRIGHT & K. GRAHAM, FEDERAL PRACTICE AND PROCEDURE 90 (1978), some state courts which have adopted the federal rules have also taken this view. *See, e.g.*, State v. Williams, 388 A.2d 500 (Me. 1978).

[58] 283 Md. at __, 391 A.2d at 371 (footnote omitted).

[59] *Id.*

[60] *Id.*

[61] *Id.* at __, 391 A.2d at 369–70.

[62] *Id.* at __, 391 A.2d at 377.

[63] It is interesting to note such a reassessment in A. MOENSSENS & F. INBAU, *supra* note 9, § 12.06, at 574 n.9:

> [I]n the first edition of this book, written in 1972, it was stated at p. 517, "It appears that at the current stage of development most of the earlier critics of the method are beginning to extend scientific acceptance to spectrographic voice identification." By 1978, the above statement definitely did not represent the attitude in the professional fields of speech, audiology, phonetics, and acoustics—the fields which study the voice by means of sound spectrographs.

[64] *See* notes 13–23 & accompanying text *supra*.

[65] A. MOENSSENS & F. INBAU, *supra* note 9, § 1.03, at 7–8.

[66] Comment, *Voiceprints—The Admissibility Question: What Evidentiary Standard Should Apply?*, 19 ST. LOUIS U.L.J. 509, 528 (1975).

[67] *See* note 61 & accompanying text *supra*.

a judgment about it,"[68] not merely those who are practitioners and proponents of the technique.

Looking to the broader community of speech scientists, the *Reed* court correctly assessed the lack of general acceptance of spectrographic examination as a reliable technique for speaker identification. Even after the Tosi study had increased understanding of spectrographic voice identification, most scientists found the technique lacking an adequate scientific basis for estimating reliability in actual forensic situations.[69]

The Committee on Evaluation of Sound Spectrograms, appointed by the National Research Council at the request of the Federal Bureau of Investigaton, recently urged that, before spectrographic voice identification can be deemed scientifically reliable, more research must be conducted to support the assumptions on which the technique is based, to determine the effect of frequently encountered variables on the accuracy of identification, and to quantify decisional criteria.[70] Although the committee refused to decide whether the technique is acceptable for courtroom use, believing that inquiry to be beyond the realm of science,[71] it warned that "the technical uncertainties concerning the present practice of voice identification are so great as to require that forensic applications be approached with great caution."[72] The recent trend in the state courts to apply the traditional *Frye* test to spectrographic voice identification evidence shows such caution. Perhaps future research will establish the validity of spectrographic voice identification to the satisfaction of speech scientists. But until that time, when the requirements of the *Frye* test would be met, spectrographic voice identification evidence should not be admitted at trial.[73]

[68] Reed v. State, 283 Md. at __, 391 A.2d at 368. The relevant scientific community for these purposes includes those knowledgeable in the fields of speech, audiology, phonetics, and acoustics.

[69] *See* Bolt, note 43 *supra*. *See also* People v. Collins, 94 Misc. 2d 704, 711, 405 N.Y.S.2d 365, 370 (App. Div. 1978), regarding a poll commissioned by the Technical Committee on Speech of the Acoustical Society of America.

[70] *See* COMMITTEE ON EVALUATION OF SOUND SPECTROGRAMS, NATIONAL RESEARCH COUNCIL, ON THE THEORY AND PRACTICE OF VOICE IDENTIFICATION (1979).

[71] *Id.* at 44. Although the Committee did not recommend any particular standard of admissibility, it did cast doubt on the McCormick approach by noting that, "given the present uncertainty about the accuracy of voicegram identification . . . it is doubtful that adequate standard instructions could be drafted." *Id.* at 47. Furthermore, the Committee noted that, even if appropriate instructions could be developed, "a jury may be unable or unwilling to understand and apply a complicated cautionary instruction." *Id.* at 47–48.

[72] *Id.* at 2.

[73] The courts which have rejected spectrographic voice identification evidence have emphasized that their holdings are subject to reconsideration if the technique should gain scientific acceptance. *See, e.g.*, People v. Kelly, 17 Cal. 3d at 41, 549 P. 2d at 1251, 130 Cal. Rptr. at 155; Reed v. State, 283 Md. at __, 391 A.2d at 377.

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CRIMINAL PROSECUTIONS FOR INCOME TAX EVASION

Through the years, relatively little case law has developed at the appellate levels establishing fine lines of distinction in the standards to be imposed in criminal prosecutions for income tax evasion. In *United States v. Garber*,[1] the United States Court of Appeals for the Fifth Circuit added such a decision to this area of the criminal law, imposing criminal sanctions upon a taxpayer for her refusal to pay tax on income derived from the sale of her blood. However, by concluding that the challenged conduct warranted criminal sanctions, the Fifth Circuit failed to apply the standards which have been developed in this area of the law.

I.

In *Sansone v. United States*,[2] the Supreme Court held that, in a prosecution for criminal tax evasion pursuant to section 7201 of the Internal Revenue Code,[3] the government must prove "willfulness; the existence of a tax deficiency . . . and an affirmative act constituting an evasion or attempted evasion of the tax."[4] The Court held that the requisite element of "willfulness" was established when the prosecution proved the taxpayer knew that the challenged items were taxable in the years under investigation.[5]

The issue before the United States Court of Appeals for the Fourth Circuit in *United States v. Critzer*[6] was whether the government could criminally prosecute a person for willful tax evasion when two governmental agencies disagreed on the taxability of the challenged proceeds. The court determined that the willfulness standard of section 7201 cannot be satisfied when the law governing the taxability of the challenged items is "vague or highly debatable."[7]

Amy Critzer, an Eastern Cherokee Indian, failed to report income "derived from the operation of a motel and restaurant, and from the lease of two gift shops and some apartments."[8] Premised upon her intentional failure to report this income, the government sought to prosecute Critzer for criminal tax evasion under section 7201. All of Critzer's businesses were located on the lands of the Eastern Cherokee Reservation in North Carolina, which were held in trust by the United States for the Eastern Cherokee Band pursuant to an act of Congress.[9] The act provided for "possessory holdings"[10] in the Indians until conveyances of these lands to individual Indians could be effected. No conveyances had been made at the time of the Fourth Circuit's decision in *Critzer*. The Department of the Interior had determined that income derived from businesses conducted on these lands during "possessory holdings" was exempt from income taxation,[11] thereby creating a conflict between the Department of Interior and the other governmental agency prosecuting Critzer for the alleged violation of section 7201.[12]

Against this background of legal uncertainty concerning the taxability of the proceeds received by Critzer, the Fourth Circuit concluded: "As a matter of law, the requisite intent to evade and defeat income taxes is missing. The obligation to pay is so problematical that defendant's actual intent is irrelevant."[13] The court based its decision

[1] 589 F.2d 843 (5th Cir. 1979).

[2] 380 U.S. 343 (1965).

[3] I.R.C. § 7201 provides:

> Any person who willfully attempts in any manner to evade or defeat any tax imposed by this title or the payment thereof shall, in addition to other penalties provided by law, be guilty of a felony and, upon conviction thereof, shall be fined not more than $10,000, or imprisoned not more than 5 years, or both, together with the costs of prosecution.

[4] 380 U.S. at 351 (citations omitted).

[5] *Id.* at 352. The "affirmative act constituting the evasion of tax" is established where the taxpayer has filed a false tax return. *Id.* at 351–52. It should be noted that in a prosecution for criminal tax evasion, the government must prove that a *substantial* amount of tax liability has been evaded. It does not have to prove the exact amount of the deficiency. *See* United States v. Miller, 545 F.2d 1204 (9th Cir. 1976), *cert. denied*, 430 U.S. 930 (1977); United States v. Allen, 522 F.2d 1229 (6th Cir. 1975), *cert. denied*, 425 U.S. 985 (1976); United States v. Beasley, 519 F.2d 233 (5th Cir. 1975); Leeby v. United States, 192 F.2d 331 (8th Cir. 1951).

[6] 498 F.2d 1160 (4th Cir. 1974).

[7] *Id.* at 1162.

[8] *Id.* at 1160.

[9] An Act Providing for the final disposition of the affairs of the Eastern Band of Cherokee Indians of North Carolina, June 4, 1924, ch. 253, 43 Stat. 376.

[10] 498 F.2d at 1161.

[11] *Id.* at 1162. The Department of the Interior did not elaborate on the circumstances of this decision, it merely stated that "for legal and policy reasons" it believed that income from possessory holdings was tax exempt.

[12] The *Critzer* opinion does not state which governmental agency was prosecuting Critzer for the alleged violation of § 7201.

[13] 498 F.2d at 1162.

on the reasoning employed by the Supreme Court in cases concerning the taxability of embezzled funds and the embezzler's amenability to criminal prosecution under section 7201.

In the 1946 decision of *Commissioner v. Wilcox*,[14] the Supreme Court held that embezzled funds were not taxable income to the embezzler since he had no claim of right to the embezzled funds and was under a continuing obligation to return them.[15] Six years later, however, the decision in *Rutkin v. United States*[16] gave rise to considerable doubts as to the efficacy of *Wilcox*. In *Rutkin*, the proceeds received by an extortionist were deemed taxable under a theory that "readily realizable economic value" was derived from them.[17] In the wake of the *Rutkin* decision, the lower courts made close distinctions to avoid following *Wilcox*, confining the latter decision to its facts.[18] In 1961, *Wilcox* was overruled by *James v. United States*.[19] The *James* Court, adopting the logic of *Rutkin*, established the broad principle that gains from illegal activities constitute taxable income to the recipient.[20] However, cognizant of the confusion in the law governing the taxability of embezzlement proceeds, the Court reversed James' conviction under section 7201, with the plurality concluding:

> We believe that the element of willfulness could not be proven in a criminal prosecution for failing to include embezzled funds in gross income in the year of misappropriation so long as the statute [I.R.C. § 61(a)] contained the gloss placed upon it by *Wilcox* at the time the alleged crime was committed.[21]

Adopting these reasons, the Fourth Circuit in *Critzer* concluded that the element of willfulness required for a felony conviction under section 7201 was, as a matter of law, impossible to establish when the law governing the taxability of the underlying proceeds was unsettled. Furthermore, the court held that, given these circumstances, "the appropriate vehicle to decide . . . pioneering interpretation[s] of tax liability is the *civil* procedure of administrative assessment . . . *not* . . . prosecution, with attendant potential loss of freedom."[22]

II.

The United States Court of Appeals for the Fifth Circuit, in its recent decision in *United States v. Garber*,[23] has implicitly indicated that it will not follow the Fourth Circuit's decision to exempt from criminal prosecution those cases involving "vague or highly debatable"[24] laws governing the taxation of income. This decision brings the Fifth and Fourth Circuits into conflict and possibly violates the *Sansone* and *James* standards for a section 7201 felony tax evasion conviction.

A brief review of the facts of the *Garber* case is required in order to appreciate the tax issues therein involved. Dorothy Garber's blood plasma had substantial commercial value due to the presence of a rare antibody, an Rh factor. Mrs. Garber contracted with Biomedical Industries, Inc., in 1970 for the commercial exploitation of her blood. Garber was to provide the blood plasma and Biomedical was to convert this plasma into a marketable serum. Under the terms of the original contract, Biomedical agreed to pay Garber $700 per "bleed"; in 1972, Biomedical agreed to pay up to $1,600 per "bleed." In addition to these payments, Biomedical paid Garber a salary of $200 per week, provided her with a Lincoln Continental automobile, paid her a sum in lieu of life insurance, gave her 1,000 shares of Biomedical's common stock for signing the 1970 agreement, and gave her a $25,000 bonus for signing the 1972 agreement.

Garber failed to pay income tax on all funds—except the $200 weekly salary—received from Biomedical for the years 1970, 1971, and 1972. She filed a joint return for those years reporting taxable income of $7,593.34 for 1970, $13,603.60 for 1971, and $9,512.80 for 1972. The government alleged that her actual taxable income for those years was $91,426.06 in 1970, $84,821.55 in 1971, and $96,477.50 in 1972. After a jury trial, Garber was convicted of income tax evasion in violation of section 7201 and was sentenced to imprisonment for eighteen months, "with 60 days to be served in

[14] 327 U.S. 404 (1946).

[15] *Id.* at 408.

[16] 343 U.S. 130 (1952).

[17] *Id.* at 137. The majority in *Rutkin* distinguished *Wilcox* on its facts, stating that an extortionist derived his income with the consent of his victim whereas an embezzler's victim does not give such consent. *Id.* at 138.

[18] *See, e.g.*, Macias v. Commissioner, 255 F.2d 23 (7th Cir. 1958); United States v. Wyss, 239 F.2d 658 (7th Cir. 1957); Briggs v. United States, 214 F.2d 699 (4th Cir.), *cert. denied*, 348 U.S. 864 (1954); Marienfeld v. United States, 214 F.2d 632 (8th Cir.), *cert. denied*, 348 U.S. 865 (1954); Kann v. Commissioner, 210 F.2d 247 (3d Cir. 1953).

[19] 366 U.S. 213 (1961).

[20] *Id.* at 219.

[21] *Id.* at 221-22.

[22] 498 F.2d at 1164 (emphasis in original).

[23] 589 F.2d 843 (5th Cir. 1979).

[24] 498 F.2d at 1162. *See* text accompanying note 7 *supra*.

a 'jail-type institution' and the remainder of the sentence to be suspended."[25]

Relying on the Fourth Circuit's decision in *Critzer*, Garber argued on appeal that, as a matter of law, she could not have had the requisite "willfulness" for a violation of section 7201 since it was uncertain whether income from the sale of her blood was taxable because two governmental agencies, the Internal Revenue Service and the Food and Drug Administration,[26] disagreed as to whether the sale of blood involved the disposition of a product or the rendering of personal services.[27] The Fifth Circuit, however, attempted to distinguish *Critzer* from the facts of *Garber*, stating that neither of the governmental agencies involved in the latter had "advised her or otherwise led her to believe"[28] that the income from the sale of her blood was not taxable and that those agencies had not disagreed on the taxability of her income. Therefore, the *Garber* court concluded that the appellant's reliance on *Critzer* was misplaced, "for regardless of whether blood is a personal service or a product, the income derived from its sale would constitute taxable income under section 61(a) of the Code."[29]

The grounds used by the *Garber* court to distinguish that case from *Critzer* are facile. Garber argued that since the issue of whether the sale of blood constituted the sale of a product or the sale of a service was "highly debatable,"[30] she could not, as a matter of law, have had the requisite intent to violate section 7201. It is necessary to address this argument on two levels to comprehend how, as a matter of tax law, the differing characterization of the sale of blood by two governmental agencies could have affected the taxability of Garber's proceeds. It should have been determined, first, whether a genuine uncertainty existed regarding the characterization of the sale of blood and, second, whether the classification of blood as a product would have exempted Garber's proceeds from taxable income.

The discrepancy between governmental agencies' rulings concerning the classification of blood resulted from the Food and Drug Administration's regulations which treat blood as a product "even while it remains in the donor,"[31] and an Internal Revenue Service ruling characterizing the donation of blood as a service for purposes of disallowing certain charitable contributions.[32] While it may seem that with its 1953 revenue ruling the IRS had concluded that, for tax purposes, the sale of blood involved personal services, this conclusion is more apparent than real. The IRS based its ruling on the characterization of the sale of blood upon two 1926 decisions rendered by the Comptroller General of the United States at the request of the Secretary of the Navy and the Secretary of War.[33] The IRS was not bound to adhere to the characterization promulgated by the Comptroller General, it merely chose to follow his decisions for purposes of the 1953 revenue ruling. Therefore, with the interposition of the FDA's classification of blood as a product,[34] the tax characterization of the sale of blood became genuinely "debatable."

[25] 589 F.2d at 844 n.2. Garber was also "placed on probation for a period of 21 months beginning immediately upon her discharge from incarceration," and ordered to pay a fine of $5,000 during the first year of probation.

[26] The Internal Revenue Service had determined that the donation of blood involved a personal service, while the Food and Drug Administration had ruled that the sale of blood constituted the sale of a product. *See* text accompanying notes 31 & 32 *infra*. *See also* text accompanying notes 39 & 40 *infra* for an explanation of the tax consequences of these differing rulings.

[27] *See* Sansone v. United States, 380 U.S. 343. Garber made two additional arguments on appeal, both of which were rejected by the Fifth Circuit. First, Garber argued that the funds received from Biomedical should have been excluded from her taxable income under I.R.C. § 104(a)(2) as a recovery for personal damages. The court concluded that, inasmuch as the payments to Garber could not have been intended as a settlement of any tort liability, they were outside of § 104(a)(2)'s exclusion from gross income. Garber also argued that the trial judge erred in excluding her evidence on the law. The Fifth Circuit affirmed the lower court's exclusion of this evidence. 589 F.2d 843 (5th Cir. 1979).

[28] 589 F.2d at 848.

[29] *Id.* I.R.C. § 61(a) in relevant part provides:

(a) GENERAL DEFINITION—Except as otherwise provided in this subtitle, gross income means all income from whatever source derived.

[30] 498 F.2d at 1162. *See* text accompanying notes 6-22 *supra*.

[31] 589 F.2d at 848 n.7. *See, e.g.*, 40 Fed. Reg. 53,532 (1975); 21 C.F.R. §§606, 640 (1977).

[32] Rev. Rul. 162, 1953-2 C.B. 127-28. In this ruling the IRS disallowed a charitable deduction in the amount of the fair market value of the blood donated because the donation of blood had been characterized as a personal service by another governmental agency.

[33] 5 Comp. Gen. 658, 888 (1926). The Comptroller General ruled that the sale of blood by enlisted personnel to military hospitals involved personal services; additional compensation to the servicemen for this "service" was denied.

[34] Although Garber referred the court to FDA regulations promulgated subsequent to her acts allegedly in violation of § 7201, blood had been classified, pursuant to a federal statute, as a "biological product" prior to the commission of her alleged offenses. This classification

In *Critzer*, the Department of the Interior had furnished the appellant with its opinion, stating that it considered the income at issue to have been exempted from taxes.[35] However, the fact that the Department of the Interior had supplied this advice directly to Critzer was not crucial to the decision in that case. The *Critzer* court based its decision on the Supreme Court's ruling in *James*,[36] in which the plurality ruled that actual reliance on, or advice received directly from, an authority stating that proceeds were not taxable was not required, as a matter of law, to negate the specific intent required for tax evasion.[37] Therefore, whether a governmental agency had advised or otherwise led Garber to believe that the proceeds from the sale of her blood were not taxable was not relevant for the purposes of distinguishing the facts of *Garber* from *Critzer*.

The *Garber* court also sought to distinguish *Critzer* because neither of the agencies involved in *Garber* had *expressly* stated that income derived from the sale of blood was wholly excluded from taxable income. The court therefore concluded that neither agency had objected to the taxation of that income under the broad aegis of section 61(a). However, under the doctrine espoused by the *Critzer* court, the fact that a governmental agency's statements have not expressly focused on taxation does not mean that the implicit tax consequences of those statements can be ignored. For example, while it is true that both the sale of a product and the sale of a service can produce section 61 (a) taxable income, the vendor of a product may recover his basis[38] in the product sold in the computation of his taxable gain,[39] whereas the vendor of personal services is permitted to reduce his service income only by the amount of his expenses incurred in the performance of those services.[40] These basic tax principles demonstrate that, where the vendor's basis in the product sold equals or exceeds his selling price, there is no taxable gain, *i.e.*, no taxable income, to the vendor.

Given the uncertain state of the law governing the classification of the sale of blood, the Fifth Circuit's inquiry into the tax issue presented for review should have reached the second level. The court should have addressed whether Garber's proceeds would have been taxable if the FDA's classification of blood as a product was adopted. This question focuses primarily on the basis Garber had in the blood which she sold to Biomedical. If she could have proved that her basis equaled or exceeded the selling price of her blood, then no taxable gain would have resulted from the sale. Such proof not only would have eviscerated the Fifth Circuit's distinguishing of *Critzer* on the grounds that "there is no disagreement between governmental agencies concerning the taxability of Garber's income,"[41] but also would have demonstrated a fatal flaw in the government's case for tax evasion under the *Sansone* standards, namely the absence of a tax deficiency.[42]

The problems involved with determining Garber's basis in the blood sold, including problems of allocating and separating personal expenditures from busineess expenses,[43] necessarily lead to the conclusion that such a determination would be "speculative."[44] When the basis of the asset is speculative, the recognition of gain depends upon whether there is a final disposition of the asset.[45]

This final disposition test was first proposed by the Fourth Circuit in *Strother v. Commissioner*.[46] In *Strother*, the taxpayer recovered damages from a trespasser who had taken coal from the taxpayer's mine and then destroyed his entries into the mine so that the amount of coal taken could not be

took place in the context of the federal laws promulgated on public health and welfare. *See* 42 U.S.C. § 262(a) (1976).

[35] 498 F.2d at 1162.

[36] *See* text accompanying notes 14-21 *supra*.

[37] 366 U.S. at 321-22. A dissenting opinion in *James* stated that a new trial should have been ordered in which the trier of fact would consider any actual reliance on *Wilcox* as a matter bearing on willfulness. *Id.* at 244 (Harlan, J., concurring in part and dissenting in part).

[38] I.R.C. § 1012 provides, generally that the basis of property is its cost to the taxpayer. *See* I.R.C. § 1016 for allowable adjustments to the basis of property.

[39] *See* I.R.C. § 1001 (a).

[40] *See* I.R.C. § 162.

[41] 589 F.2d at 848.

[42] 380 U.S. at 351.

[43] For a general discussion of the tax problems that may arise from the sale of blood and other human organs, see Note, *Tax Consequences of Transfers of Bodily Parts*, 73 COLUM. L. REV. 842 (1973).

[44] Raytheon Prod. Corp. v. Commissioner, 144 F.2d 110, 114 (1st Cir.), *cert. denied*, 323 U.S. 779 (1944). In *Raytheon*, the First Circuit considered the tax consequences of damages recovered in a settlement of a private antitrust action for the total destruction of Raytheon's business goodwill. Raytheon's basis in the goodwill could not be determined. The court held that the entire amount received by Raytheon for the goodwill constituted taxable gain from the disposition of a capital asset. Reasoning that since the *entire* goodwill of the business had been lost, the court ruled that "to require the taxpayer to prove the cost of the good will is no more impractical than if the business had been sold." *Id.*

[45] Strother v. Commissioner, 55 F.2d 626 (4th Cir.), *aff'd on other grounds*, 287 U.S. 314 (1932). *Accord*, Raytheon Prod. Corp. v. Commissioner, 144 F.2d 110 (1st Cir.), *cert. denied*, 323 U.S. 779 (1944).

[46] 55 F.2d at 626.

determined. Since it was impossible at that point to determine whether the recovery of damages exceeded Strother's basis in the expropriated coal, the court held the gain on the disposition entirely conjectural and not taxable. "Any loss or gain in the transaction could be determined under the circumstances only upon a final dispostion of the [mine]."[47]

Garber's sale of blood may be analogized to the facts of *Strother*. Garber had not made a final disposition of the property, her body, and was receiving proceeds from the sale of her blood at a point when a determination of gain could have been based only upon pure conjecture.[48] Therefore, if the Fifth Circuit had adopted the FDA's classification of blood as a product, under the logic employed in *Strother*, Garber's income from the sale of her blood would not have been taxable in the years investigated by the IRS.

Although Garber may not have been able to avoid the civil liability for income tax on the sale of her blood in the years challenged, it should be clear that she should not have been subjected to criminal liability since there existed confusion in the law governing the taxability of that income.

In refusing to look at the contradictory tax implications implicitly contained in the statements of the two governmental agencies, the Fifth Circuit has allowed criminal prosecutions to become a part of the process by which basic tax principles are established. This divergence from the traditional method of establishing these principles in civil litigation may, unfortunately, set a new trend in this area of the law. It is hoped that the other circuits will not follow this trend and that either the Fifth Circuit or the Supreme Court will overrule *United States v. Garber*.

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[47] *Id.* at 632.

[48] An argument may be made that *Strother* permits the deferral of the recognition of gain only when the asset has a fixed, determinable, original cost basis that can be compared with proceeds on the final disposition of the asset in the computation of gain. This would mean that where part of the asset is sold during the life of the asset, and the allocation of basis to that partial disposition is impossible, the gain recognized from that partial disposition is deferred until the final disposition of the asset.

However, the first circuit in *Raytheon* felt compelled to analogize the disposition of goodwill in that case to a final disposition, employing a different reading of *Strother*. The court did not adopt the aforementioned argument even though the goodwill involved had no determinable cost basis and constituted a disposition of an asset by an ongoing entity. Raytheon Prod. Corp. v. Commissioner, 144 F.2d at 114.