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Voice spectrographic analysis is a scientific technique that assists in the identification of an unknown voice on a tape recording. In determining the admissibility of evidence regarding voice spectrographic analysis, courts have applied a variety of tests of admissibility. The majority of courts that have excluded evidence regarding voice spectrographic analysis have applied the test of admissibility for scientific evidence set forth in Frve v. U.S., 293 F. 1013.34 A.L.R. 145 (App. D.C. 1923) (the "Frye test"). In State v. Coon, 974 P.2d 386, 95 A.L.R.5th 729 (Alaska 1999), reh'g denied, (July 30, 1999), the court held that the Frye test was inconsistent with the Alaska Rules of Evidence and, instead, applied the standard for admissibility set forth by the United States Supreme Court in Daubert v. Merrell Dow Pharmaceuticals Inc. 509 U.S. 579 113 S. Ct. 2786 125 L. Ed. 2d 469 27 U.S.P. 2d (BNA) 1200 Prod. Liab. Re. (CCH) 13494 37 Fed. R. Evid. Servo 1 23 Envtl. L. Re. 20979 1993 (the "Daubert standard"). Based on the Daubert standard, the court held that the prosecution's evidence regarding voice spectrographic analysis, that identified the unknown voice on three terroristic phone calls as that of the defendant, was admissible. This annotation collects and discusses the state and federal cases in which the courts have considered the admissibility of evidence regarding voice spectrographic analysis, as well as the weight to be given such evidence.

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ARTICLE

1. PRELIMINARY MATTERS

§ 1. Introduction

[a] Scope

This annotation [FN1] collects and discusses the state and federal cases that the courts have considered the admissibility of evidence regarding voice spectrographic analysis, [FN2] as well as the weight to be given such evidence. Constitutional issues involving the obtaining of the samples to be compared by spectrographic analysis are

(Publication page references are not available for this document.)

beyond the scope of the present annotation, [FN3] as are questions as to the sufficiency of evidence that includes evidence regarding voice spectrographic analysis to support a verdict.

A number of jurisdictions have rules, regulations, constitutional provisions, or legislative enactments directly bearing on this subject. These provisions are discussed herein only to the extent and in the form that they are reflected in the court opinions that fall within the scope of this annotation. The reader is consequently advised to consult the appropriate statutory or regulatory compilations to ascertain the current status of all statutes discussed herein, including those listed in the Jurisdictional Table of Cited Statutes and Cases.

Some opinions discussed in this annotation may be restricted by court rule as to publication and citation in briefs; readers are cautioned to check each case for restrictions.

[b] Related annotations

DNA Evidence as Newly Discovered Evidence Which Will Warrant Grant of New Trial or Other Postconviction Relief in Criminal Case. 125 ALR5th 497.

Admissibility and Weight of Fingerprint Evidence Obtained or Visualized by Chemical, Laser, and Digitally Enhanced Imaging Processes. 110 ALR5th 213.

Admissibility of evidence of voice identification of defendant as affected by allegedly suggestive voice lineup procedures. 55 ALR5th 423.

Cautionary instructions to jury as to reliability of, or factors to be considered in evaluating, voice identification testimony. 17 ALR5th 851.

Admissibility of tape recording or transcript of "911" emergency telephone call. 3 ALR5th 784.

Admissibility of DNA identification evidence. 84 ALR4th 313.

Right of indigent defendant in state criminal case to assistance of fingerprint expert. 72 ALR4th 874.

Compelling testimony of opponent's expert in state court. 66 ALR4th 213.

Admissibility, in criminal cases, of evidence of electrophoresis of dried evidentiary bloodstains. 66 ALR4th 588.

Admissibility of voice stress evaluation test results or of statements made during test. 47 ALR4th 1202.

Admissibility of bare footprint evidence. 45 ALR4th 1178.

Consumption or destruction of physical evidence due to testing or analysis by prosecution's expert as warranting suppression of evidence or dismissal of case against accused in state court. 40 ALR4th 594.

Propriety of cross-examining expert witness regarding his status as "professional witness". 39 ALR4th 742.

Exclusion of evidence in state criminal action for failure of prosecution to comply with discovery requirements as to physical or documentary evidence or the like--modern cases. 27 ALR4th 105.

Right of accused in state courts to have expert inspect, examine, or test physical evidence in possession of prosecution--modern cases. 27 ALR4th 1188.

Admissibility and weight, in criminal case, of expert or scientific evidence respecting characteristics and identification of human hair. 23 ALR4th 1199.

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79 ALR3d 79.

Admissibility of evidence tending to identify accused by his own bite marks. 77 ALR3d 1122.

Admissibility in evidence of sound recording as affected by hearsay and best evidence rules. 58 ALR3d 598.

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Permitting documents or tape recordings containing confessions of guilt or incriminating admissions to be taken into jury room in criminal case. 37 ALR3d 238.

Requiring suspect or defendant in criminal case to demonstrate voice for purposes of identification. 24 ALR3d 1261.

Identification of accused by his voice. 70 ALR2d 995.

Admissibility of sound recordings in evidence. 58 ALR2d 1024.

Proof of identity of person or thing where object, specimen, or part is taken from a human body, as basis for admission of testimony or report of expert or officer based on such object, specimen, or part. 21 ALR2d 1216.

Admissibility in Federal Criminal Case of Results of Polygraph (Lie Detector) Test--Post-Daubert Cases. 140 ALR Fed 525.

Reliability of scientific technique and its acceptance within scientific community as affecting admissibility, at federal trial, of expert testimony as to result of test or study based on such technique--modern cases. 105 ALR Fed 299.

Evidence offered by defendant at federal criminal trial as inadmissible, under Rule 403 of Federal Rules of Evidence, on ground that probative value is substantially outweighed by danger of unfair prejudice, confusion of issues, or misleading the jury. 76 ALR Fed 700.

When will expert testimony "assist trier of fact" so as to be admissible at federal trial under Rule 702 of Federal Rules of Evidence. 75 ALR Fed 461.

Delay in sealing or failure to seal tape or wire recording as required by 18 U.S.C.A. § 2518(8) as ground for suppression of such recording at trial. 62 ALR Fed 636.

Propriety under Rule 403 of the Federal Rules of Evidence, permitting exclusion of relevant evidence on grounds of prejudice, confusion, or waste of time, of attack on credibility of witness for party. 48 ALR Fed 390.

§ 2. Background, summary, and comment

[a] Generally

The sound spectrograph, [FN4] a machine that was invented in 1941, produces, by an electrical process, a pictorial representation of sounds, called a sound spectrogram. A sound spectrogram representing a person's voice is known as a voice spectrogram, or "voiceprint." [FN5] Voice spectrographic analysis is a scientific process by which a voice spectrogram of a known speaker is compared with a voice spectrogram of an unknown speaker in order to determine if the two speakers are the same person. [FN6] The fundamental premise of voice spectrographic analysis is that each person's voice is different. [FN7] Accordingly, the voice spectrographic analysis' validity, as a means of personal identification, rests on the proposition that the sound patterns produced in speech are unique to the individual and that the spectrogram accurately and efficiently displays this uniqueness. [FN8]

The Tosi study involving the use of voice spectrographic analysis for identification purposes underlies many of the

courts' holdings in this area. [FN9] Since numerous courts, that have addressed the issue of the admissibility of evidence regarding voice spectrographic analysis, discuss the reliability of the Tosi study, [FN10] this annotation will discuss the Tosi study in some detail.

The Tosi study allegedly established the reliability of the technique of voice spectrographic analysis for identification purposes. [FN11] The Tosi study obtained voice samples from 250 randomly selected English speaking males from a student body using six or nine clue words spoken in varying contexts. Different recording conditions were tested, and voice samples were taken on two separate occasions. Of the over 34,000 trials, one-third were closed (the matching voice spectrogram was always in the group to be compared) and two-thirds were open (the matching voice spectrogram may or may not have been in the set to be compared). The examiners, who were given a one-month training course, were required to determine in each comparison whether the matching voice spectrogram was within the set of unknown voice spectrograms. In so doing, they were allowed to express their degree of certainty. [FN12] The Tosi study concluded that if a trained, nonprofessional examiner, who visually compares the voice spectrograms, were forced to reach a positive decision in each case within 15 minutes, the expected errors of false identification would be approximately, 6% and the expected errors of false elimination would be approximately 13%. According to the study's author, the number would be even greater under forensic conditions, that is, where a professional examiner, using aural as well as visual comparison, were not forced to reach a positive decision in each case and were given an unlimited amount of time to complete the task. [FN13]

Turning to the cases where one of the parties is seeking to introduce evidence regarding voice spectrographic analysis, a crucial factor governing admissibility appears to be the standard applied by the court. [FN14] Although, in many cases, the court failed to specifically describe the standard that it was applying to determine the admissibility of evidence regarding voice spectrographic analysis, five separate approaches have apparently developed: (1) admissibility on the basis of a general acceptance test (hereinafter referred to as the "Frye test") [FN15] (§ § 3-6); (2) admissibility on the basis of a relevancy analysis (§ § 7-10); (3) admissibility on the basis of a scientific soundness test (§ § 11-15); (4) admissibility on the basis of general judicial recognition of the evidence's admissibility (§ 16); and (5) admissibility on the basis of an evaluation of the factors enunciated in Daubert v. Merrell Dow Pharmaceuticals Inc. 509 U.S. 579 113 S. Ct. 2786 125 L. Ed. 2d 469 27 U.S.P. 2d BNA 1200. Prod. Liab. Rep. (CCH) ¶ 13494. 37 Fed. R. Evid. Serv. 1. 23 Envtl. L. Rep. 20979 (1993) (hereinafter referred to as the "Daubert standard") (§ 17)

Courts applying the Frye test to evidence regarding voice spectrographic analysis have tended to exclude such evidence (§ § 3-6), as have courts that have apparently applied a scientific soundness test to such evidence (§ § 11-15). Courts applying a relevancy analysis to evidence regarding voice spectrographic analysis, however, have tended to admit such evidence (§ § 7-10), as have courts applying either a test involving general judicial recognition of the evidence's admissibility (§ 16) or the Daubert standard (§ 17).

In Frye, the court pointed out that it was difficult to ascertain exactly when a scientific principle or discovery crossed the line between the experimental and demonstrable stages. The court declared that somewhere in this twilight zone the evidential force of the principle must be recognized and that while courts would go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction was made must be sufficiently established to have gained general acceptance in the particular field in which it belonged. Thus, the Frye test requires a showing that a scientific technique or device is generally accepted by the relevant scientific community. [FN16] Among the courts applying the Frye test to the admissibility of evidence regarding voice spectrographic analysis in a criminal trial, a majority has ruled such evidence inadmissible, regardless of whether it was offered by the prosecution (§ 3[b]) or the defendant (§ 4[b]). There are some courts, however, that have admitted such evidence when it was offered by the prosecution in a criminal trial (§ 3 [a]), and one court has upheld the admissibility of such evidence when offered by a criminal defendant (§ 4[a]). Another court has stated in passing that the prosecution's evidence regarding voice spectrographic analysis would be admissible in a criminal trial for the limited purpose of identification (§ 3[c]). In a case involving a preliminary hearing to establish probable cause that a crime had been committed, a court has held that the Frye test was satisfied and upheld the admissibility of the evidence (§ 5). A court in a civil proceeding has held to the contrary, however, and ruled evidence regarding voice spectrographic analysis inadmissible (§ 6)

The Frye test has not gained universal acceptance. [FN17] In numerous cases involving the admissibility of expert

testimony regarding voice spectrographic analysis, the courts have explicitly or implicitly rejected the Frye test (§ § 7-17). In the majority of these cases, the courts have apparently based their decisions regarding admissibility on either a relevancy analysis (§ § 7-10) or an analysis of the scientific soundness of the evidence (§ § 11-15).

The relevancy analysis requires that the court admit any relevant conclusion supported by a qualified expert witness unless there are other reasons for exclusion. [FN18] Factors bearing on the admissibility of scientific

evidence under this view are the relevance of the evidence, the qualifications of the expert, and whether the probative value of the evidence is outweighed by the tendency to prejudice or mislead the jury or to cause an undue consumption of time. [FN19]. There is considerable authority among the courts adopting this view, that evidence regarding voice spectrographic analysis is admissible in a criminal trial, regardless of whether such evidence is offered by the prosecution (§...7[a]) or the defendant (§ 8), and in a probation revocation proceeding (§ 10). Even in the one case where a court has held, apparently based on a relevancy analysis, that the prosecution's evidence regarding voice spectrographic analysis was inadmissible in a criminal trial (§ 7[b]), the court stated by way of dictum that such evidence may be admissible in a criminal post-trial proceeding (§ . 9).

Like the relevancy analysis, the scientific soundness test for the admissibility of scientific evidence appears to be a popular alternative to the Frye test. [FN20] Courts applying a scientific soundness test to the admissibility of scientific evidence make their own, independent determination as to the scientific validity of the expert's methodology by examining a variety of factors, one of which is general acceptance. [FN21] Although not using the phrase "scientific soundness" to define their approach, a number of courts appear to have adopted the scientific soundness test with respect to the admissibility of evidence regarding voice spectrographic analysis (§ § 11- 15). In cases where the prosecution offered evidence regarding voice spectrographic analysis in a criminal trial, most courts have held that such evidence was admissible under the scientific soundness test (§ 11[a]), at least for a limited purpose (§ 11[c]), although one court refused to admit the evidence (§ 11 [b]). In cases that the defendant offered evidence regarding voice spectrographic analysis in a criminal trial, the courts, applying a scientific soundness test, have held that such evidence was inadmissible (§ 12). The courts have also held, based on a scientific soundness test, that evidence regarding voice spectrographic analysis was inadmissible in a civil proceeding (§ 14). In a general court-martial proceeding, however, a court has held evidence regarding voice spectrographic analysis admissible (§ 15), and another court has held that, in a hearing to determine probable cause for an arrest and search warrant, such evidence ought to be admissible under the scientific soundness test for limited purposes (§ 13).

In contrast to the numerous courts that have apparently adopted a scientific soundness test, only one jurisdiction has based its determination of the admissibility of evidence regarding voice spectrographic analysis on the extent of general judicial recognition of the evidence's admissibility. Determining that the admissibility of evidence regarding voice spectrographic analysis to identify voices has received general judicial recognition, a court has held that the evidence was admissible in a criminal trial (§ 16).

Of the numerous courts that have implicitly or explicitly rejected the Frye test, the most significant rejection of the Frye test occurred in Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469 27 U.S.P.Q.2d (BNA) 1200 Prod. Liab. Rep. (CCH)¶ 13494, 37 Fed. R. Evid. Serv 1 23 Envtl. L. Rep. 20979 (1993). In Daubert, the United States Supreme Court ruled that the Frye test had been superseded by the adoption of the Federal Rules of Evidence. In particular, the Supreme Court cited, Federal Rules of Evidence, Rule 702 that allows a qualified expert witness to testify regarding scientific, technical, or other specialized knowledge if such knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue. [FN22] The Supreme Court noted that neither Rule 702, nor the Federal Rules of Evidence as a whole, incorporates Frye's general acceptance test and that to rule that general acceptance is an absolute prerequisite to admissibility would be inconsistent with the liberal thrust of the Federal Rules of Evidence and their relaxation of traditional barriers to opinion testimony. [FN23] Thus, the Supreme Court held that, rather than being dispositive of the issue of admissibility, whether a scientific technique or theory was generally accepted in the relevant scientific community was only one of several factors for courts to weigh in determining whether that theory or technique was sufficiently reliable and relevant to assist the trier of fact, with other factors including, but not limited to: (1) whether the theory or technique could be, and had been tested; (2) whether the theory or technique had been subjected to peer review and publication; and (3) the known or potential rate of error. [FN24] If a theory or technique was otherwise admissible under the Federal Rules of Evidence and survived this "flexible" inquiry under Rule 702, the Supreme

Court concluded that the theory or technique could then be admitted into evidence. [FN25] Although Daubert was a federal case applying the Federal Rules of Evidence, the only court to apply Daubert to the issue of the admissibility of evidence regarding voice spectrographic analysis has been a state criminal court that admitted the evidence (§. 17).

Of the cases where the courts have admitted evidence regarding voice spectrographic analysis, the courts have pointed out that the trier of fact is not bound by the conclusion of the expert, but can determine for itself the weight to give to such evidence (§ 18). In fact, although many of the cases do not specifically involve the issue of the weight to be given to evidence regarding voice spectrographic analysis, no case has been found supporting the view that the trier of fact is bound by the conclusion of the expert.

[b] Practice pointers

Initially, the only cases involving the admissibility of evidence regarding voice spectrographic analysis were those where the prosecution in a criminal case sought to introduce the evidence in order to prove a match between an unknown voice and that of the defendant. As more courts have admitted evidence regarding voice spectrographic analysis, however, its use has expanded in both the criminal and the civil context. As a result, counsel should be aware of the technique of voice spectrographic analysis and its potential usefulness to a client's case. For example, in the civil context, evidence regarding voice spectrographic analysis has been offered: (1) by the wife in a matrimonial action in order to prove a match between an unknown voice and that of the husband; [FN26] (2) by a television station in a trademark infringement action in order to prove the phonetic similarity between the call letters of two television stations; [FN32] and (3) by an insurance agency in order to prove a match between the voice of an anonymous caller and that of the insured. [FN32]

In the criminal context, counsel should note that criminal defendants have offered evidence regarding voice spectrographic analysis to prove the absence of a match between an unknown voice and that of the defendant, [FN29] as well as to prove the unreliability of the content of certain recorded statements made by the defendant. [FN30] In fact, counsel for criminal defendants, in particular, should be aware of the potential usefulness of voice spectrographic analysis to the defendant's case and the status of the admissibility of evidence regarding voice spectrographic analysis in their jurisdiction, as

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failure of defense counsel to obtain a voice spectrographic analysis and present evidence regarding the analysis at trial [FN31] either as a basis for appeal [FN32] or, more commonly, as a basis for post-trial relief. [FN33]

As noted in § 2[a], the admissibility of evidence regarding voice spectrographic analysis is largely determined by the test applied by the court. [FN34] While the Supreme Court stated in Daubert that the Daubert standard has displaced the Frye test, counsel should note that Daubert was a statutory, rather than a constitutional, case. Therefore, if counsel is appearing before a federal court in a case applying federal law, the Daubert standard will apply to the issue of the admissibility of evidence regarding voice spectrographic analysis. In state courts and federal courts applying state law, however, the impact of the Supreme Court's decision in Daubert is unclear. As a result, counsel should argue for the admissibility standard that is most likely to result in a decision favorable to counsel's position. For example, since the Frye test of general acceptance in the relevant scientific community appears to be the most difficult standard to satisfy, counsel should argue in favor of the Frye standard if counsel desires to exclude the evidence. If, on the other hand, counsel is the one offering the evidence regarding voice spectrographic analysis, counsel should emphasize the weaknesses in the Frye standard that have led other courts, to reject it [FN35] and argue for application of either a standard based on the relevancy of the evidence or the Daubert standard, particularly if counsel is in a state jurisdiction where the applicable rules of evidence are modeled after the Federal Rules of Evidence. In making such an argument, counsel should note that the type of proceeding involved might also be a relevant consideration. For example, in one case the court refused to apply the Frye test in a revocation of probation proceeding, while not ruling on use of the Frye test generally. [FN36]

In cases where the Frye test is applied, counsel should note that an important, remaining issue is the composition of the "relevant scientific community" whose acceptance of the scientific technique must be established. Specifically, the issue is whether the relevant scientific community is composed of those scientists who have actually been engaged in working or experimenting with the technique of voice spectrographic analysis, or whether the issue involves the larger body of scientists who, by their training and experience, are qualified to judge the Frye test's

reliability. The importance to counsel of this determination is that in most of the relatively few cases where courts applying the Frye test have held evidence regarding voice spectrographic analysis admissible, the courts have narrowly defined the relevant scientific community as including only those scientists who would be expected to be familiar with the technique of voice spectrographic analysis. [FN37] In contrast, courts holding evidence regarding voice spectrographic analysis inadmissible under Frye have defined the relevant scientific community much more broadly. [FN38]

Regardless of the standard of admissibility applicable in the particular case, counsel should carefully examine the exact procedure used in the case at hand, because error in the manner in which the comparison of voice spectrograms is made can result in the exclusion of the evidence. [FN39] In addition, counsel should note that there is some indication that the technique of voice spectrographic analysis may be less reliable when female, [FN40] or mimicked or disguised, [FN41] voices are involved.

Since a court's ruling on the admissibility of evidence regarding voice spectrographic analysis is based largely on the testimony of expert witnesses, counsel should exercise particular care in selecting and preparing these witnesses. Specifically, counsel should consider such factors as the number of witnesses to call, their qualifications, and their impartiality. For example, with respect to number, several courts have concluded that one witness, however qualified, is insufficient to establish the general acceptance of the technique of voice spectrographic analysis. [FN42] Another court, after considering the qualifications of one expert witness, pointed out that the witness was a technician rather than a scientist and, consequently, was not qualified to testify concerning the general acceptance of the technique of voice spectrographic analysis within the relevant scientific community. [FN43] Courts have also questioned the impartiality of expert witnesses, some of whom the courts have viewed as having built their careers on the reliability of the technique of voice spectrographic analysis. [FN44]

A point of importance to counsel appealing from a decision on the admissibility of evidence regarding voice spectrographic analysis is whether this determination is purely a matter within the trial court's discretion or whether it is a question of law. Some courts, especially those applying either a relevancy standard or a scientific soundness standard, have declared that the trial court has wide discretion in ruling on the admissibility of scientific evidence. [FN45] However, in a case applying the Frye standard, it was held that the initial question whether the technique of voice spectrographic analysis had gained general scientific acceptance within the relevant scientific community was not a matter within the trial court's discretion, but was a matter of law. The court observed that once the process of voice spectrographic analysis had been found to have been generally accepted, the trial judge then had discretion, as in all other cases of expert testimony, to admit or not admit the testimony on the basis of considerations as to the helpfulness of the proposed testimony to the jury and the qualifications of the expert witness. [FN46]

Counsel should remember that even if evidence regarding voice spectrographic analysis has been admitted, the trier of fact is not bound by it. Rather, the trier of fact can give the evidence whatever weight it desires, based on a consideration of the same factors that determine admissibility, such as the qualifications of the expert witness and the reliability of the technique of voice spectrographic analysis. [FN47] In addition, since the admissibility of evidence regarding voice spectrographic analysis is sometimes decided in a pretrial hearing, [FN48] counsel, if failing to keep the evidence out, should nevertheless utilize this opportunity to determine the nature of the evidence regarding voice spectrographic analysis that will be used and to prepare for later cross examination, all of which could have a substantial impact on the weight accorded to the evidence by the trier of fact.

Finally, counsel should note that the question of the admissibility of evidence regarding voice spectrographic analysis is in a state of flux and that earlier decisions, although entitled to consideration, are not necessarily binding. The pattern into which the cases have fallen is one of having denied admissibility before the Tosi study, [FN49] followed by a trend to admit evidence regarding voice spectrographic analysis in the years immediately after the Tosi study. [FN50] While what began to develop next was a repeat of the initial trend toward excluding this evidence as an increasing number of scientists voiced concern about the Tosi study, [FN51] many of the jurisdictions that have rejected evidence regarding voice spectrographic analysis based on a lack of general acceptance in the relevant scientific community may now revisit the issue in light of the Daubert standard. Thus, what the future will bring ultimately depends on what additional experimentation and study reveals. Indeed, several of the courts denying admissibility have specifically stated that their decisions were not meant to preclude admissibility of evidence regarding voice spectrographic analysis in the future when additional research might be

available concerning the reliability and general acceptance of the voice spectrographic analysis process. [FN52]

II. ADMISSIBILITY ON BASIS OF GENERAL ACCEPTANCE TEST ("FRYE TEST")

A. In Criminal Trial

§ 3. Evidence offered by prosecution

[a] Held admissible

In the following cases, where the prosecution had offered voice spectrographic analysis evidence at a criminal trial, the courts held that because voice spectrographic analysis had reached the level of general acceptance in the relevant scientific community contemplated by the Frye test, evidence regarding voice spectrographic analysis was admissible.

Ruling that the trial judge was within his discretion in admitting the prosecution's evidence of voiceprint analysis, the court in U. S. v. Franks, 511 F.2d 25 (6th Cir. 1975), apparently basing the ruling, at least in part, on an application of the Frye test, explained that general acceptance was nearly synonymous with reliability and that if a scientific process was reliable, or sufficiently accurate, the courts might also deem it generally accepted. The court rejected the defendant's contention that voiceprint analysis was too inaccurate to be admitted into evidence where there was extensive inquiry into the expert witness' qualifications, defense counsel were permitted ample opportunity to cross examine the expert witness, and neither defendant produced a witness to rebut the government's claim that voiceprint analysis was sufficiently accurate to be admissible.

CAUTION:

The United States Supreme Court has ruled, in the case of Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 113 S. Ct. 2786 125 L. Ed. 2d 469 27 U.S.P.Q.2d (BNA) 1200 Prod. Liab. Rep. (CCH) ¶ 13494, 37 Fed. R. Evid. Serv. 1. 23 Envtl. L. Rep. 20979 (1993), that the Frye test has been superseded by the Federal Rules of Evidence. In Daubert, the Supreme Court, as discussed in OW, set forth certain factors that a court must consider in determining the admissibility of expert testimony based on a scientific technique. Although the general acceptance of the scientific technique within the relevant scientific community remains a factor, it is no longer dispositive. Thus, Frye no longer controls the admissibility of evidence regarding voice spectrographic analysis in federal courts.

Stating that the Frye standard controls the issue of admissibility of spectrographic voice identification evidence, the court in U.S. v. Smith, 869 F.2d 348, 27 Fed. R. Evid. Servo 938 (7th Cir. 1989), apparently found that such evidence satisfied Frye's general acceptance standard and, therefore, held that it was not an abuse of discretion for the trial court to admit the government's spectrographic voice identification evidence. The court noted that several other circuits that have held expert testimony concerning spectrographic voice identification admissible under Frye have examined two factors: (1) the reliability of the technique of spectrographic voice identification; and (2) whether the technique is likely to mislead the jury. With respect to reliability, the court pointed out that the indicia of reliability of a given scientific technique include: (1) the potential rate of error; (2) the existence and maintenance of standards; (3) the care and concern with which a scientific technique has been employed (and whether it appears to lend itself to abuse); (4) its analogous relationship with other types of scientific techniques; and (5) the presence of "fail-safe" characteristics, the variability of which will lead to different, rather than similar, results. The government's expert had testified regarding his personal success with spectrographic analysis, the error rates of various scientific studies, including the Tosi study, [FN53] and intraspeaker and interspeaker variation. Rejecting the defendant's argument that Frye requires the exclusion of spectrographic voice identification evidence if there is any disagreement at all as to the reliability or validity of the scientific technique, the court held that the government presented sufficient evidence of the reliability of spectrographic voice identification. With respect to the tendency for scientific evidence to mislead the jury, the court ruled that spectrographic voice identification evidence was not likely to mislead the jury, where the jury had the opportunity to conduct its own aural and visual comparisons of the evidence, the judge had instructed the jury regarding their right to judge each witness' credibility, to weigh each witness' testimony, and, specifically, to reject expert testimony, and the government's expert, who was subject to

rigorous cross-examination, was candid about the limitations of the technique.

CAUTION:

The United States Supreme Court has ruled, in the case of Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 113 S. Ct. 2786 125 L. Ed. 2d 469 27 U.S.P.Q. 2d BNA 1200 Prod. Liab. Rep. CCH 13494 37 Fed. R. Evid. Serv 1. 23 Envtl. L. Rep. 20979 (1993), that the Frye test has been superseded by the Federal Rules of Evidence. In Daubert, the Supreme Court, as discussed in § 2[a], set forth certain factors that a court must consider in determining the admissibility of expert testimony based on a scientific technique. Although the general acceptance of the scientific technique within the relevant scientific community remains a factor, it is no longer dispositive. Thus, Frye no longer controls the admissibility of evidence regarding voice spectrographic analysis in federal courts.

In affirming a conviction for kidnapping, murder, and extortion, the court in Com. v. Lykus, 367 Mass. 191, 327 N.E.2d 671 (1975), held, on the basis of the Frye test, that voice identification testimony based on an examination of spectrograms was admissible because the state had established the general acceptance of the technique. The court observed that it was basing their conclusion on relevant writings in scientific journals, the evidence produced at trial as to the reliability and general acceptance of the principle, and decisions from other jurisdictions, that showed a trend toward admissibility of voiceprint evidence. Based on testimony from experts regarding voice identification from spectrographic analysis, the court concluded that in "real life" the percentage of wrongful identifications would be even less than the 6% rate found under laboratory conditions in the Tosi study. [FN54] Based on the considerable reliability proved by the Tosi study, the added reliability produced by having an experienced examiner working under forensic conditions, and the totality of the evidence, that tended to minimize the importance and weight of adverse or skeptical writings, the court concluded that the state had established the general acceptability required by the Frye standard. The court added that the requirement of the Frye rule of general acceptability was satisfied if the principle was generally accepted by those who would be expected to be familiar with its use. Although the court did not specifically limit the admissibility of spectrographic evidence to situations where there was other evidence of the defendant's guilt, the court did caution that the admission of expert testimony as to spectrograph analysis should be subjected to the closest of judicial scrutiny, particularly where there was no other evidence of voice identification or where, but for the voiceprint, there would be insufficient evidence to convict the defendant.

In People V. Rogers, 86 Misc. 2d 868, 385 N.Y.S.2d 228 (Sup. Ct. 1976), an application for an order directing the defendant to furnish a voice exemplar for spectrographic analysis, the court, in rejecting various constitutional arguments and granting the order, made a preliminary decision that voice identification by means of visual spectrogram analysis had reached the level of general acceptance required by the Frye test and that, as a result, the prosecution's evidence regarding spectrographic analysis was admissible. Characterizing the Tosi study [FN55] as conclusively demonstrating the reliability of speech spectrograms as an aid in the identification of unknown speakers, the court, although acknowledging that voiceprints did not have the infallibility of fingerprints, pointed out that their reliability was as great as, or greater than, numerous other scientific tests that were commonly held to be admissible, such as blood alcohol tests as evidence of intoxication, and tests for analysis of hairs and fibers. Applying the Frye test, the court further pointed out that at the United States District Court level, 14 of 15 judges who had ruled on the issue of admissibility had accepted voiceprint evidence, and that all but two of the 37 state courts that had reached the issue had held such evidence admissible. The court thus concluded that voice identification by means of visual spectrogram analysis, when accompanied by aural examinations and comparisons, and when conducted by a properly qualified examiner, had reached the level of general acceptance by those who would be expected to be familiar with its use and was, therefore, admissible.

In People V. Bein, 114 Misc. 2d 1021, 453 N.Y.S.2d 343 (Sup. Ct. 1982), the court granted the state's motion in limine and held that the state's evidence as to voice identification by spectrographic analysis was admissible in the criminal trial, in part because the scientific technique was generally accepted in the relevant scientific community. In response to the defendant's argument that the procedure of voice identification by spectrographic analysis has not reached the standard of scientific acceptance and reliability to warrant admission into evidence, the court applied a twofold test consisting of (1) whether the procedure has been generally accepted by the relevant scientific community, and/or (2) whether there is competent expert testimony establishing the reliability of the voiceprint

(publication page references are not available for this document.)

process, and held that voice identification by spectrographic analysis satisfied both criteria. For purposes of the general acceptance criterion, the court defined the "relevant scientific community" as "that group of scientists who are concerned with the problems of voice identification for forensic and other purposes." In holding that voice identification by spectrographic analysis satisfies both the general acceptance criterion and the reliability criterion, the court relied on the testimony of the state's witness, an officer in charge of the Michigan Department of State Police's Voice Identification Unit, and discounted the testimony of the defendant's expert, a Professor of Psychology and Speech and Hearing Science at the City University of New York, whose experience, the court stated, was not in the field about which he sought to testify. The officer testified as to the training required of voice spectrogram examiners certified by the International Association of Voice Identification, the process of voice spectrographic analysis, the research studies involving voice spectrographic analysis and the standards that examiners follow in order to ensure the reliability of voice comparisons. As further proof that voice identification by spectrographic analysis is generally accepted in the relevant scientific community, the court cited the fact that numerous other jurisdictions applying the same criteria have held that voice identification by spectrographic analysis satisfies the general acceptance test.

COMMENT:

In contrast to the courts in People v. Rogers, 86 Misc. 2d 868, 385 N.Y.S.2d 228 (Sup. Ct. 1976), and People v. Bein, 114 Misc. 2d 1021, 453 N.Y.S.2d 343 (Sup. Ct. 1982), the New York courts in People v. Collins, 94 Misc. 2d 704, 405 N.Y.S.2d 365 (Sup. Ct. 1978), discussed in §...3[b] and § 11[b], and People v. Persaud, 226 AD.2d 402, 640 N.Y.S.2d 261 (2d Dept 1996), discussed in §...3[b] rejected evidence regarding voice spectrographic analysis. Recognizing that there is a split in New York over the issue of admissibility, the court in People v. Jeter, 80 N.Y.2d 818, 587 N.Y.S.2d 583, 600 N.E.2d 214(1992), agreed with the defendant that it was error for the trial court to admit the state's spectrographic evidence without first holding a hearing on its reliability.

[b] Held not admissible

In the following cases, the courts excluded voice spectrographic analysis evidence offered by the prosecution in a criminal trial on the basis that the technique of voice spectrographic analysis had not reached the level of general acceptance in the relevant scientific community contemplated by the Frye test.

In U. S. v. Addison, 498 F.2d 741 (D.C. Cir. 1974), the court held that the trial court had erred in admitting, in a criminal trial, voice identification testimony from the state's experts based on an examination of voice spectrograms, because it was clear that the technique had not attained the general acceptance of the scientific community to the degree required by the Frye test. In reversing the trial court, the court concluded that the trial court had incorrectly focused more on the reliability of the conclusion of the expert witness who had performed the spectrographic voice analysis than on the general acceptance of the technique within the scientific community. The court observed that, in determining the general acceptance of the technique of voice identification based on spectrographic analysis, the trial court had relied on the Tosi study [FN56] and on the testimony of a second expert witness, one who had not examined the voice spectrograms at issue. The court pointed out that although this second expert witness had adopted a more favorable stance regarding the technique of voice identification based on spectrographic analysis after examining the Tosi study, he had stated only that the new evidence had moved him to cautiously reconsider the possibility of the use of spectrographic analysis in criminal trials and that he had a number of continuing reservations. Furthermore, the court noted

of Evidence. In *Daubert*, the Supreme Court, as discussed in §...2[a], set forth certain factors that a court must consider in determining the admissibility of expert testimony based on a scientific technique. Although the general acceptance of the scientific technique within the relevant scientific community remains a factor, it is no longer dispositive. Thus, Frye no longer controls the admissibility of evidence regarding voice spectrographic analysis in federal courts.

The court held, in *U. S. v. McDaniel*, 538 F.2d 408 (D.C. Cir. 1976), that techniques of speaker identification by voiceprint comparison had not attained the general acceptance of the scientific community to the degree required by the Frye case and that, as a result, it was error to admit in a criminal trial the voice identification testimony of the prosecution's expert, who had compared the spectrograms of an unknown party to a telephone conversation with known voice exemplars of the defendant. Relying on the holding in *U. S. v. Addison*, 498 F.2d 741 (D.C. Cir. 1974), discussed in this section, the court held that absent a clear showing that the reliability and general acceptability of spectrographic voice identification within the scientific community had changed drastically, Addison required a holding that spectrographic voice identification evidence remained inadmissible. However, noting that two of three federal circuits, eight of nine state appellate courts, 14 of 15 United States district judges, and 35 of 37 state tribunals had concluded that voiceprint evidence was admissible, the court observed that it might well be that the time had come to re-examine the holding of Addison.

CAUTION:

The United States Supreme Court has ruled, in the case of *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 113 S. Ct. 2786 125 L. Ed. 2d 469 27 D.S.P. old (BNA) 1200 Prod. Liab. Rep. (CCH) ¶ 13494, 37 Fed. R. Evid. Serv 1, 23 Envtl. L. Rep. 20979 (1993), that the Frye test has been superseded by the Federal Rules of Evidence. In *Daubert*, the Supreme Court, as discussed in §...2[a], set forth certain factors that a court must consider in determining the admissibility of expert testimony based on a scientific technique. Although the general acceptance of the scientific technique within the relevant scientific community remains a factor, it is no longer dispositive. Thus, Frye no longer controls the admissibility of evidence regarding voice spectrographic analysis in federal courts.

In reversing a conviction that was, in part, based on voiceprint evidence introduced by the prosecution at trial, the court in *People V. Kelly*, 17 Cal 3d 24, 130 Cal Rptr. 144, 549 P.2d 1240 (1976), applied the general acceptance rule enunciated in Frye and held that because the evidence was insufficient to establish the reliability of voiceprint evidence, the evidence was inadmissible. The court noted, however, that it might be possible in the future to establish the reliability of voiceprint evidence. After reviewing the cases from California and other jurisdictions, the court concluded that these cases revealed no uniform trend either for or against the admissibility of voiceprint evidence and certainly did not establish, as a matter of law, the reliability of the voiceprint technique. The court distinguished the case of *Hodo v. Superior Court*, 30 Cal. App. 3d 778, 106 Cal Rptr. 547 (4th Dist. 1973), discussed in §...52, in which voiceprints were admitted, on the ground that Hodo involved the admissibility of such evidence at a preliminary examination, rather than at trial, as in the present case. Turning to the expert testimony in favor of the reliability of the voiceprint technique, the court stated that it suffered from the following three weaknesses: (1) only one expert had testified on the reliability issue and, according to the court, something more than the bare opinion of one man, however qualified, was required; (2) the impartiality of the specific expert who testified was questionable since he had virtually built his career on the reliability of the technique; and (3) the expert's qualifications, although impressive, were those of a technician and law enforcement officer, rather than a scientist, and did not qualify him to express an informed opinion on the view of the scientific community towards voiceprint analysis.

In *People V. King*, 266 Cal App. 2d 437, 72 Cal Rptr. 478 (2d Dist. 1968), the court concluded that the acknowledgment of the prosecution's expert witness, an inventor of the voiceprint process, who testified, on the basis of voiceprints, that the defendant and the speaker who had incriminated himself in a television documentary film were the same person and that his process was entirely subjective and founded on his opinion alone, without general acceptance within the scientific community, necessitated a ruling that opinion evidence as to identity based on voiceprints was inadmissible. Although recognizing that whether a scientific test has received general acceptance by experts in the field so as to justify admission of expert testimony based on the results of that test is primarily a question of fact for the trial court, the court nevertheless ruled that the voiceprint identification process has not

reached a sufficient level of scientific certainty to be accepted as identification evidence in cases where the life or liberty of the defendant may be at stake. While the prosecution's expert witness asserted that his technique and equipment had the accuracy and infallibility of fingerprint identification, the court was unimpressed. First, the court stated that the theory on which the uniqueness and constancy of an individual's voiceprint is asserted depends on factors within the realm of the sciences of anatomy, medicine, physiology, physics, psychology, and linguistics, and that the prosecution's expert witness, whose education was in the field of electrical engineering and physics, had no educational or employment background in those other sciences. Second, the court acknowledged that seven defense witnesses, including an experimental psychologist specializing in acoustics and phonetics, a sensory and physiological psychologist, 'a professor of phonetics, and a linguist, uniformly challenged the claim that the voiceprint identification process was practically infallible. Third, the court noted that the claims for accuracy of the voiceprint identification process are founded on theories and conclusions not yet substantiated by accepted methods of scientific verification. Fourth, the court stated that the ultimate identification is based on a subjective analysis not subject to confirmation. Fifth, the court found that even if the equipment and process possess the claimed capability, there was no showing that the prosecution's expert witness possessed sufficient capability and expertise to analyze the results with certainty. Sixth, the court recognized that the tests from which the prosecution's expert witness drew his conclusions as to accuracy had a very narrow statistical base. Finally, the court acknowledged that the Speech Communications Committee of the Acoustical Society of America had rejected the claim of the prosecution's expert witness regarding the reliability of the voice identification process by unanimously passing a resolution stating that the sound spectrogram did not contain sufficient information to identify individual speakers.

CAUTION:

As discussed in §...5, the court in Hodo v. Superior Court, 30 Cal App. 3d 778, 106 Cal. Rptr. 547 (4th Dist. 1973), distinguished People v. King, 266 Cal App. 2d 437, 72 Cal Rptr. 478 (2d Dist. 1968), on the ground that King occurred before the Tosi study, discussed in §...2[a], and at a time when the scientific community was not of the opinion that voiceprints were reliable.

In People v. Law, 40 Cal App. 3d 69, 114 Cal. Rptr. 708 (5th Dist. 1974), the court reversed the defendant's conviction on the ground that the prosecution's evidence regarding spectrographic identification was inadmissible at the criminal trial under the particular circumstances of the case, where the prosecution failed to establish that the voiceprint technique satisfied the Frye standard when applied to voiceprints involving disguised and mimicked voices. The court pointed out that although the expert who testified for the prosecution concluded on the basis of his study that the voiceprint procedure was scientifically valid and accepted by the scientific community, both he and another expert witness for the prosecution testified that more experimenting was necessary with respect to the significance of disguised and mimicked voices. Observing the reluctance of one of the prosecution's expert witnesses to express unconditional acceptance of the voiceprint method, the court pointed out that such reluctance was understandable in view of numerous scientific articles, of which the court took judicial notice, pointing to weaknesses in the Tosi study and concluding that voiceprints were not yet a reliable method of identification. Accordingly, the court declared that the conclusion was compelled that, with respect to disguised and mimicked voices in particular, the prosecution had not carried its burden of proof to demonstrate that the scientific principles pertaining to spectrographic identification were beyond the experimental and into the demonstrable stage.

Although affirming, on the basis of other evidence, a judgment of conviction for making threatening phone calls, the court in Brown v. U. S., 384 A.2d 647 (D.C. 1978), without foreclosing an opposite result in the future, declined to adopt the trial court's ruling that the technique of voice spectrographic identification was shown to be sufficiently reliable and accepted within the scientific community to permit the introduction of voice spectrographic identification evidence offered by the prosecution. The court noted that there was evidence establishing that the tape recorder used to record an exemplar of the defendant's voice was apparently defective because the tape was recorded at the wrong speed, and that the expert testified that a reliable identification could, thus, not be made. Based on this state of the record and a review of the decisions on the subject that revealed the absence of a clear trend on the issue of the admissibility of voiceprints, the court held that the trial court had erred in admitting expert voice identification testimony based on spectrographic analysis.

In Cornett v. State, 450 N.E.2d 498 (Ind. 1983), the court held that voice spectrography had not gained general acceptance in the relevant scientific community and that, as a result, expert testimony concerning voice

spectrography that the state had offered at a criminal trial was inadmissible under Frye. The state had asserted that voice spectrography was generally accepted among those persons who use the technique for identification purposes. The court did not dispute the state's assertion. Rather, the court defined the relevant scientific community more broadly, including not only those persons who use voice spectrography for identification purposes, but also linguists, psychologists, and engineers. Based on the court's review of the testimony in the record, decisions from other jurisdictions, law review articles, and the scientific literature, the court ruled that expert testimony regarding voice spectrography has not attained general acceptance within the defined relevant scientific community. The court noted that when a conflict exists among members of the relevant scientific community regarding the validity or reliability of a new scientific technique, the members of that community, not the courts, should be the ones to resolve the conflict.

In Reed v. State, 283 Md. 374, 391 A.2d 364, 97 A.L.R.3d 201(1978), involving a conviction for rape and related offenses that was based in part on the prosecution's evidence of voice identification testimony based on the analysis of spectrograms, the court held that, at the present time, spectrography had not achieved the general acceptance in the scientific community required under the Frye standard and was, therefore, inadmissible. Noting that the "relevant scientific community" included those scientists whose background and training were sufficient to allow them to comprehend and understand the process and form a judgment about it, the court declared that the trial court had improperly limited the community to those experts actually engaged in the use of the voiceprint technique and in experimentation with it, rather than the broad general scientific community of speech and hearing scientists. The court emphasized the testimony of an expert that there was a split in opinion among the scientists actually engaged in the field of sound spectrography, as well as the testimony of defense experts that spectrography was neither a reliable process nor generally accepted within the scientific community, one of the experts stating that it amounted to a fraud. In addition, the court pointed to an article dealing with the Tosi study in which the authors had concluded that for the less-than-ideal conditions encountered in forensic situations, the indication was that the probability of error in voice identification would increase substantially. Finally, the court observed that in cases arising after the Tosi study, there was a sharp and fundamental division on the question of the admissibility of voiceprint evidence that went to the very validity of the process itself.

In holding that the Frye test still applied in Michigan despite recent criticism of it, the court in People v. Tobey, 401 Mich. 141, 257 N.W.2d 537 (977), ruled that the trial court had improperly admitted the testimony of the prosecution's experts, regarding voice identification based on examination of spectrograms, at the criminal trial because of the failure of the technique to satisfy Frye's test of general scientific recognition. The court declared that the general scientific recognition required by the Frye test could not be established without the testimony of disinterested and impartial experts, that is, scientists whose livelihood was not intimately connected with the new technique. Noting the close connections between the expert witnesses who testified in the case; the court concluded that neither expert witness, each of whose reputation and career had been built on his voiceprint work, could be said to be impartial or disinterested. The court added that its decision was not intended in any way to foreclose the introduction of voiceprint evidence in future cases if solid, scientific approval and support of this new method of identification were available.

In State v. Carv, 99 N.J. Super. 323, 239 A.2d 680 (Law Div. 1968), certification granted, 51 N.J. 575,242 A.2d 379 (968) and cause remanded, 53 N.J. 256, 250 A.2d 15 (1969) and aff'd on other grounds, 56 N.J. 16,264 A.2d 209 (1970), the court held that identification evidence based on the voiceprint process was inadmissible in a criminal trial because the voiceprint process has not reached the level of general scientific acceptance under Frye. During a trial for murder, the trial court had ordered the defendant to submit to a recording of his voice, so that the

evidenced the controversy concerning the scientific acceptance and reliability of the voiceprint technique. In addition, the court heard evidence as to a test performed at the instance of the prosecution, in which recordings of the voices of five speakers were correctly matched. The court, pointing out that a high degree of scientific acceptance' and reliability is vital when a criminal case is involved and the defendant's life or freedom may be at stake, declared that the only testimony as to the scientific acceptance and accuracy of the process was that of its innovator, whereas all the other evidence indicated that the process lacked the required scientific acceptance and that it was too early to tell whether the process was accurate and reliable. As a result, the court concluded that the voiceprint process has not met the legal criterion of "general scientific acceptance as a reliable means of ascertaining the truth," which criterion is a prerequisite for a court to take judicial notice of the technique or aid involved and thereby permit its admissibility into' evidence.

COMMENT:

The state appealed the decision of State v. Cary, 99 N.J. Super. 323, 239 A.2d 680 (Law Div. 1968), certification granted, 51 N.J. 575, 242 A.2d 379 (1968) and cause remanded, 53 N.J. 256, 250 A.2d 15 (1969) and' aff'd on other grounds, 56 N.J. 16,264 A.2d 209 (970), and, at its request, the court in State v. Cary, 53 N.J. 256, 250 A.2d 15 (1969), remanded the case for further expert testimony, but after notice from the state that it was not able to furnish any new and significant evidence, the court in State v. Cary, 56 N.J., 16,264 A.2d 209 (1970), affirmed the decision holding evidence of identity based on the voiceprint process inadmissible.

COMMENT:

The New Jersey Supreme Court subsequently held in State v. Andretta, 61 N.J. 544, 296 A.2d 644 (972); discussed in .LM. that, in light of recent scientific experiments and judicial acceptance of the voiceprint method, requiring the defendants to submit to a voiceprint test was not unreasonable.

In People v. Persaud, 226 A.D.2d 402,640 N.Y.S.2d 261 (2d Dep't 1996), the court refused to allow the defendant to present expert testimony, based on spectrographic voice analysis, that arguably would have served as exculpatory evidence at the criminal trial, because the defendant had failed, at a hearing held pursuant to Frye, to establish that the technique of spectrographic voice analysis was generally accepted within the scientific community as capable of being performed reliably. The state had apparently presented evidence at trial consisting of a tape recording of a 911 call during which the' caller confessed to killing the victim. Although the caller did not identify himself on the tape recording, the state also apparently presented evidence that the defendant was the caller. The defendant's expert sought to testify that a comparison of two spectrographic analyses (one of the 911 tape recording and one of a voice exemplar of the defendant) indicated the absence of a voiceprint match. The court upheld the lower court's ruling denying the defendant the opportunity to present such expert testimony.

COMMENT:

Unlike the courts in People v. Collins, 94 Misc. 2d 704,405 N.Y.S.2d 365 (Sup. Ct. 1978), and People v. Persaud, 226 A.D.2d 402,640 N.Y.S.2d 261 (2d Dep't 1996), the New York courts in People v. Rogers, 86 Misc. 2d 868, 385 N.Y.S.2d 228 (Sup. Ct. 1976), discussed in § 3 [a], and People v. Bein, 114 Misc. 2d 1021, 453 N.Y.S.2d 343 (Sup. Ct.1982), discussed in §...3[a] and § 11[a], upheld the admission of evidence regarding voice spectrographic analysis. Recognizing that there is a split in New York over the issue of admissibility, the court in People v. Jeter, 80 N.Y.2d 818, 587 N.Y.S.2d 583,600 N.E.2d 214(1992), agreed with the defendant that it was error for the trial court to admit the state's spectrographic evidence without first holding a hearing on its reliability.

Concluding that the standard that must be applied to the admissibility of spectrographic analysis is the twofold test of reliability [FN57] and general scientific acceptance, [FN58] the court in People v. Collins, 94 Misc. 2d 704, 405 N. Y.S.2d 365 (Sup. Ct. 1978), held that voiceprint identification evidence offered by the state was inadmissible, because the state had failed to present sufficient evidence to establish that the technique of sound spectrography for voice identification had gained general acceptance in the relevant scientific community. The court stated that the relevant scientific community was not limited to those scientists who actually employed the spectrograph for voice identification, but rather, included all speech scientists familiar with the use of the spectrograph for other purposes in connection with the human voice. In refusing to admit voiceprint evidence against the defendants, who were charged

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with attempted larceny, the court declared that the absence of a replication of the Tosi study, [FN59] or of other experiments on voiceprint identification, was by itself sufficient to rule evidence regarding the process inadmissible. The court also emphasized, however, other evidence of lack of acceptance within the scientific community, namely, a 1973 paper in which the authors concluded that the Tosi study was not responsive to questions of reliability in forensic situations and a poll of the Acoustical Society of America which revealed that 89 members agreed with the paper's conclusion, four disagreed, and seven did not respond. The court also pointed out that an expert witness for the defense testified that he had conversed with the six authors of the aforementioned paper during the last year and that their views were the same as in 1973, and that while he knew of six scientists who supported spectrography for voice identification, he was able to recollect at least 40 scientists, all on the Ph.D. level and in the relevant field of inquiry, who believed that voice identification by sound spectrography was not reliable.

Due to the failure of the state to establish that voice identification based on spectrographic analysis satisfied Frye's general acceptance test, the court in Com. v. Topa, 471 Pa. 223, 369 A.2d 1277 (1977), held that it was error to permit the prosecution to introduce, at a criminal trial, voice identification testimony of an expert witness who had analyzed the respective spectrograms of an unknown telephone caller and the defendant. The court, after observing that numerous scientific articles had contrasted fingerprints and spectrograms, pointed out that spectrograms were comparable with lie-detector tests. The state's expert witness, who was the sole expert witness in the case, testified that mimicry of voices would not affect the accuracy of voiceprint identification, that voice analysis was made more reliable by the aural examination of tape recordings in conjunction with spectrogram interpretation, and that there was no possibility of two different people producing the same spectrogram. The court pointed out, however, that the opinion of the state's expert witness, by itself, did not establish the general acceptance of the technique's validity required by the Frye standard. Furthermore, the court concluded from a study of the cases and commentaries that had addressed the issue that the reliability of the sound spectrograph and the voiceprint identification process had not as yet been generally accepted by the scientific community concerned with acoustical science.

[c] Held admissible for limited purpose

The following authority held that voice spectrographic analysis evidence offered by the prosecution would be admissible under the Frye standard for a limited purpose of identification.

In affirming a judgment of contempt against the defendant for disobeying an order to submit to a voiceprint test, the court in State v. Olderman 44 Ohio A. 2d 130 73 Ohio O.p. 2d 129 336 N.E.2d 442 (8th Dist. Cuyahoga County 1975), stated, by way of dictum, that if the prosecution's spectrographic voiceprint exemplar were properly qualified and shown to be reliable, it would be admissible under the Frye standard for identification purposes only. The court rejected the defendant's contention that since a voiceprint was inadmissible for identification or testimony purposes, the order requiring the furnishing of a voiceprint was erroneous. Recognizing that it could not then rule concerning whether the voice exemplar sought by the prosecution, and ordered by the court, would be admissible when and if offered into evidence, the court nevertheless stated in dictum that voice exemplars were, when properly qualified, admissible, and that the Frye standard governed this determination. The court observed that such a conclusion was in accord with the growing weight of authority.

COMMENT:

Subsequently, as discussed in § 7[a], the Ohio Supreme Court, in State v. Williams, 4 Ohio St. 3d 53, 446 N.E.2d 444 (1983), rejected the Frye standard and admitted evidence regarding voice spectrographic evidence in a criminal trial under what it termed a "more flexible standard," based on the Ohio Rules of Evidence.

§ 4. Evidence offered by defendant

[a] Held admissible

Ruling that voice spectrographic analysis has reached the level of general acceptance in the relevant scientific community contemplated by the Frye test, the following authority held that voice spectrographic analysis evidence offered by the defendant at a criminal trial was admissible.

In U.S. v. Maivia 728 F. Supp. 1471 30 Fed. R. Evid. Serv 103 (D. Haw. 1990) a criminal case in which the defendant offered expert testimony regarding voice identification by spectrographic analysis, the court held that such expert testimony was admissible based on its finding that the scientific principle at issue was sufficiently established to have gained general acceptance under Frye. The government's only direct evidence implicating the defendant on charges of extortion and conspiracy was a tape recorded message left on the alleged victim's telephone answering machine. The government had moved to exclude the testimony of the defendant's expert, who was going to testify that his spectrographic analysis of the tape recorded message and a tape recording of the defendant's voice indicated that the defendant did not leave the answering machine message. Nevertheless, to rebut the testimony of the defendant's expert, the government proffered testimony from its own voice spectrographic analysis expert regarding the process of voice identification by spectrographic analysis and the expert's specific determination that the defendant was the caller on the tape recorded message in question. In evaluating the admissibility of the experts' testimony under Frye, the court found that the scientific principle at issue (that individual voices sound distinctive and that the sound of a voice is reflected in the energy distribution recorded by a voice spectrogram) was sufficiently established to have gained general acceptance in the particular field in which it belongs. The court noted that Frye requires that the scientific principle, not the expert's deductions from that scientific principle, be generally accepted. Having no Ninth Circuit Court of Appeals decision directly on point, the court relied heavily on opinions from the Seventh Circuit [FN60] and Second Circuit, [FN61] as well as on the scientific literature. In concluding that the defendant had met his burden of establishing the scientific basis and reliability of the proposed expert testimony, the court also noted the presence of certain conditions and safeguards to which the defendant's expert had testified, as well as the fact that the experts used both aural and visual spectrographic methods when conducting their analyses.

[b] Held not admissible

Ruling that voice spectrographic analysis has not reached the level of general acceptance in the relevant scientific community contemplated by the Frye test, the following authority held that voice spectrographic analysis evidence offered by the defendant at a criminal trial was not admissible.

Proposed expert testimony on aural spectrographic voice identification failed to meet Daubert standard for reliability, as required for admission, in criminal prosecution, of expert's testimony regarding identification of an individual speaking on a tape recording; potential rate of error was unknown and could vary considerably, depending on the conditions of the particular application, method was not generally accepted by the scientific community, and peer review documented significant, long-standing unresolved doubts about the reliability of the method. 28 U.S.C.A. Fed. Rules Evid. Rule 702 U.S. v. Angleton. 269 F. Supp. 2d 892 (S.D. Tex. 2003).

In State v. Gortarez. 141 Ariz. 254. 686 P.2d 1224 (1984). a case in which the defendant presented expert opinion evidence involving comparisons of speech spectrograms, the court held that the evidence was not admissible in criminal trials because the technique of voice identification by spectrographic analysis did not, at that time, meet the Frye requirement of general acceptance in the relevant scientific community. A jury had found the appellant guilty of conspiracy to distribute heroin for sale. At trial, the state had presented wiretap evidence consisting of conversations between an alleged co-conspirator of the appellant and a man known as "Chayo," whom the state contended was the appellant. To disprove the state's theory regarding the identity of "Chayo," the appellant had presented expert opinion evidence comparing speech spectrograms of the appellant's voice with the state's tape recording of the voice of "Chayo." In evaluating the admissibility of expert testimony concerning spectrographic voice identification, the court relied heavily on a study "On the Theory and Practice of Voice Identification" (1979), initiated by the Federal Bureau of Investigation and conducted by the National Research Council's Committee on Evaluation of Sound Spectrograms, a multi-disciplinary committee consisting of experts in the following fields: acoustics, physics, speech communications, audio engineering, psychophysics, audiology, and speech and communication engineering. The court recognized that one of the Committee's primary concerns was sole speaker variability, that is the degree of variability among spectrographic depictions of the same word uttered by the same speaker, and that the Committee had concluded that much more extensive research was needed in the area of voice identification by spectrographic analysis because of such problems as sole speaker variability. Noting the lack of any further research in the five years since the Committee's report, the court held that because voice identification by spectrographic analysis had not reached a level of general acceptance under Frye, evidence based on the technique was inadmissible in criminal trials.

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B. In Preliminary Hearing to Establish Probable Cause of Commission of Crime

§ 5. Held admissible

The following authority held that voice spectrographic analysis had reached the level of general acceptance required by the Frye test and that evidence based on the technique was, therefore, admissible at a preliminary hearing to determine if there was probable cause that a crime had been committed.

In Hodo v. Superior Court, 30 Cat. App. 3d 778, 106 Cat Rptr. 547 (4th Dist. 1973), the court, applying the Frye test, held that the reliability of the voiceprint method of identification had reached the required level of general acceptance and that evidence based on the method was, therefore, admissible at a preliminary hearing to determine if there was probable cause that a crime had been committed. The expert testimony at issue in the case was that the voiceprints of an unidentified telephone caller, who had offered to receive a bribe and render a verdict for a party in a particular case, and of the petitioner, who was a juror in that case, were identical. After describing in detail the Tosi study, [FN62] the court emphasized the testimony of the expert that the voiceprint method of identification is extremely reliable when a professional examiner (as opposed to a student volunteer) has all the time he needs (as opposed to the 15 minutes allowed in the Tosi study), is responsible for his decision, and can listen to the voice samples as well as visually examine the voice spectrogram (the examiners in the study did not have voice samples available). To establish general acceptance and reliability, the court again emphasized the testimony of the expert that, although many people in the larger fields of acoustics and linguistics were not familiar with the voice technique, its reliability had generally been accepted by those experts in the field who would be expected to be familiar with its use. The court also observed that the expert had submitted an impressive list of those among his colleagues who now shared his present opinion as to the reliability of the voiceprint technique. The court distinguished People v. King, 266 Cat App. 2d 437, 72 Cat Rptr. 478 (2d Dist. 1968), discussed in § 3[b], in which the court had held that voiceprint identification was not admissible, on the ground that King occurred before the Tosi study and at a time when the scientific community was not of the opinion that voiceprints were reliable.

C. In Civil Proceeding

§ 6. Held not admissible

The following authority held that voice spectrographic analysis evidence was inadmissible in a civil proceeding where the evidence had failed to establish that the voiceprint technique was generally accepted by the relevant scientific community, as required by the Frye test.

In D'Arc v. D'Arc, 157 N.J. Super. 553, 385 A.2d 278 (Ch. Div. 1978), a matrimonial action, the court, applying the Frye test, held that the wife, who had sought to introduce the results of a voiceprint test comparing recordings of telephone conversations allegedly involving her husband and a voice exemplar made by the husband, had failed to establish that the voiceprint technique was generally accepted within the scientific community and that the results were, thus, inadmissible. The court emphasized the testimony of an expert witness for the husband that at least 30 close colleagues shared the view of the expert witness that the voiceprint technique could not validly identify an unknown speaker. In addition, the court pointed out, another expert witness for the husband challenged two basic assumptions behind the voiceprint technique: (1) that every individual in the world was unique in his or her speech; and (2) that their voices were so unique that they could be in and of themselves identified. This same expert, the court observed, also conducted two polls, the first showing that approximately 37 out of 41 scientists had stated that the technique was not valid, and the second showing that 42 out of 50 scientists had reached the same conclusion.

III. ADMISSIBILITY ON BASIS OF RELEVANCY ANALYSIS

A. In Criminal Trial

§ 7. Evidence offered by prosecution

[a] Held admissible

In the following cases, the courts, apparently applying a relevancy analysis to the issue of the admissibility of voice spectrographic analysis evidence offered by the prosecution, ruled such evidence admissible in a criminal trial based on the consideration of at least one of the following factors: (1) the relevance of the evidence; (2) its probative value; (3) its helpfulness to the trier of fact; (4) its tendency to mislead the jury; and (5) the reliability and/or validity of the process of voice spectrographic analysis.

Declaring that the admissibility of voiceprint evidence turns on an analysis of its probativeness, materiality, reliability, and tendency to mislead, the court in U. S. v. Williams, 583 F.2d 1194, 3 Fed. R. Evid. Servo 1063 (2d Cir. 1978), concluded that voiceprint evidence offered by the prosecution was admissible in a criminal trial. In an apparent rejection of the Frye test, the court stated that it was dealing with the admissibility of a particular type of scientific evidence, not the truth or falsity of an alleged scientific fact or truth. The court disposed of the inquiries of probativeness and materiality by finding that evidence that the "unknown" voice is that of the accused is probative and material where proof has established that the "unknown" voice was employed in the commission of, or in relation to, the crime alleged. Noting that spectrographic evidence need not be infallible to be reliable, the court based its conclusion that such evidence is reliable on the following factors: (1) the Tosi study rFN631 arrived at a false identification rate of only 6.3% , that was reduced to 2.4% when doubtful comparisons were eliminated; (2) the International Association of Voice Identification required that 10 matches be found before a positive identification could be made; (3) the voiceprint technique had been applied with care and concern as evidenced by the fact that the prosecution's expert had rendered a positive identification in only 8% of the 200 cases in which he had been involved; (4) spectrographic analysis was analogous to other types of scientific techniques, the results of which are routinely admitted into evidence; and (5) factors such as poor quality in the original tapes, that could affect spectrogram comparisons, are more likely to result in different, rather than in similar, spectrograms, and thus would work to the benefit, rather than the detriment, of the defendant. With respect to the tendency of voiceprint evidence to mislead, the court pointed out: (1) that spectrographic analysis involves a simple step of visual pattern matching that is easily comprehensible; (2) that a jury can examine objective components of the technique such as the tapes and the spectrograms themselves; (3) that factors such as the expert's qualifications and the reliability of the equipment are subject to challenge on cross-examination; and (4) that the trial court can instruct the jury that the expert's opinion is solely for their assistance and is subject to their complete rejection if they consider it unreliable. Noting that the record in the instant case demonstrated the presence of virtually all of the aforementioned safeguards designed to assure reliability and to prevent the jury from being misled, the court concluded that the trial court did not err in admitting voiceprint evidence against the defendant, who had been convicted of violations of federal narcotics laws.

Stating that it is better to admit relevant scientific evidence in the same manner as other expert testimony and to allow its weight to be attacked by cross-examination and refutation, the court in U. S. v. Baller, 519 F.2d 463 (4th Cir. 1975), ruled that the prosecution's evidence regarding spectrographic identification was admissible in a criminal trial. The court stated that the admissibility of spectrographic identification turned primarily on whether the validity of the procedure had been sufficiently proved to allow a jury to give the evidence whatever weight it saw fit. The court recognized that the government's expert was a pioneer, and a qualified practitioner, of the technique, that the evidence demonstrated spectrography's probative value, despite doubts within the scientific community about its absolute accuracy, and that competent witnesses were available to expose the limitations of spectrographic identification. As a result, the court concluded that the trial court, in the exercise of its discretion to admit or exclude evidence, had adequately guarded against the dangers inherent in the use of the newly developed scientific test of spectrographic identification. The court, as discussed in § 18, also noted that the trial court had instructed the jury that they could disregard the testimony of the government's expert if they decided that the testimony was not based on adequate education or experience or that the science of voiceprint identification was not sufficiently reliable.

Rejecting the Frye standard and applying instead the principle that so long as the proper expert was qualified and the probative value was not substantially outweighed by other considerations, the controlling criteria regarding the admissibility of expert testimony were whether the testimony was relevant and whether it would assist the trier of fact, the court in State v. Williams, 388 A2d 500 (Me. 1978), held that voice identification testimony of the prosecution's expert witnesses, that testimony was based on spectrographic analysis, was admissible in a criminal trial. Specifically, the court ruled that the trial court had properly admitted into evidence the voice identification testimony of two expert witnesses who, on the basis of the comparison of spectrographs, identified the defendant as the person who had called in a bomb threat. Noting that "relevant" was defined in the Maine Rules of Evidence as

evidence having any tendency to make the existence of any fact of consequence more or less probable than it would be without the evidence, the court concluded that the voice identification testimony was relevant in view of the Tosi study [FN64] regarding the reliability of the technique. With respect to the testimony of acoustical scientists who opposed the use of such evidence, the court explained that these experts focused only on the difficulties of comparison, the exercise of judgment, and the failure of the experiments to account for many real world variables, but that none of them questioned the principle that recordings of different human voices varied more in time, frequency, and intensity, than recordings of the same voice, and that the spectrograph could accurately plot these variables.

In State v. Williams, 4 Ohio St. 3d 53, 446 N.E.2d 444 (1983), the court held that testimony by the state's expert regarding voice analysis and identification was admissible in a criminal trial because it was relevant" and helpful to the trier of fact. Rejecting both the Frye test and the Sixth Circuit's test for admissibility, that was set out in S. v. Franks, 511 F.2d 25 (6th Cir. 1975), discussed in § 3[a] and § 11[a], the Ohio Supreme Court adopted what it called a "more flexible standard," based on the Ohio Rules of Evidence. This flexible standard favors admissibility of expert testimony that is relevant under Ohio Evidence Rule 402, and helpful to the trier of fact in accordance with Ohio Evidence Rule 702. The court acknowledged because of the flexibility of this standard that Ohio courts must resolve the issue of the admissibility of expert testimony on a case by case basis. In this case, the court found: (1) that there was sufficient evidence of the reliability of voice identification to qualify the testimony of the state's expert as relevant; and (2) that there was sufficient evidence to qualify the state's witness as an expert witness. As a result, the court ruled that it was not error for the trial court to admit the testimony of the state's expert regarding voice analysis and identification. The court noted, however, that in spite of its admission of the expert testimony, the jury is still at liberty to reject such testimony.

In State v. Wheeler, 496 A.2d 1382 (R.I. 1985), the court held that the testimony of the prosecution's; expert, regarding voice identification by means of spectrographic analysis, was admissible in a criminal trial under the test for admissibility of expert testimony set out in Rhode Island case law, that involves, among other things, a determination of the relevance of the testimony. The defendant had argued that the Frye test should apply to the issue of the admissibility of expert testimony regarding speech spectrograph voice identification. Acknowledging the controversy surrounding the Frye test, the court instead applied state common law, containing five criteria for determining the admissibility of expert testimony. First, the court stated that the trial court must determine, in its discretion, that the expert testimony is relevant so that it tends to make the existence of any fact that is of consequence to the determination of the action more probable, or less probable, than it would have been without the evidence. Second, the trial court must determine that expert testimony is appropriate given the subject matter. Third, the trial court must determine that the probative value of the expert testimony outweighs the risk that jurors will grant an expert witness greater credibility. Fourth, the trial court must determine that the expert is sufficiently qualified-to testify. Fifth, and most importantly, the expert testimony must be of "substantial probative value" so that it is helpful to the trier of fact. The trial court had found that the proffered expert testimony of voice spectrographic identification was admissible under the above common-law criteria. The appellate court upheld the trial court's ruling, particularly since the defendants had adequate opportunity to cross-examine the state's experts regarding both the reliability of voice spectrographic identification and their testimony, in general.

. Finding that the state's voiceprint identification expert was qualified, that the voiceprint identification evidence was relevant, and that the probative value of the evidence outweighed any prejudice to the defendant, the court in State v. Kendlev, 147 Wis. 2d 877, 433 N.W.2d 674 (Ct. App 1988) [unpublished disposition 1988 WL 136024], upheld the admission of voiceprint identification evidence in a criminal trial. In so doing, the court rejected the defendant's arguments that the state's expert was not qualified and that voiceprint identification was not a science or an art. The court held that, as a leading authority in the field of voiceprint identification, the state's witness could testify and that any question as to the validity of the underlying scientific theory was a proper subject for cross-examination and impeachment.

[b] Held not admissible

Applying a relevancy analysis to the issue of the admissibility of the state's voice identification evidence, based on aural and spectrographic analysis, the following authority held that such evidence was inadmissible in a criminal trial because the probative value of the evidence was outweighed by certain prejudicial factors.

Applying what it termed a "balancing test," the court in State v. Free, 493 So. 2d 781 (La. Ct. ADD. 2d Cir. 1986), writ denied, 499 So. 2d 83 (La. 1987), held that although the state's voice identification evidence based on aural and spectrographic analysis was relevant, the probative value was outweighed by certain prejudicial factors, thereby rendering such evidence inadmissible in criminal trials. While the balancing test that the court applied was intended to be an alternative to the Frye test, the court acknowledged that the analysis required by the balancing test resembles the analysis required under Frye. Under the balancing test, the court must determine whether the probative value of the scientific evidence is outweighed by prejudicial factors, such as: (1) the likelihood that the trier of fact will give conclusive weight to the scientific evidence; (2) the availability of highly qualified experts to both parties; and (3) the existence of procedural safeguards that will prevent unnecessary, prolonged presentation of scientific evidence. The court found that even though the state presented relevant voice identification evidence through a qualified expert witness, the evidence's probative value was outweighed by the limited number of qualified voice identification experts available (24 in the world at the time of the case) and the lack of procedural safeguards regarding the presentation of such evidence. Implicitly acknowledging the possibility of the admissibility of voice identification evidence based on spectrography in future criminal trials, though, the court suggested the establishment of nine procedural safeguards that address the following matters: (1) the qualifications of the person who conducts the voice spectrographic analysis; (2) the parameters of the expert's analysis; (3) the introduction into evidence of the spectrograms and voice recordings and their availability to the jury or trier of fact; (4) the giving of cautionary instructions to the jury; and (5) the defendant's right to have an expert testify regarding the reliability of spectrographic analysis and the results of the defense expert's own spectrographic analysis. In addition, as discussed in § 9, the court stated in dictum that a trial judge has discretion in post-trial proceedings to admit voice identification evidence based on aural and spectrographic analysis whenever such evidence is helpful and reliable.

§ 8. Evidence offered by defendant

The following authority adjudicated whether, under the relevancy analysis, expert testimony regarding spectrographic voice analysis offered by the defendant in a criminal trial was admissible.

Ruling on the defendant's proffer of expert testimony regarding voice spectrographic analysis, the court in U.S. v. Maivia, 728 F. Supp. 1471, 30 Fed. R. Evid. Servo 103 (D. Haw. 1990), held that expert testimony regarding spectrographic voice analysis was of "appreciable help" to the jury and, therefore, was admissible in a criminal trial, where a tape recording, allegedly made by the defendant, was the only direct evidence linking the defendant to the crime and both the government and the defendant had qualified experts available to testify. The court cited the Ninth Circuit's general test regarding the admissibility of expert testimony (whether the jury can receive "appreciable help" from such testimony) as one of three bases for admitting expert testimony regarding spectrographic voice analysis. The court's other two bases for admitting expert testimony regarding spectrographic analysis involved: (1) a determination of admissibility under the Frye test, discussed in § 4[a]; and (2) the admission of the testimony based on general judicial recognition of its admissibility, discussed in § 16.

B. In Criminal Post-trial Proceeding

§ 9. Held admissible

The following authority, based on its apparent application of a relevancy analysis, stated that voice identification evidence based on aural and spectrographic analysis may be admissible in criminal post trial proceedings if the evidence is reliable and helpful to the trier of fact.

Applying what it termed a "balancing test" under which the court must determine whether the probative value of voice identification evidence based on aural and spectrographic analysis is outweighed by certain prejudicial factors, the court in State v. Free, 493 So. 2d 781 (La. Ct. APt. 2d Cir. 1986), writ denied, 499 So. 2d 83 (La. 1987), stated in dictum that a trial judge has discretion in post-trial proceedings to admit voice identification evidence based on aural and spectrographic analysis whenever such evidence is reliable and helpful to the trier of fact. With respect to the question at issue in the case (the admissibility at a criminal trial of voice identification evidence based on aural and spectrographic analysis) the court found, as discussed in § 7[b], that even though the state presented relevant voice identification evidence through a qualified expert witness, the evidence's probative value was outweighed by

the limited number of qualified voice identification experts available (24 in the world at the time of the case) and the lack of procedural safeguards regarding the presentation of such evidence.

C. In Probation Revocation Hearing

§ 10. Held admissible for limited purpose

The following authority held that voiceprint identification testimony was admissible in a probation revocation hearing for a limited purpose where, under the general rule governing the admissibility of expert opinion evidence, the voiceprint identification testimony was relevant.

Applying the general rule governing the admissibility of expert opinion evidence, namely, that such evidence is admissible if it is relevant and the witness is qualified, the court in U. S. v. Sample, 378 F. Supp. 44 (E.D. Pa. 1974), a probation revocation hearing, held that the voiceprint identification testimony of the state's expert, based on a comparison of voice spectrograms, was admissible to corroborate the testimony of a governmental witness that identified the defendant as the unknown speaker in a recorded telephone conversation at issue in the case. Noting that the government's burden of proof in a probation revocation hearing is a preponderance of the evidence, the court rejected the Frye test of general acceptance in a scientific community. Based on the testimony of the state's expert, about whom there was evidence showing him to be qualified to testify as to the reliability of spectrogram analysis, the acceptance of voiceprint evidence by other courts, and the fact that the defendant offered no evidence challenging the reliability of the voiceprint evidence, the court concluded that the technique was sufficiently reliable for purposes of the hearing, and revoked the defendant's probation.

IV. ADMISSIBILITY ON BASIS OF SCIENTIFIC SOUNDNESS TEST

A. In Criminal Trial

§ 11. Evidence offered by prosecution

[a] Held admissible

Based, at least in part, on a finding that the technique of voice spectrographic analysis is reliable, the courts in the following cases, apparently applying the scientific soundness test to the issue of the admissibility of voice spectrographic analysis evidence, held that such evidence was admissible in a criminal trial.

Where the trial court qualified the prosecution's expert voiceprint witness only after an extensive inquiry into his qualifications and the reliability of the scientific process, defense counsel were permitted to cross-examine the witness concerning both his purported role as an advocate of the process and the refusal of courts in other jurisdictions to admit voiceprint evidence, and neither defendant produced a witness rebutting the government's claim that voiceprint analysis was sufficiently accurate to be admissible, the court in U. S. v. Franks, 511 F.2d 25 (6th Cir. 1975), ruled that the trial judge was within his discretion in admitting voiceprint analysis evidence. Observing that there was a considerable area of discretion on the part of the trial judge in admitting or refusing to admit evidence based on scientific processes and that those opposing admissibility of scientific tests could direct their criticisms toward the weight of such evidence, the court rejected the defendants' contention that voiceprint analysis was too inaccurate to be admitted into evidence and thus affirmed their conviction for various offenses involving interference with interstate commerce. The court explained that general acceptance was nearly synonymous with reliability and that if a scientific process was reliable, or sufficiently accurate, the courts might also deem it generally accepted.

The court in U. S. v. Jenkins, 525 F.2d 819 (6th Cir. 1975), ruled that the trial court had committed no error in admitting the voice identification testimony of the prosecution's expert witness, where the trial court had conducted an extensive inquiry into the qualifications of the expert witness and the reliability of the scientific process that he used before qualifying him as an expert. The court declared that voiceprint analysis falls into the category of scientific evidence and that its admissibility is a matter within a trial judge's discretion. The court pointed out that the required foundation was properly laid for the expert witness's testimony regarding voice identification and that

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the background and training of the expert witness, as well as the accuracy of the voiceprint method of analysis, were subjected to detailed scrutiny and lengthy direct examination and rigorous cross-examination.

See State v. Andretta, 61 N.J. 544, 296 A2d 644 (1972), where the court, although not ruling on the issue of admissibility of voiceprint evidence, ordered the defendants to submit to voiceprint tests and set forth the test for admissibility should the state offer the results of the voiceprint tests at trial. Distinguishing the case of State v. Cary, 49 N.J. 343, 230 A2d 384 (1967), discussed in § 3[b], the court noted that, at the hearing below, numerous experts had testified as to the reliability of the voiceprint technique, and that other jurisdictions had admitted voiceprint evidence since Cary. The court declared that if the state desired to offer the results of the voiceprint test at trial, the trial judge should hold an additional pretrial hearing to determine whether any identification arrived at through the use of this method was sufficiently reliable to be admissible in light of the proofs that would be adduced as to what the test showed, and such a cross-examination of the state's experts and any opposing proofs as the defendants might be able to offer.

Based, in part, on the court's determination that there was competent expert testimony establishing voice identification by spectrographic analysis as a sufficiently reliable procedure, the court in People v. Bein, 114 Misc. 2d 1021, 453 N.Y.S.2d 343 (Sup. Ct. 1982), granted the state's motion in limine and held that evidence of voice identification by spectrographic analysis was admissible in a criminal trial. The court applied a twofold test consisting of (1) whether the procedure has been generally accepted by the relevant scientific community, discussed in § 3[a], and/or (2) whether there is competent expert testimony establishing the reliability of the voiceprint process, and held that voice identification by spectrographic analysis satisfied both criteria. In holding that voice identification by spectrographic analysis satisfies both the general acceptance criterion and the reliability criterion, the court relied on the testimony of the state's witness, an officer with the Michigan Department of State Police who was in charge of the Department's Voice Identification Unit, and discounted the testimony of the defendant's expert, a Professor of Psychology and Speech and Hearing Science at the City University of New York. According to the court, the officer's testimony as to the training required of voice spectrogram examiners certified by the International Association of Voice Identification, the process of voice spectrographic analysis, the research studies involving voice spectrographic analysis and the standards that examiners follow in order to ensure the reliability of voice comparisons convinced the court of the reliability of voice identification by spectrographic analysis when a certified voice examiner conducts the analysis.

COMMENT:

Like the court in People v. Bein, 114 Misc. 2d 1021, 453 N.Y.S.2d 343 (Sup. Ct. 1982), the court in People v. Rogers, 86 Misc. 2d 868, 385 N.Y.S.2d 228 (Sup. Ct. 1976), discussed in § 3[a], upheld the admission of evidence regarding voice spectrographic analysis. In contrast, the New York courts in People v. Collins, 94 Misc. 2d 704, 405 N.Y.S.2d 365 (Sup. Ct. 1978), discussed in § 3[b] and § 11 [b], and People v. Persaud, 226 A.D.2d 402, 640 N.Y.S.2d 261 (2d Dep't 1996), discussed in § 3[b] held such evidence inadmissible. Recognizing that there is a split in New York over the issue of admissibility, the court in People v. Jeter, 80 N.Y.2d 818, 587 N.Y.S.2d 583, 600 N.E.2d 214 (1992), agreed with the defendant that it was error for the trial court to admit the state's spectrographic evidence without first holding a hearing on its reliability.

[b] Held not admissible

Based, in part, on a finding that the state had failed to establish the reliability of the technique of voice identification by spectrographic analysis, the following authority, apparently applying the scientific soundness test to the issue of admissibility, refused to admit voice spectrographic analysis evidence offered by the state in a criminal trial.

Concluding that the standard applicable to the admissibility of spectrographic analysis is the twofold test of reliability and general scientific acceptance, [FN65] the court in People v. Collins, 94 Misc. 2d 704, 405 N.Y.S.2d 365 (Sup. Ct. 1978), held that the state had not established the reliability of the voiceprint process and thus denied the state's motion for a ruling that voice identification by spectrographic analysis was sufficiently reliable to warrant admission into evidence in a criminal trial against the defendants. The court's holding was based on the following factors. First, the court acknowledged that there was an absence of proof to support the basic assumption underlying

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the voiceprint process, namely, that interspeaker variability is always greater than intraspeaker variability. Second, although testimony indicated that the size of the voice sample was very important, the court recognized that the standard for determining the sufficiency of the spectrographic sample was entirely subjective. Third, the court noted that aural examination of the voice sample is a highly subjective process and that although aural examination of the voice sample plays a significant role in the actual practice of analyzing spectrograms, there is a difference of opinion among the experts as to the exact nature of the role that it plays in the process. Fourth, the court characterized the refinements that the state's expert asserted would render the voiceprint technique more reliable in a forensic, rather than an experimental situation, ~ as being highly speculative and depending largely on subjective conditions that will vary with each examiner. Fifth, the court found that there was an absence of evidence as to the actual effect of noise, distortion, and fidelity on spectrographic analysis. Finally, the court stated that it was not clear whether it was necessary to compare voice samples where the subjects articulated the same words. Other relevant factors that the court noted were: (1) the absence of research regarding the effect of disguise and mimicry; (2) the fact that female voices had not been the subject of serious study; and (3) the fact that no studies had been done to determine the effect of stress in the production and interpretation of spectrograms. Noting that handwriting analysis was admissible in New York, the court pointed out that handwriting analysis, unlike voiceprint analysis, does not involve a scientific "test," but, rather, a mental process that is fundamentally similar to the mental process of a lay witness who happens to be familiar with a particular handwriting specimen. Consequently, the court expressed concern that whereas a trier of fact can presumably assimilate expert testimony concerning handwriting analysis and accord it the weight it deserves, a jury would necessarily give tremendous weight to the results of a scientific test such as voice identification by spectrographic analysis.

COMMENT:

Unlike the courts in People v. Collins, 94 Misc. 2d 704, 405 N.Y.S.2d 365 (Sup. Ct. 1978), and People v. Persaud, 226 A.D.2d 402, 640 N.Y.S.2d 261 (2d Dep't 1996), discussed in § 3[b], the New York courts in People v. Rogers, 86 Misc. 2d 868, 385 N.Y.S.2d 228 (Sup. Ct. 1976), discussed in § 3[a], and People v. Bein, 114 Misc. 2d 1021, 453 N.Y.S.2d 343 (Sup. Ct. 1982), discussed in § 3[a] and § 11[a], upheld the admission of evidence regarding voice spectrographic analysis. Recognizing that there is a split in New York over the issue of admissibility, the court in People v. Jeter, 80 N.Y.2d 818, 587 N.Y.S.2d 583, 600 N.E.2d 214 (1992), agreed with the defendant that it was error for the trial court to admit the state's spectrographic evidence without first holding a hearing on its reliability.

[c] Held admissible for limited purpose

Apparently applying a scientific soundness test, the courts in the following cases held that voice spectrographic analysis evidence offered by the prosecution was admissible for limited purposes in a criminal trial.

Observing that Florida courts had enjoyed considerable discretion in the admission of novel or experimental evidence, if they felt that certain standards of scientific reliability had been attained, the court in Worley v. State, 263 So. 2d 613 (Fla. Dist. Ct. App. 4th Dist. 1972), concluded that such standards prevailed in this case on the basis of testimony by the state's experts and that, as a result, the criminal trial court had properly admitted voiceprints to corroborate the identification of the defendant by other means. Thus, the court accepted the testimony of the state's experts, that testimony was based on their own extensive experiments with over 34,000 spectrographic comparisons and on the work of others, that trained examiners could reliably match voices in excess of 98% of the time by comparing voiceprints. The court further emphasized that since the date of earlier decisions in other jurisdictions where the courts had refused to admit evidence of identifications based on voiceprint comparison, impressive scientific data had been amassed as to the voiceprint's reliability. In affirming a judgment of conviction for making false bomb threats by telephone, however, the court declared that it was not deciding if voiceprint identification, standing alone, would be sufficient to sustain the identification and conviction of the defendant.

See Alea v. State, 265 So. 2d 96 (Fla. Dist. Ct. App. 3d Dist. 1972), an appeal from a conviction of extortion after a nonjury trial, where the court, while not stating a specific test for admissibility, cited the case of Worley v. State, 263 So. 2d 613 (Fla. Dist. Ct. App. 4th Dist. 1972), discussed in this section, as support for its ruling that it

not rest on the evidence of the voiceprint experts alone. In support of its ruling, the court noted that aural voice identification is admissible, that several recent cases from other jurisdictions had held that voiceprints were admissible, and that the court in *Worley* had held, in a case where the evidence was ample to sustain conviction even without the use of voiceprints, that the admission of voiceprints to corroborate identification of the defendants by other means was proper. The court pointed out that, in the present case, there was other substantial evidence to identify the defendant as the perpetrator of the crime and that two witnesses, who testified without the aid of voiceprint identification, also identified his voice.

In ruling that the identification testimony of the state's expert, based on spectrographic analysis, was sufficient proof of probable cause to justify the issuance of an arrest and search warrant, discussed in §...13, the court in *State ex rel. Trimble v. Hedman*, 291 Minn. 442, 192 N.W.2d 432, 49 A.L.R.3d 903 (1971), apparently applying a scientific soundness test, stated by way of dictum that spectrograms ought to be admissible, even in the trial of the case, at least for a limited purpose. The court observed that decisions from other jurisdictions where the courts had not admitted voiceprint evidence had occurred before the Tosi study [FN67] concluded that voiceprint analysis by a trained examiner was extremely reliable. Furthermore, the court pointed out that the defendant's expert had admitted that the human ear listening to voices, coupled with a skilled spectrograph operator analyzing spectrograms, definitely could be more accurate than the human ear alone. Finally, the court noted that identifications by aural voice comparisons, including those based on telephone conversations or recordings by mechanical means, were generally held admissible and that voice comparisons by spectrograms corroborated identification by means of ear. In light of this evidence, the court stated that voice comparisons by spectrograms should be admissible for purposes of corroborating opinions as to identification by means of ear alone, if a sufficient foundation was laid to satisfy the trial judge that the expert, whose opinion was sought, was qualified to assist the trier of fact in coming to the right conclusion. As discussed in § 18 the court added that, where experts disagreed, it was for the trier of fact to determine which expert was more credible and therefore more acceptable.

§ 12. Evidence offered by defendant

Apparently applying a scientific soundness test, the following authority adjudicated whether expert testimony offered by the defendant in a criminal trial based on voice spectrographic analysis was admissible.

Proffered expert testimony of scientist in field of spectrographic voice analysis lacked probative value, in that it demonstrated only that no meaningful scientific analysis was possible, and therefore exclusion of such testimony was not abuse of discretion in drug prosecution. Comprehensive Drug Abuse Prevention and Control Act of 1970, § 401(a)(1), 406, 21 U.S.C.A. § 841(a)(1), 846; Fed. Rules Evid. Rules 401, 702, 28 U.S.C.A. U.S. v. Ricketts, 122 Fed. Appx. 4 (4th Cir. 2004).

Sustaining the prosecution's objection to opinion testimony based on voice analysis that the defendant had offered to prove the unreliability of the content of certain tape recordings, the court in *People v. Drake*, 748 P.2d 1237 (Colo. 1988), ruled that the opinion testimony was relevant, but not admissible, in a criminal trial, based on the defendant's failure to prove the reliability of voice analysis. The defendant's brother had killed the defendant's wife. The defendant was convicted of murder for his role in his wife's death. There were two tape recordings at issue in the case. Each of the tape recordings was of an interview that the defendant, while in custody, had initiated with police investigators. In the first interview, the defendant stated that his brother had initiated the killing. In the second interview, that was two days after the first interview, the defendant stated that the murder of his wife was his idea. The prosecution argued that the defendant's statement in the first interview was false, but that his statement in the second interview was true. In response to the prosecution's argument, the defendant offered the testimony of a linguistics specialist familiar with voiceprint analysis. The defendant's expert would have testified that because the voice spectrograms from the two interviews were substantially similar, either the defendant was lying in both interviews or the defendant was telling the truth in both interviews. In addition to raising the issue of the relevance of the testimony, the prosecution had argued that the field of expertise of the defendant's expert was not recognized as a sufficiently established discipline in the scientific community. Although the trial court rejected the testimony of the defendant's expert as not relevant, the appellate court, citing Colorado Rule of Evidence 401, stated that the expert testimony was relevant to the defendant's argument that both of his statements to police investigators were unreliable. Nevertheless, the appellate court upheld the trial court's decision to exclude the testimony based on the prosecution's objection, noting that scientific studies have challenged the accuracy of voice analysis and that many

courts have found such expert testimony regarding voice analysis to be inadmissible due to the inherent deficiencies in the technique.

B. In Hearing to Determine Probable Cause for Arrest and Search Warrant

§ 13. Held admissible for limited purposes

Apparently applying a scientific soundness test to the issue of the admissibility of voice comparisons by spectrogram, the following authority held that, in a hearing to determine probable cause for the issuance of an arrest and search warrant, voice comparisons by spectrogram ought to be admissible for limited purposes.

In ruling on the sufficiency of proof that the state had presented to secure an arrest and search warrant on charges arising from the murder by a sniper of one of two police officers responding to a 911 call, the court in State ex rel. Trimble v. Hedman, 291 Minn. 442, 192 N.W.2d 432, 49 A.L.R.3d 903 (1971), held, apparently based on a scientific soundness test, that voice comparisons by spectrogram ought to be admissible for limited purposes. In order to show probable cause for the warrant, the state had submitted information to the magistrate in the form of expert testimony. The state's expert had testified that a spectrographic comparison of the tape recording made of the 911 call to police headquarters with a tape recording of the voice of the woman for whom the warrant was sought indicated that the voices on the two tapes were the same. In ruling that the state had provided sufficient information to the magistrate to justify the issuance of the warrant, the court emphasized that probable cause for arrest required something more than mere suspicion, but something less than the evidence that would sustain a conviction. In light of the testimony of the state's experts as to the reliability of the voiceprint process and the fact that identification by aural voice comparison was admissible, the court concluded that spectrograms ought to be admissible, at least for the purpose of corroborating opinions as to identification by means of ear alone, and for the purpose of impeachment. The court, as discussed in § 18, noted that the weight and credibility of such evidence lies with the finder of facts.

C. In Civil Proceeding

§ 14. Held not admissible

In the following cases, the courts, applying a scientific soundness test, held that voice spectrographic analysis evidence was inadmissible in a civil proceeding, due to the lack of sufficient evidence as to the reliability of the technique of voice spectrographic analysis.

The court noted that the Tosi study failed to duplicate the forensic setting in the following ways: (1) the test examiners were to compare the unknown voice to a limited number of known voices; (2) the test examiners had the advantage of voice exemplars made in a laboratory setting with modern equipment; and (3) all of the exemplars were made at or about the same time. The court also questioned such factors as: (1) the reliability of the spectrograph as an instrument; (2) the lack of information as to whether the Tosi study involved persons of similar height, weight, age, and so forth, who might produce similar spectrograms; (3) the fact that the only people to test the professional examiners were the two persons who had trained and qualified the examiners; and (4) the lack of experimental verification of the basic assumption that no two persons make the same sound spectrogram. Finally, the court pointed out that when one examined only the 1/3 of the Tosi tests that had been performed in a forensic setting, the rate of error for false identification rose from 6% to 16%. In light of the evidence presented, as well as the potential for jurors to view evidence based on the voiceprint method as conclusive and dispositive due to its "scientific" nature, the court ruled that the voiceprint evidence was inadmissible.

In Windmere, Inc. v. International Ins. Co., 105- N.J. 373, 522 A.2d 405 (1987), an action by a restaurant owner against the insurer for fire loss recovery, the court ruled that evidence regarding the results of a voiceprint analysis was inadmissible because of the lack of sufficient evidence of its reliability. The court stated that, in order to be admissible, a scientific technique must have sufficient scientific basis to produce uniform and reasonably reliable results and contribute materially to the ascertainment of truth. With respect to reliability, the court acknowledged that Frye's general acceptance test is one of the critical factors to consider, but that unanimous acceptance within the scientific community and universal infallibility of the scientific technique are not necessary and that the end result of

a finding of reliability of a scientific device is judicial validation of the device for all future use. In evaluating the reliability of voiceprint analysis, the court looked to three sources of proof and found that: (1) the testimony of knowledgeable experts did not establish general acceptance of voice print analysis within the professional community; (2) authoritative scientific literature did not demonstrate that there was any measure of universal acceptance of the voice print analysis' reliability; and (3) there was no judicial acceptance of voiceprint analysis. The court, therefore, held that it was error for the trial court to admit expert testimony regarding the results of a voiceprint analysis. The court did not preclude the admission of expert testimony regarding the voiceprint analyses in future litigation, however, noting in passing the possibility of such evidence being admissible in future litigation if more thorough proofs as to reliability were available.

In D'Arc v. D'Arc, 157 N.J. Super. 553, 385 A.2d 278 (ch Div. 1978), a matrimonial action, the court concluded that the voiceprint method was not sufficiently reliable to be admissible. In so doing, the court applied the test enunciated in the case of State v. Andretta, 61 N.J. 544, 296 A.2d 644 (1972), discussed in § 11[a], namely, whether the voiceprint method is sufficiently reliable to be admissible in light of the evidence both in favor of and against it, stating that New Jersey courts were authorized to use this test, in addition to the Frye test, when determining admissibility. In concluding that the technique was not sufficiently reliable, the court first noted that spectrography, unlike fingerprint identification, was really an art rather than a science, in view of the fact that speech had not been proven to be invariant, it could be disguised, and it was uncertain whether voices changed due to age or illness. The court further pointed out that there was a need for more major studies so that the results could be compared with the results of the Tosi study, which was the only major study in the last 20 years. [FN68]

D. In General Court-Martial Proceeding

§ 15. Held admissible

Apparently applying a scientific soundness test, the following authority held that it was not error to admit voiceprint identification testimony in a general court-martial proceeding.

The court in U.S. v. Wright, 37 C.M.R. 447, 1967 WL 4287 (C.M.A. 1967), held that there was no error in admitting voiceprint identification testimony in a general court-martial proceeding during which the testimony of the voiceprint analyst established that his system of voice identification had, experimentally and in practical application, demonstrated a high degree of accuracy and that he was personally qualified to testify as an expert on comparisons of sound patterns made by human voices. Although expert witnesses for the defense had expressed reservations as to the complete reliability of the analyst's system and procedures, and although there was some evidence of disagreement in the scientific community as to the reliability of the machine that made the prints and the validity of the criteria used to interpret them, the court explained that such evidence did not render the voiceprint identification testimony inadmissible. According to the court, courts have consistently recognized the admissibility of the testimony of experts in areas where there is neither infallibility of results nor unanimity of opinion as to the existence of a particular condition or fact, well-known examples being the admission of different opinions of psychiatrists as to the mental condition of a particular person and the identification of the author of a questioned document by handwriting comparison. The court pointed out that voice identification of a person by human ear is a common-place experience and has long been recognized in the courts, and that what was new here was that the voice identification was made by a machine that produced a picture of the voice. The court also noted that the tape recording sought to be identified and a test recording made by the defendant were both before the court-martial and played in open court so that the court members could thus determine for themselves the margin of error, if any, in the expert opinion of the voiceprint analyst.

V. ADMISSIBILITY ON BASIS OF GENERAL JUDICIAL RECOGNITION OF EVIDENCE'S ADMISSIBILITY

§ 16. In criminal trial

Based on the court's finding that the admissibility of spectrographic evidence to identify voices has received general judicial recognition, the court in the following case held that expert testimony regarding spectrographic analysis for voice identification was admissible in a criminal trial.

In U.S. v. Maivia, 728 F. Supp. 1471, 30 Fed. R. Evid. Serv 103 (D. Haw. 1990), the court held, based on the general judicial recognition of the admissibility of expert testimony regarding voice identification by spectrographic analysis, that the evidence was admissible in a criminal trial. Although, as discussed in .§ 4[a], the court ruled that expert testimony regarding spectrographic voice identification is admissible under Frye, the court also found, in the alternative, that such expert testimony is admissible even absent application of the Frye test. Explaining that courts use the Frye test to determine the admissibility of expert testimony regarding "novel" scientific techniques, the court stated that spectrographic analysis to identify voices is no longer a novel scientific technique because the admissibility of spectrographic evidence to identify voices has received general judicial recognition. Consequently, the court held that the Frye test no longer applies to the question of the admissibility of spectrographic evidence to identify voices.

VI. ADMISSIBILITY ON BASIS OF DAUBERT STANDARD

§ 17. In criminal trial

Applying the Daubert standard to the issue of admissibility in a criminal trial, the following authorities adjudicated the admissibility of expert testimony regarding voice spectrographic analysis.

The court in U.S. V. Bahena, 223 F.3d 797 (8th Cir. 2000), cert. denied, 121 S. Ct. 1163, 148 L. Ed. 2d 1023 (U.S. 2001), affirmed the determination by the district court that the testimony of the defense expert witness that, based on voice spectrography analysis, the voice heard on 16 of 21 tape recordings of conversations allegedly involving the defendant was not that of the defendant, was not reliable, and thus was inadmissible under Daubert in a drug prosecution, was not an abuse of discretion, where the expert had no college degree and no formal training in voice spectrography, and gave vague responses to many technical questions, and had used copies of the tapes of the conversations in question in his analysis, rather than the original tapes.

In State v. Coon, 974 P.2d 386, 95 A.L.R.5th 729 (Alaska 1999), reh'g denied, (July 30, 1999), the court, applying the Daubert standard, held that the criminal trial court's, admission of expert testimony regarding voice spectrographic analysis was not an abuse of discretion. The trial court had ruled that the testimony of the state's expert regarding voice spectrographic analysis was admissible under both the Frye standard and the Daubert standard. Recognizing that the Frye standard both excludes scientifically reliable evidence that is not yet generally accepted and admits scientifically unreliable evidence that, although generally accepted, cannot meet rigorous scientific scrutiny, the court stated that the Frye standard is inconsistent with the Alaska rules of evidence. Rejecting claims that an adoption of the Daubert standard will make the trial courts' gate keeping role unduly burdensome, lead to the increased admission of "junk science," and potentially result in inconsistent or unpredictable decisions in cases where the courts must relitigate, under the Daubert standard, the admissibility of evidence already deemed admissible under Frye, the court held that Alaska courts should use the factors identified in Daubert for assessing the reliability and relevance of scientific evidence. Therefore, in determining the admissibility of expert testimony regarding voice spectrographic analysis, the court noted that the trial court had analyzed the reliability factors discussed by the United State Supreme Court in Daubert V. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S. Ct. 2786 125 L. Ed. 2d 469 27 U.S.P. .2d BNA 1200 Prod. Liab. Re. CCH 13494 37 Fed. R. Evid. Servo 1. 23 Env'tl. L. Rep. 20979 (1993), and had made the following conclusions. First, the trial court had concluded that the proper performance of voice spectrographic analysis by a qualified technician has attained widespread acceptance within the relevant scientific community of forensic scientists and scientists in acoustics and speech-related fields with experience using the technique and that the testimony of the state's expert, who performed the voice spectrographic analysis in the instant case, was sufficiently relevant and reliable to be admitted under Daubert. Second, the trial court had found, based on the testimony of the state's expert and a review of the scientific literature, that voice spectrographic analysis has been empirically tested. Third, the trial court had ruled that voice spectrographic analysis has been subject to peer review and publication. Finally, the trial court had stated that the known error rate for voice spectrographic analysis, when properly performed by a skilled scientist in the field, is sufficiently low to make evidence regarding the technique reliable. The appellate court noted that "widespread acceptance" is not necessarily synonymous with "general acceptance," and that there is not a consensus in judicial opinions, the scientific literature, or among experts who testify regarding the reliability of voice spectrographic analysis. Nevertheless, confirming that abuse of discretion is the standard of review applicable to evidentiary

rulings, including those involving the admissibility of scientific evidence, the appellate court held that the trial court did not clearly err in making its general acceptance finding or abuse its discretion in admitting voice spectrographic evidence under the Daubert standard.

VII. WEIGHT

§ 18. Trier of fact not bound by identification

In the following cases, courts addressing the issue of the admissibility of evidence regarding voice spectrographic analysis held that the trier of fact was not bound by the evidence and could make its own independent determination, based on all of the evidence, as to the weight or credence to give the specific evidence regarding voice spectrographic analysis.

US--U. S. v. Williams. 583 F.2d 1194.3 Fed. R. Evid. Servo 1063 (2d Cir. 1978); U. S. V. Sample. 378 F. Supp. 44 (E.D. Pa. 1974); U. S. V. Baller. 519 F.2d 463 (4th Cir. 1975); U.S. V. Love. 767 F.2d 1052. 18 Fed. R. Evid. Servo 1335 (4th Cir. 1985); u. S. V. Franks. 511 F.2d 25 (6th Cir. 1975); U. S. V. Jenkins. 525 F.2d 819 (6th Cir. 1975); U.S. V. Smith. 869 F.2d 348. 27 Fed. R. Evid. Servo 938 (7th Cir. 1989); U.S. V. Wright. 37 C.M.R. 447. 1967 WL 4287 (C.M.A. 1967).

Fla--Alea V. State. 265 So. 2d 96 (Fla. Dist. Ct. App. 3d Dist. 1972).

Mass--Com. V. Lykus. 367 Mass. 191. 327 N.E.2d 671 (1975).

Minn--State ex rel. Trimble V. Hedman. 291 Minn. 442. 192 N.W.2d 432. 49 A.L.R.3d 903 (1971).

NJ--Windmere. Inc. V. International Ins. Co.. 105 N.J. 373. 522 A.2d 405 (1987) (by way of dictum).

NY--People V. Rogers. 86 Misc. 2d 868.385 N.Y.S.2d 228 (Sup. Ct. 1976); People V. Bein. 114 Misc. 2d 1021. 453 N.Y.S.2d 343 (Sup. Ct.1982).

Ohio--State v. Williams. 4 Ohio St. 3d 53. 446 N.E.2d 444 (1983).

RI--State V. Wheeler. 496 A.2d 1382 (R.I. 1985).

In U. S. V. Baller. 519 F.2d 463 (4th Cir. 1975), the court stated that the admissibility of spectrographic identification turned primarily on whether this theory had been sufficiently proved to allow a jury to give the evidence whatever weight it saw fit. The court noted that unless an exaggerated popular opinion of the accuracy of a particular technique made its use prejudicial or likely to mislead the jury, it was better to admit relevant scientific evidence in the same manner as other expert testimony and allow its weight to be attacked by cross-examination and refutation. In the present case, the court pointed out that the jury had been instructed that they could disregard the testimony of the state's expert if they decided that his opinion was not based on adequate educational experience or that the science of voiceprint identification was not sufficiently reliable, accurate, and dependable. The court concluded that the reliability and credibility of the opinion of the state's expert was opened to refutation and that the question of its weight was fairly presented to the jury.

In U.S. V. Love. 767 F.2d 1052. 18 Fed. R. Evid. Servo .1335 (4th Cir. 1985), the court held that that it did not constitute reversible error for the trial court to instruct the jury that, rather than being bound by the testimony of the defendant's voice identification expert, the jury could make its own determination concerning the weight to be accorded the evidence regarding spectrographic voice analyses. Specifically, the trial court had instructed the jury that the purpose of admitting the actual voice spectrogram into evidence was to provide a basis for the opinion of the defendant's voice identification expert and that the jury could disregard the testimony of the defendant's expert based on its own conclusions regarding the qualifications of the defendant's expert and the reliability, accuracy, and dependability of the science of voiceprint identification. Although the defendant had argued that the trial court's instruction was an impermissible comment on the credibility of the defendant's expert, the court disagreed, finding that the trial court's instruction was fair, if not totally neutral.

In People v. Bein, 114 Misc. 2d 1021, 453 N.Y.S.2d 343 (Sup. Ct.1982), the court, after ruling that expert testimony involving voice identification by spectrographic analysis is admissible in a criminal trial, as discussed in §. 3[a] and § 11[a], recognized the important role that the jury, as the finder of fact, plays in determining the weight and credibility to be given to expert testimony. According to the court, when experts in a trial disagree, it is for the jury to determine which expert's testimony is more credible. In reaching a determination, the court noted that the jury can evaluate the objective components of the evidence, such as the tape recordings and the spectrograms. In addition, the court acknowledged that the normal safeguards of cross-examination and testimony of opposing experts are fully available, enabling the jury to consider: (1) any challenges to the expert's qualifications; (2) the reliability of the expert's equipment; (3) the reliability of the technique; and (4) the accuracy and reliability of the spectrograms. Finally, the court stated that the trial court can instruct the jury that the sole purpose of the expert testimony is to assist the jury, and that the jury is free to accept or reject the expert's opinion, subject to its determination of the evidence's reliability.

The court in State v. Williams, 4 Ohio S1. 3d 53, 446 N.E.2d 444 (1983), on upholding the admission of expert voice identification testimony at trial, discussed in § 7[a], emphasized that the jury remains at liberty to reject the testimony for any number of reasons. For example, the court recognized that the jury could reject expert voice identification testimony based on a view that the technique of spectrographic voice identification is unreliable or misleading. In addition, the court noted that the trial judge had instructed the jury that, in determining the weight to be given to spectrographic evidence, the jury could take into consideration, among other things, the expert's skill, experience, knowledge, veracity, and the expert's familiarity with the facts of the case.

Research References

Total Client-Service Library References

The following references may be of related or collateral interest to a user of this annotation.

Annotations

Encyclopedias and Texts

29 Am Jurisprudence 2d. Evidence § § 94, 338, 351, 566, 568.

29A Am Jurisprudence 2d. Evidence § § 1001, 1018, 1224-1226, 1481.

31A Am Jurisprudence 2d. Expert and Opinion Evidence § § 129-135, 278.

12 Federal Procedure, L Ed; Evidence § § 33:500-33:504.

Practice Aids

10A Am Jur Pl & Pr Forms (Rev), Expert and Opinion Evidence Forms 51-59.

23A Am Jur Pl & Pr Forms (Rev). Trial Forms 199, 201.

25B Am Jur Pl & Pr Forms (Rev), Witnesses Forms 176, 177.

7 Federal Procedural Forms, L Ed, Criminal Procedure § § 20:566-20:570.

7 A Federal Procedural Forms, L Ed, Criminal Procedure § 20:902.

Foundation for Audio Recordings as Evidence. 23 Am Jur Proof of Facts 3d 315.

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ALR Index Description and Identification; Evidence Rules; Exclusion and Suppression of Evidence; Experiments and Tests; Expert and Opinion Evidence; Sound Recordings; Voice.

Research Sources

The following are the research sources that were found to be helpful in compiling this annotation.

West Digest Key Numbers

Criminal Law 339.6, 388.1, 388.2, 469, 472, 475.3.

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Encyclopedias

29 Am Jurisprudence 2d. Evidence § § 94, 338, 351, 566, 568.

29A Am Jurisprudence 2d. Evidence § § 1001, 1018, 1224-1226, 1481.

31A Am Jurisprudence 2d. Expert and Opinion Evidence § § 129-135, 278.

31A CJS. Evidence § § 216, 220, 600, 714.

12 Federal Procedure, L Ed, Evidence § § 33:500-33:504.

Texts

1 McCormick on Evidence § § 203, 207.

Law Review Articles

Rafferty, Notes, Anything You Say Can and Will Be Used Against You: Spectrographic Evidence in Criminal Cases, 36 Am. Crim. L. Rev. 291 (1999).

[FN1]. This annotation supersedes the annotation at 97 AL.R.3d 294.

[FN2]. For purposes of inclusion within this annotation, no distinction has been made on the basis of whether the evidence sought to be introduced involved the spectrograms themselves or expert voice identification testimony based on an analysis of them.

[FN3]. In this connection, see Requiring suspect or defendant in criminal case to demonstrate voice for purposes of identification, 24 A.L.R.3d 1261.

[FN4]. For a more detailed discussion of the sound spectrograph and of the theory on which voice identification is based, see 54 Am Jur Trials 1, Voicegram Identification Evidence.

[FN5]. 29A Am Jur 2d, Evidence § 1224. The scientific literature and case law have used the terms "voice spectrogram," "speech spectrogram," and "voiceprint" interchangeably. At least one court, however, has recognized that the use of the term "voiceprint" is misleading because the term incorrectly implies that voiceprints are analogous to fingerprints. State v. Free, 493 So. 2d 781 (La. Ct. App. 2d Cir. 1986), writ denied, 499 So. 2d 83 (La. 1987). As a result of this potential to mislead, this annotation will use the term "voice spectrogram" to refer to the pictorial representation of a person's voice, and "voice spectrographic analysis" to refer to the scientific technique involving a comparison of voice spectrograms, unless the particular case being discussed uses other terminology, such as "voiceprint" and "voiceprint analysis," thus, this annotation will track the language of the respective court.

[FN6]. See People v. Bein, 114 Misc. 2d 1021, 453 N.Y.S.2d 343 (Sup. Ct.1982).

[FN7]. See State v. Free, 493 So. 2d 781 (La. Ct. App. 2d Cir. 1986), writ denied, 499 So. 2d 83 (La. 1987).

[FN8] 29A Am Jur 2d, Evidence § 1224; see also People v. Law, 40 Cal. App. 3d 69, 114 Cal. Rptr. 708 (5th Dist. 1974).

[FN9]. Lisa Rafferty, Anything You Say Can and Will Be Used Against You: Spectrographic Evidence in Criminal Cases, 36 Am. Crim. L. Rev. 291 (1999).

[FN10]. 54 Am Jm Trials 1, Voicegram Identification Evidence § 49.

[FN11]. 54 Am Jur Trials 1, Voicegram Identification Evidence § 44.

[FN12]. 54 Am Jm Trials 1, Voicegram Identification Evidence § 44.

[FN13]. 54 Am Jur Trials 1, Voicegram Identification Evidence § 44; see also Com. v. Lykus, 367 Mass. 191, 327 N.E.2d 671 (1975), related reference, 406 Mass. 135, 546 N.E.2d 159 (1989), related reference, 423 Mass. 1012, 668 N.E.2d 798 (1996) and denial of post-conviction relief dismissed, 432 Mass. 160, 732 N.E.2d 897 (2000).

[FN14]. 54 Am Jur Trials 1, Voicegram Identification Evidence § 103; see also State v. Free, 493 So. 2d 781 (La. Ct. App. 2d Cir. 1986), writ denied, 499 So. 2d 83 (La. 1987) (recognizing that courts applying the Frye test tend to exclude the evidence, whereas courts applying other standards for admissibility tend to admit such evidence).

[FN15]. The general acceptance test for admissibility of scientific evidence was originally set forth in Frye v. U.S., 293 F. 1013, 34 A.L.R. 145 (App. D.C. 1923). Frye involved the admissibility of lie detector test results, and thus is beyond the scope of the present annotation. It should be noted, however, that the United States Supreme Court ruled in Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469, 27 U.S.P.Q.2d (BNA) 1200 Prod. Liab. Re. (CCH) ¶ 13494 37 Fed. R. Evid. Serv 1 23 Env'tl. L. Re. 20979 1993 that the Frye test has been superseded by the Federal Rules of Evidence. In Daubert, the Supreme Court, as discussed in §. 2[b] set forth certain factors that a court must consider in determining the admissibility of expert testimony based on a scientific technique. Although the general acceptance of the scientific technique within the relevant scientific community remains a factor, it is no longer dispositive. Thus, Frye no longer controls the admissibility of evidence regarding voice spectrographic analysis in federal courts.

[FN16]. Frye v. U.S., 293 F. 1013, 34 AL.R. 145 (App. D.C. 1923). For a discussion of what constitutes the "relevant scientific community," see. §...2[b]

[FN17] See Daubert v Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469, 27 U.S.P.Q.2d (BNA) 1200 Prod Liab Rep (CCH) ¶ 13494, 37 Fed. R. Evid. Serv. 1, 23 Env'tl. L. Rep. 20979 (1973) (ruling that the Frye test was superseded by the Federal Rules of Evidence). For a detailed summary of the criticisms of the Frye test, see the dissenting opinion in Reed v State, 283 Md. 374, 391 A.2d364, 97 A.L.R.3d 201 (1978)

(publication page references are not available for this document.)

[FN18] 1 McCormick on Evidence § 203 (John W. Strong, ed., 5th ed. 1999).

[FN19]. 1 McCormick on Evidence § 203 (John W. Strong, ed., 5th ed. 1999).

[FN20] 1 McCormick on Evidence § 203 (John W. Strong, ed., 5th ed. 1999).

[FN21] 1 McCormick on Evidence § 203 (John W. Strong, ed., 5th ed. 1999).

[FN22]. Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469, 27 U.S.P.Q.2d (BNA) 1200, Prod. Liab. Rep. (CCH) ¶ 13494, 37 Fed. R. Evid. Serv. 1, 23 Envtl. L. Rep. 20979 (1993).

~~[FN23]. Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469, 27 U.S.P.Q.2d (BNA) 1200, Prod. Liab. Rep. (CCH) ¶ 13494, 37 Fed. R. Evid. Serv. 1, 23 Envtl. L. Rep. 20979 (1993).~~

[FN24]. Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469, 27 U.S.P.Q.2d (BNA) 1200, Prod. Liab. Rep. (CCH) ¶ 13494, 37 Fed. R. Evid. Serv. 1, 23 Envtl. L. Rep. 20979 (1993).

~~[FN25]. Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469, 27 U.S.P.Q.2d (BNA) 1200, Prod. Liab. Rep. (CCH) ¶ 13494, 37 Fed. R. Evid. Serv. 1, 23 Envtl. L. Rep. 20979 (1993).~~

[FN26]. D'Arc v. D'Arc. 157 N.J. Super. 553, 385 A2d 278 (Ch. Div. 1978).

[FN27]. Draper Communications, Inc. v. Delaware Valley Broadcasters Ltd. Partnership. 505 A2d 1283, 229 U.S.P.O. (BNA) 161 (Del. Ch. 1985); see also Pathfinder Communications Corp. v. Midwest Communications Co., 593 F. Supp. 281, 224 U.S.P.O. (BNA) 203 (N.D. Ind. 1984) (involving the call letters of two radio stations).

[FN28]. Windmere, Inc. v. International Ins. Co., 105 N.J. 373, 522 A.2d 405 (1987).

[FN29]. See, for example, U.S. v. Maivia. 728 F. Supp. 1471, 30 Fed. R. Evid. Serv. 103 (D. Haw. 1990) (holding the evidence admissible); People v. Persaud. 226 A.D.2d 402, 640 N.Y.S.2d 261 (2d Deo't 1996) (holding the evidence inadmissible).

[FN30]. People v. Drake. 748 P.2d 1237 (Colo. 1988).

[FN31]. For the procedure that counsel should follow when requesting expert services necessary for adequate representation of a defendant who is financially unable to obtain such services, at least in a federal jurisdiction, see 7 Federal Procedural Forms, L. Ed., Criminal Procedure § § 20:569-20:570.

[FN32]. See People v. Ashford. 121 Ill. 2d 55, 117 Ill. Dec. 171, 520 N.E.2d 332 (1988) (holding that defense counsel's failure to obtain a spectrographic analysis did not render his representation of the defendant constitutionally ineffective); Echols v. State. 484 So. 2d 568 (Fla. 1985) (denying the defendant's motions for the appointment of a voiceprint expert and a continuance in order to provide time to obtain voiceprint analyses).

[FN33]. U.S. v. Currie. 989 F.2d 501 (6th Cir. 1993) (unpublished disposition 1993 WL 62988) (stating by way of dictum that defense counsel's failure to request voiceprints did not violate defendant's right to effective assistance of counsel); Government of Vir in Islands v. Nicholas 759 F.2d 1073 17 Fed. R. Evid. Serv 1054 3d Cir. 1985 (denying the defendant's claim of ineffective assistance of counsel where the defendant had refused to provide a voice exemplar); U. S. v. Baynes. 687 F.2d 659 (3d Cir. 1982) (granting the defendant's petition for habeas corpus relief on the basis of defense counsel's failure to conduct an aural comparison of the defendant's voice exemplar and an intercepted recording at issue); DuPree V. U.S., 606 F.2d 829 (8th Cir. 1979) (holding that defense counsel's failure to obtain a spectrographic analysis did not entitle the defendant to habeas corpus relief); U.S. V. Erinle. 1994

WL 188475 (N.D. Ill. 1994) (unpublished disposition) (denying defendant's ineffective assistance of counsel claim); State v. Kendley, 147 Wis. 2d 877, 433 N.W.2d 674 (Ct. App. 1988) (unpublished disposition 1988 WL 136024) (stating by way of dictum that defense counsel's failure to present a voiceprint analysis expert in rebuttal did not constitute ineffective assistance); cf. Tyson v. Keane, 159 F.3d 732 (2d Cir. 1998), cert. denied, 526 U.S. 1027, 119 S. Ct. 1270, 143 L. Ed. 2d 365 (1999) (holding that any deficiency in representation due to trial court's error in refusing to appoint a voice spectrographic analysis expert for the defendant was not a violation of the defendant's constitutional right to effective assistance of counsel).

[FN34]. 54 Am Jur Trials 1, Voicegram Identification Evidence § 103.

[FN35] See, for example, Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469, 27 U.S.P.Q.2d (BNA) 1200, Prod. Liab. Rep. (CCH) ¶ 13494, 37 Fed/ R/ Evod/ Serv/1, 23 Env'tl. L. Rep. 20979 (1993)

[FN36]. U. S. v. Sample, 378 F. Supp. 44 (E.D. Pa. 1974).

[FN37]. See Hodo v. Superior Court, 30 Cal. App. 3d 778, 106 Cal Rptr. 547 (4th Dist. 1973); Com. v. Lykus, 367 Mass. 191, 327 N.E.2d 671 (1975), related reference, 406 Mass. 135, 546 N.E.2d 159 (1989), related reference, 423 Mass. 1012, 668 N.E.2d 798 (1996) and denial of post-conviction relief dismissed, 432 Mass. 160, 732 N.E.2d 897 (2000); People v. Rogers, 86 Misc. 2d 868, 385 N.Y.S.2d 228 (Sup. Ct. 1976).

[FN38]. See, for example, State v. Gortarez., 141 Ariz. 254, 686 P.2d 1224 (1984) (defining the relevant scientific community as including experts in acoustical engineering, acoustics, communications electronics, linguistics, phonetics, physics, and speech communications); Cornett v. State, 450 N.E.2d 498 (Ind. 1983) (ruling, that the relevant scientific community is not limited to those persons who use voice spectrography for identification purposes, but also consists of linguists, psychologists, and engineers); Reed v. State, 283 Md. 374, 391 A.2d 364, 97 A.L.R.3d 201 (1978) (specifically holding that the trial court had improperly limited the "relevant scientific community" to those experts actually engaged in the use and experimentation of the technique of voice spectrographic analysis, rather than the broad general scientific community of speech and hearing scientists); Com. v. Topa, 471 Pa. 223, 369 A.2d 1277 (1977) (declaring that the relevant scientific community includes the scientific community concerned with acoustical science).

[FN39]. See Brown v. U. S., 384 A.2d 647 (D.C. 1978) (where a tape recorder used to record exemplar of the defendant's voice was apparently defective because the tape was recorded at the wrong speed).

[FN40]. See, for example, U. S. v. Addison, 498 F.2d 741 (D.C. Cir. 1974) (where an expert witness testified that identification of females by voice spectrographic analysis would probably be more difficult than identification of males); cf. U.S. v. Smith, 869 F.2d 348, 27 Fed. R. Evid. Servo 938 (7th Cir. 1989) (where the expert witness acknowledged the lack of any voice spectrographic analysis studies involving black females).

[FN41]. See, for example, People v. Law, 40 Cal. App. 3d 69, 114 Cal Rptr. 708 (5th Dist. 1974) (holding that the testimony presented failed to establish that the technique of voice spectrographic analysis satisfied the Frye standard in situations involving disguised and mimicked voices).

[FN42]. See, for example, People v. Kelly, 17 Cal. 3d 24, 130 Cal Rptr. 144, 549 P.2d 1240 (1976); State v. Cary, 49 N.J. 343, 230 A.2d 384 (1967); Com. v. Topa, 471 Pa. 223, 369 A.2d 1277 (1977).

[FN43]. See, for example, People v. Kelly, 17 Cal. 3d 24, 130 Cal. Rptr. 144, 549 P.2d 1240 (1976).

[FN44]. People v. Kelly: 17 Cal. 3d 24, 130 Cal Rptr. 144, 549 P.2d 1240 (1976); People v. Tobey, 401 Mich. 141, 257 N. W.2d 537 (1977); Windmere, Inc. v. International Ins. Co., 105 N.J. 373, 522 A.2d 405 (1987).

[FN45]. See, for example, U.S. v. Smith, 869 F.2d 348, 27 Fed. R. Evid. Servo 938 (7th Cir. 1989); U. S. V. Jenkins, 525 F.2d 819 (6th Cir. 1975); U. S. V. Franks, 511 F.2d 25 (6th Cir. 1975); State V. Coon, 974 P.2d 386, 95 AL.R.5th 729 (Alaska 1999), reh'g denied, (July 30, 1999).