Inconclusive with Similarities:

10 Years Later

Eric Ray, CLPE



About the Speaker

Eric Ray, CLPE

Background

- 12 years as a Latent Print Examiner for AZ and I3
- B.S. in Biochemistry and Biology from University of Arizona
- Member of OSAC Friction Ridge Subcommittee
- Editorial Board of the Journal for Forensic Identification
- Training to Latent Print Examiners across the US, Europe, and Asia

IDEMIA

- Technical Project Leader
- ABIS products – MBIS and STORM
- Design of new web-based ABIS
- Convey user needs and recommend product improvements
- Training and troubleshooting



Disclaimer

The views and opinions expressed in this presentation are solely those of the speaker and do not necessarily reflect the official views or positions of my employer.

Synopsis

- 2015 IAI Conference in Sacramento, CA
- Lecture describing a Daubert hearing involving a latent print examination and a conclusion of **“Inconclusive with Similarities”**
  - AZ v. Trammell
  - Case details and comparison images
  - Various terms in use at different agencies
  - Results of Daubert hearing
- In the past 10 years, there has been a lot of progress throughout the field on this topic
- Look back of what led up to that terminology
- Look at where we’ve been in the past 10 years
- Look forward at what’s next



Tripartite Rule

Definitions

1. If ***more than 12 concurring points*** are present and the fingerprint is sharp, then the certainty of identity is beyond debate.
2. If ***8 to 12 concurring points*** are involved, then the case is borderline, and the certainty of identity will depend on:
   - the sharpness of the fingerprint;
   - the rarity of its type;
   - the presence of the [core] and [delta]…;
   - the presence of pores;
   - the perfect and obvious identity regarding the width of the papillary ridges and valleys, the direction of the lines, and the angular value of the bifurcations.
3. If a limited number of characteristic points are present, the fingerprint cannot provide certainty for an identification, but only a ***presumption proportional*** to the number of points available and their clarity

Champod, C. **Edmond Locard—Numerical Standards and "Probable" Identifications.** *J. Forensic Ident.* 1995, 45(2), 136–163.

20th Century Numerical Standards

- Countries where IDs essentially only allowed above threshold
  - France (16)
  - Italy (17)
  - Australia (12)
  - Great Britain (16)
- Countries where some IDs allowed below threshold
  - Germany (8-12)
  - Switzerland (8-12)
  - Sweden (7)
  - Finland (12)
- Countries most influenced by 1973 IAI Resolution
  - USA (no set threshold)
  - Canada (no set threshold)

Champod, C. **Edmond Locard—Numerical Standards and "Probable" Identifications.** *J. Forensic Ident.* 1995, 45(2), 136–163.

IAI Resolutions

Limitations

- **1973-5**
  - ***No valid basis*** exists at this time for requiring that a ***pre-determined minimum number*** of friction ridge characteristics must be present in two impressions in order to establish positive identification.
- **1979-7 / 1980-5**
  - Friction ridge identifications are positive, and [we] ***oppose any testimony or reporting of possible, probable, or likely*** friction ridge identifications found on the hand and feet.
  - Any member, officer or certified latent print examiner who initiates or volunteers oral or written reports, or testimony of ***possible, probable or likely*** friction ridge identification, or who, when required in a judicial proceeding to provide such reports or testimony, does not qualify it with a statement that the print in question could be that of someone else, shall be deemed to be engaged in ***conduct unbecoming such member***.

IAI Resolutions & Legislative Committee. **Resolution 1973-5.** *International Association for Identification.* 1973.
IAI Resolutions & Legislative Committee. **Resolution 1979-7.** *International Association for Identification.* 1979.
IAI Resolutions & Legislative Committee. **Resolution 1980-5.** *International Association for Identification.* 1980.

TWGFAST

- **Technical Working Group on Friction Ridge Analysis, Study, and Technology**
  - 1995-1999
- **Members**
  - FBI-sponsored group of latent print examiners
  - Federal, state, and local law enforcement
- **Objectives**
  - Ensure practitioners meet educational and training requirements
  - Standard protocols throughout the discipline
  - Administrative practices implemented to maintain quality
  - Underlying science is continually validated and tested
  - New and better methods are explored

Simons, A.A. **Technical Working Group on Friction Ridge Analysis, Study and Technology (TWGFAST) Proposed Guidelines.** *J. Forensic Ident.* 1997 47(4).

TWGFAST (1997)

Definitions

- **Identification**
  - Determination that two corresponding areas of friction skin impressions ***originated from the same person*** to the ***exclusion of all others***
- **Non-identification**
  - Determination that two corresponding areas of friction skin impressions ***did not originate from the same person***
- **Incomplete or unclear known impressions**
  - Incomplete or unclear known friction skin impressions may result in the inability to reach either an identification or non-identification decision

Simons, A.A. **Technical Working Group on Friction Ridge Analysis, Study and Technology (TWGFAST) Proposed Guidelines.** *J. Forensic Ident.* 1997 47(4).

TWGFAST (1997)

Limitations

- **Qualified Identifications**
  - Friction ridge identifications are ***absolute conclusions***
  - ***Probable, possible, or likely identification*** conclusions are outside the acceptable limits of the science of friction ridge identification

SWGFAST

- **Scientific Working Group on Friction Ridge Analysis, Study, and Technology**
  - 1999-2014
- **Members**
  - FBI-sponsored group of latent print examiners
  - Federal, state, and local law enforcement and private industry
- **Objectives**
  - Establish guidelines for development of examiners' knowledge, skills and abilities
  - Discuss and share friction ridge examination methods and protocols
  - Encourage and evaluate research and innovative technology
  - Establish and disseminate guidelines for quality assurance and quality control
  - Cooperate with national and international organizations in developing standards
  - Disseminate SWGFAST studies, guidelines and findings

McRoberts, A. **SWGFAST Introduction.** *SWGFAST Archive.* April 2001.

SWGFAST (2002)

Definitions

- **Individualization (Identification)**
  - Result of the comparison of two friction ridge impressions containing ***sufficient quality (clarity) and quantity*** of friction ridge detail in agreement
  - Latent print examiner, trained to competency, determines that two friction ridge impressions ***originated from the same source***, to the ***exclusion of all others***
- **Exclusion**
  - Result of the comparison of two friction ridge impressions containing ***sufficient quality (clarity) and quantity*** of friction ridge detail which is not in agreement
  - Latent print examiner, trained to competency, determines that two friction ridge impressions ***originated from different sources***
- **Inconclusive**
  - Results when a latent print examiner, trained to competency, is unable to individualize or exclude the source of an impression

SWGFAST. **Quality Assurance Guidelines for Latent Print Examiners – Draft for Comment.** *J. Forensic Ident.* 2002 52(3).

SWGFAST (2002)



- **Limitations on Inconclusive decisions**
  - Inconclusive evaluation results must not be construed as a ***statement of probability***
  - **Probable, possible, or likely** individualization conclusions are outside the acceptable limits of the friction ridge individualization science
    - Removed in 2006

SWGFAST. **Quality Assurance Guidelines for Latent Print Examiners – Draft for Comment.** *J. Forensic Ident.* 2002 52(3).
SWGFAST. **Quality Assurance Guidelines for Latent Print Examiners.** *J. Forensic Ident.* 2006 56(1).

ID and NoID

- Written standards began to coalesce around a 3-conclusion scale
  - Identification / Individualization
  - Exclusion / Non-identification
  - Inconclusive / Incomplete
- Many agencies continued to use a 2-conclusion scale
  - Identification (ID)
  - No Identification effected (NoID)
- What does “No Identification Effected” mean?
  - Simply that the comparison did not result in an Identification
  - It may mean that the compared prints contain significant differences…
  - Or that the known prints are not sufficient to reach a conclusion…
  - Or that there are not significant similarities to reach an ID
  - The examiner only had to determine that there wasn’t enough for an ID
  - Errors are also less serious – “No ID” isn’t technically wrong

Accreditation Requirements (2005-2011)

- **ISO 17025 (2005)**
  - General requirements for the competence of testing and calibration laboratories
  - 5.10 – Reporting the results
  - 5.10.1 – The results of each test, calibration, or series of tests or calibrations carried out by the laboratory shall be reported accurately, ***clearly, unambiguously*** and objectively
- **ASCLD/LAB-International (2011)**
  - Supplemental Requirements for ISO 17025 Accreditation of Forensic Laboratories
  - 5.10.3 – Test Reports
  - 5.10.3.6 – When comparative examinations result in the elimination of an individual or object, the test report shall ***clearly communicate the elimination***
- **Changes to "NoID"**
  - Eventually, accredited forensic labs were told to report unambiguous results that clearly communicated the elimination
  - Combined with the results of the FBI Black Box paper, this led to an increased focus on EX

ISO. **General requirements for the competence of testing and calibration laboratories.** ISO Standard No. 17025:2005.
ASCLD/LAB. **Supplemental Requirements for the Accreditation of Forensic Science Testing Laboratories.** AL-PD-3040-Ver 1.2. 2011.

IAI Resolutions

Limitations

- **2010-18**
  - Resolution 1979-7 and Resolution 1980-5 are ***rescinded***
  - Mathematically based models to assess the associative value of the evidence may provide a scientifically sound basis for ***supporting the examiner's opinion***
  - Only use models ***accepted as valid by the IAI*** in partnership with the relevant scientific community and when ***trained to competency***
- **2016-4**
  - Resolution 2010-18 is ***rescinded***; and Resolutions 1979-7 and 1980-5 remain rescinded
  - For associations based on limited shared characteristics, examiners must clearly state any limitations of their conclusions
  - Models may further ***support a scientific basis for the examiner's opinion***
  - Models may ***not be the sole determinant*** to conclude impressions share a common source
  - Models do not relieve the examiner of responsibility for their expert opinion
  - Examiners must be trained to competency and use models validated by scientific community

IAI Resolutions & Legislative Committee. **Resolution 1973-5.** *International Association for Identification.* 1973.
IAI Resolutions & Legislative Committee. **Resolution 1979-7.** *International Association for Identification.* 1979.

SWGFAST (2011)

Definitions

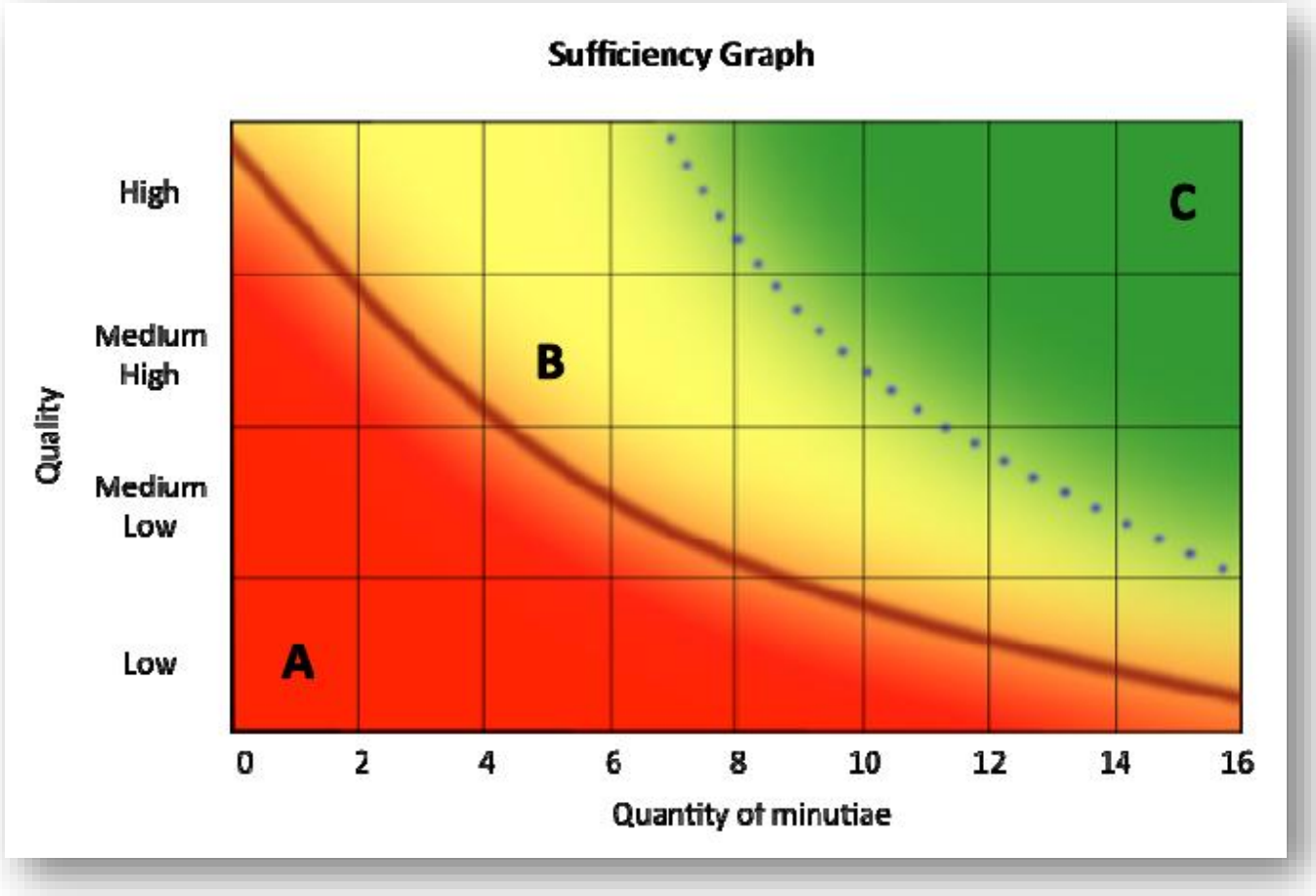
- **Individualization**
  - Sufficient features in agreement to conclude that two areas of friction ridge impressions ***originated from the same source***
  - Likelihood the impression was made by another (different) source is so remote that it is considered as a ***practical impossibility***
- **Exclusion**
  - Sufficient features in disagreement to conclude that two areas of friction ridge impressions ***did not originate from the same source***
  - Only if all relevant comparable anatomical areas are represented and legible in the known exemplars
- **Inconclusive**
  - Approach #1 – Unable to ID or EX due to absence of complete and legible known prints
  - Approach #2 – As #1 or when corresponding or dissimilar features are not sufficient for ID or EX
  - As defined by the agency

SWGFAST. **Standards for Examining Friction Ridge Impressions and Resulting Conclusions.** Ver 1.0. 2011.

SWGFAST (2011)

Definitions

- **Quality Levels**
  - High, Medium High, Medium Low, Low
- **Sufficiency Graph**
  - A – Individualization not warranted
  - B – Complex examination where individualization may be warranted
  - C – Non-complex examination where individualization is warranted
- **Complexity Levels**
  - Non-complex – Limited documentation and standard verification
  - Complex – Extensive documentation and enhanced verification (blind and/or multiple)



SWGFAST. **Standards for Examining Friction Ridge Impressions and Resulting Conclusions.** Ver 1.0. 2011.

Reporting Inconclusive Results (2011)



- Implemented at LVMPD and published in JFI

- **Cannot Exclude**
  - Latent print has detail consistent with exemplar prints
  - Insufficient to identify due to quality or quantity of latent
  - Data to support conclusion that prints were made by same source
  - Not strong enough to disregard possibility that another source could have left the print
- **Incomplete**
  - Exemplar prints are inadequate (quantity or quality)
  - Additional exemplar prints required and may permit a definitive conclusion
- **Not Compared**
  - Latent print from an anatomical region that is not represented in the exemplar prints

Maceo, A. **Documenting and Reporting Inconclusive Results.** *J. Forensic Ident.* 2011 61(3).

SWGFAST (2013)

Definitions

- Draft for Comment – Never finalized due to creation of OSAC
- Update to the Inconclusive section only

- **Lack of Comparable Areas (LCA)**
  - This inconclusive conclusion results from a lack of complete and legible known prints
  - Comparisons were made to the extent possible, however additional clear and completely recorded exemplars, to include the required anatomical areas, are needed for re-examination.
- **Lack of Sufficiency for Individualization (LSI)**
  - Corresponding features are observed but not sufficient to individualize
  - No substantive dissimilar features are observed
- **Lack of Sufficiency for Exclusion (LSE)**
  - Dissimilar features are observed but not sufficient to exclude
  - No substantive correspondence is observed

Inconclusive with Similarities (2015)

- **AZ DPS Latent Print Analytical Protocol**
  - If similarities are observed between the impressions, but insufficient detail is present for an identification, the examiner may choose to reflect this information in the notes and report
- **AZ v. Trammell**
  - Defendant shot by officer after allegedly pointing a gun at the officer
  - No weapon found when he was arrested, and defendant charged with Aggravated Assault
  - Firearm found in alley that the wounded suspect ran down
  - Two latent prints developed on firearm
  - Comparison to Trammell: **1 "Inconclusive with Similarities"** and 1 "Inconclusive"
  - Comparison to officer: 1 "Exclusion" and 1 "Inconclusive"
  - Daubert hearing regarding "Inconclusive with Similarities" – January 2015
  - Court found testimony relevant and not unfairly prejudicial
  - Court found conclusion followed protocols accepted in the field
  - Court precluded numeration of the features

AZ DPS SAB. **Latent Print Analytical Protocol.** Rev. #8. 2024. https://www.azdps.gov/content/basic-page/125/latent-prints [Accessed 8/7/25]
AZ v. Trammell, CR2012-132289-001 DT. Maricopa Co. Sup. Ct. Minute entry from Jan 1, 2015. https://courtminutes.clerkofcourt.maricopa.gov/ [Accessed 8/7/25]

Inconclusive with Similarities (2015)

- **IAI Presentation**
  - Display of side-by-side comparison charts
  - Review of expert testimony from the Daubert hearing from defense expert
  - Review of court decision
- **Discussion of conclusion wording**
  - SWGFAST terminology
  - LVMPD terminology
  - AZ DPS terminology

OSAC FRS

- **Organization of Scientific Area Committees for Forensic Science (OSAC)**
  - Physics / Pattern Interpretation Scientific Area Committee (PSAC)
  - Friction Ridge Subcommittee (FRS)
  - 2014-present
- **Members**
  - Federal, state, and local law enforcement, private industry, and academia
  - Representatives with legal, human factors, statistics, and quality backgrounds
- **Objectives**
  - OSAC works to strengthen forensic practice through standards
  - Facilitate the development of science-based standards through the formal SDO process
  - Evaluate SDO published and OSAC Proposed Standards for placement on the OSAC Registry
  - Endorse and promote the implementation of standards on the Registry

NIST. *The Organization of Scientific Area Committees for Forensic Science – What we do.* 2025. https://www.nist.gov/organization-scientific-area-committees-forensic-science/about-us/what-we-do

OSAC FRS (2016-2019)

- Physics / Pattern Interpretation chair attempted to align conclusion terms and definitions between multiple forensic disciplines
  - Friction Ridge
  - Footwear & Tire
  - Firearms & Toolmarks
  - Forensic Document Examination
  - (Bloodstain Pattern Analysis was briefly considered but not included)
- Ongoing discussions for almost 2 years to align terms and definitions
- A 2018 straw poll did not produce sufficient support for the effort to continue
- FRS began to draft the **Standard for Friction Ridge Examination Conclusions**
- Published online as an **"OSAC Proposed Standard"**
- Sent to ASB for further development in 2019

OSAC FRS (2018)

Definitions

- **Source Identification**
  - Strongest degree of association between two friction ridge impressions
  - ***Observations provide extremely strong support*** for the proposition that the impressions originated from the same source and extremely weak support for the proposition that the impressions originated from different sources
  - When the impressions have corresponding ridge detail and the examiner would not expect to see the same arrangement repeated in an impression that came from a different source
- **Source Exclusion**
  - Conclusion that two friction ridge impressions did not originate from the same source
  - In the examiner's opinion, considering the observed data, the probability that the two impressions came from the same source is considered negligible.

OSAC FRS (2018)

Definitions

- **Support for Same Source**
  - Observations provide more support for the proposition that the impressions originated from the same source rather than different sources
  - Insufficient support for a Source Identification
  - Degree of support may range from limited to strong
- **Inconclusive / Lacking Support**
  - Observations do not provide a sufficient degree of support for one proposition over the other
- **Support for Different Sources**
  - Observations provide more support for the proposition that the impressions originated from different sources rather than the same source
  - Insufficient support for a Source Exclusion
  - Degree of support may range from limited to strong.

OSAC FRS (2018)



- **Qualifications and Limitations**
  - Shall not assert source ID is the conclusion that two impressions ***were made*** by same source
  - Shall not imply an individualization to the ***exclusion of all other*** sources
  - Shall not suggest that the offered conclusion is an expression of ***absolute certainty***
  - Shall not be communicated as a ***fact***, but as an expert opinion
  - Shall not assert or imply that latent print examination is infallible or has a ***zero-error rate***
  - Shall not cite the ***number of latent print comparisons*** performed in their career as a measure for the accuracy of a conclusion offered in the case at hand
  - Shall not use the expression '***reasonable degree of scientific certainty***' or similar assertions as a description of the confidence held in their conclusion

OSAC FRS (2018)

- While being drafted there were multiple topics discussed in the subcommittee

- **Should ID be based on the relevant population?**
- **Or should ID be based on the strength of support?**

- **Should the Exclusion definition mirror the Identification definition?**

- **Should the term “Inconclusive” be used in multiple decision options?**

ULTR (2018/2020)

- **Department of Justice**
  - Uniform Language for Testimony and Reports for the Forensic Latent Print Discipline
- **Application**
  - Applies to DOJ examiners who prepare reports and provide testimony of latent print evidence
- **Purpose and Scope**
  - Quality assurance measure designed to standardize appropriate consensus language
  - Describe and explain terminology
  - Clarify the meaning of, and foundation for, the approved conclusions
  - Source Identification, Source Exclusion, and Inconclusive

U.S. Department of Justice. **Uniform Language for Testimony and Reports for the Forensic Science Discipline.** 2020. https://www.justice.gov/olp/uniform-language-testimony-and-reports

ULTR (2018/2020)

Definitions

- **Source Identification**
  - Conclusion that two friction ridge skin impressions originated from the same source
  - Examiner's ***opinion*** that the observed friction ridge features are in ***sufficient correspondence*** such that the examiner would ***not expect to see*** the same arrangement of features repeated in an impression that came from a different source and has found ***insufficient friction ridge features in disagreement*** to conclude that the impressions came from different sources
  - ***Observed corresponding features provide extremely strong support*** for the proposition that the two impressions came from the same source and extremely weak support for the proposition that the two impressions came from different sources
  - Probability the two impressions were made by different sources is so small that it is negligible
- **Source Exclusion**
  - Conclusion that two friction ridge skin impressions did not originate from the same source
  - ***Observed features are in sufficient disagreement*** and ***provide extremely strong support*** for the proposition that the two impressions came from different sources and extremely weak or no support for the proposition that the two impressions came from the same source

U.S. Department of Justice. **Uniform Language for Testimony and Reports for the Forensic Science Discipline.** 2020. https://www.justice.gov/olp/uniform-language-testimony-and-reports

ULTR (2018/2020)



- **Inconclusive**
  - Conclusion that there is ***insufficient quantity and/or clarity*** of corresponding friction ridge skin features between two impressions such that the examiner is unable to identify or exclude the two impressions as originating from the same source
  - Opinion that a ‘source identification’ or ‘source exclusion’ cannot be made due to ***insufficient information*** in either of the two impressions examined

U.S. Department of Justice. **Uniform Language for Testimony and Reports for the Forensic Science Discipline.** 2020. https://www.justice.gov/olp/uniform-language-testimony-and-reports

ULTR (2018/2020)



- **Limitations**
  - Shall not assert that a source identification or source exclusion is based on '***uniqueness***'
  - Shall not use the term '***individualization***' when describing a source conclusion
  - Shall not assert two impressions originated from same source to the ***exclusion of all others***
  - Shall not assert that latent print examination is ***infallible*** or has a ***zero-error rate***
  - Shall not provide a conclusion that includes a statistic or numerical degree of probability except when based on relevant and appropriate data
  - Shall not cite the ***number of latent examinations*** performed as a direct measure for accuracy
  - Shall not assert that two impressions are from same source with ***absolute or 100% certainty***
  - Shall not use expressions like '***reasonable degree of scientific certainty***' or similar in either reports or testimony, unless required to do so by a judge or applicable law

U.S. Department of Justice. **Uniform Language for Testimony and Reports for the Forensic Science Discipline.** 2020. https://www.justice.gov/olp/uniform-language-testimony-and-reports

ASB

- **American Academy of Forensic Sciences (AAFS)**
  - Academy Standards Board (ASB) – Friction Ridge Consensus Body
  - 2015 – present
- **Consensus Bodies**
  - Comprised of all materially interested and affected individuals, companies, and organizations
- **About the ASB**
  - Subsidiary of AAFS and accredited by American National Standards Institute (ANSI)
  - Standards Development Organization (SDO)
  - In a partnership, develops standards proposed by OSAC through a consensus process
  - OSAC then reviews, approves, and posts developed standards to the OSAC registry
- **Mission**
  - Safeguard justice and fairness through consensus-based standards
  - Adhere to the ANSI process

AAFS. *Academy Standards Board – Who We Are.* 2025. https://www.aafs.org/academy-standards-board/about-asb

ASB (2019 – 2025)

- **ANSI/ASB Standard 013**
  - Conclusion standard received from OSAC in 2019
  - Discussed within the consensus body
  - Consensus body immediately expressed concerns about SSS / SDS
  - Posted for comments from the public
  - 83 pages of comments (available online)
  - Comments adjudicated with revisions to the document
- **All comments finally adjudicated, and consensus reached**
  - One commenter chose to protest the adjudication of their comment
  - Over a year to choose the group to hear the protest and schedule the meeting
  - Ruled against the commenter
- **PUBLICATION!!!**
  - July 25, 2025

AAFS. *Standard for Friction Ridge Examination Conclusions.* 2025. https://www.aafs.org/asb-standard/standard-friction-ridge-examination-conclusions

ASB (2025)

Definitions

- **Source Identification**
  - Two friction ridge impressions ***did not originate*** from the same source.
  - After a comparison of all relevant areas, the observed data are ***incompatible with the proposition*** that the two impressions originated from the same source.
- **Inconclusive with Similarities**
  - Observed ***data provides more support*** for the proposition that the impressions originated from the same source rather than different sources
  - Insufficient support for a Source Identification
- **Inconclusive**
  - Observed ***data does not provide more support*** for one proposition over the other
- **Inconclusive with Dissimilarities**
  - Observed ***data provides more support*** for the proposition that the impressions originated from different sources rather than the same source; however, there is insufficient support for a Source Exclusion
- **Source Exclusion**
  - Observed ***data provides substantially stronger support*** for the proposition that the questioned impression originated from a different source than the exemplar impressions compared

AAFS. *Standard for Friction Ridge Examination Conclusions.* 2025. https://www.aafs.org/asb-standard/standard-friction-ridge-examination-conclusions

ASB (2025)

Limitations

- **Prohibitions**
  - Shall not assert that two impressions were ***made by the same source***
  - Shall not imply an individualization to the ***exclusion of all other*** sources
  - Shall not assert or imply conclusions are ***infallible*** or have a ***zero / negligible error rate***
  - Shall not state or imply their ***personal degree of confidence*** represents accuracy of conclusion
  - Shall not use the expressions "***reasonable degree of scientific certainty***," "practical certainty," "practical impossibility," "absolute" or "100%" certainty, or their equivalents
  - Shall not cite the ***number of comparisons performed*** in their career as a measure for the accuracy of a conclusion offered in the case at hand
  - Shall not state or imply that the ***concept of the uniqueness alone*** is sufficient to justify a conclusion

AAFS. *Standard for Friction Ridge Examination Conclusions.* 2025. https://www.aafs.org/asb-standard/standard-friction-ridge-examination-conclusions

ASB (2025)

Source Exclusion	Inconclusive with Dissimilarities	Inconclusive	Inconclusive with Similarities	Source Identification

Source Exclusion	Support for Different Sources	Inconclusive	Support for Same Source	Source Identification

ASB (2025)

- **Do you have to use all 5 conclusions?**
  - No, use whichever set of these conclusions you want
  - Or don't follow the established standard for the field
- **Am I going to use these terms and these definitions?**
  - Don't decide one way or the other based on my opinion
  - Definitions are more consistent and generally improve on the OSAC language
  - Terms are confusing to our customers and the triers of fact
  - Yes, of course, I'm going to use these terms and definitions
  - Result of the consensus process in our field
- **What are my hopes for the next revision?**
  - Update to the terms to avoid confusion for our customers
  - Those that use the expanded scale need a standard to follow
  - If you're never going to use the expanded scale, no one will ever force you to
  - Let those that want to use the expanded scale define that scale

Contact

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