

Deadline of Submission of Comments: 27-Jan-25  
 Document Number: ASB TR 012  
 Document Title: Technical Report on the Articulation of the Reasoning and Foundational Principles Behind Friction Ridge Examinations

Comment #	Text Line # (s)	Document Section	Type of Comment E-Editorial T-Technical	Current Document Wording	Proposed Revision	Revision Justification	For Working Group and Consensus Body use only, not to be completed by commenter.
							Final Resolution
1		11	E	Entire section	Delete	While this section is not an impediment to publication, it does not improve the document; it has the opposite effect. While the statements in it are not false, they are so vague that they will be of little use to customers and some them echo statements that have been cynically used to mislead and distract customers.	<b>REJECT WITH MODIFICATION</b> - Section 11.2.2 removed. Other sections slightly modified. Overall section was retained as the discussion of examiner performance studies now plays a foundational role in supporting the reliability of friction ridge examinations. Its inclusion in a document providing the reasoning and foundational principles behind friction ridge examination is justified.
2		11.2.1	E	These studies have reported relatively low instances of false negative errors and even lower (albeit non-zero) instances of false positive errors by study participants.	Delete	These verbal characterization ("low" and "lower") are vague and subjective and don't add value to the document. What range of error rate would the authors of the document include in the category of "low"? What error rate is "low" enough and for what purpose?	<b>REJECT WITH MODIFICATION</b> - " (see references included in section 11.3a) for reported error rates)." was added after statement to clarify the generalization of "low" and "relatively low"
3		11.2.2	E	The error rates from performance studies do not represent the probability of error in any specific situation (i.e., the probability of error associated with a specific examiner, FSP, case, or examination) as all measured error rates are only directly applicable to the specific study and its participants.	Delete	While the statement is obviously true in a certain sense, if taken literally it would mean that no results from any accuracy study could ever be applied to any real-world application of anything. That is obviously not the case, so the statement is unhelpful to customers. The statement also has a history of being used in to dismiss accuracy studies and distract customers from them.	<b>ACCEPT</b> - Section deleted
4		11.2.3	Ballot Comment	Putting the word "skill" in quotation marks undermines the actual knowledge and expertise of the examiner. Perhaps replace with a stronger word like //expertise// without quotation marks here to account for the specialized technical knowledge that is a factor contributing to or mitigating errors in an examination.			<b>ACCEPT WITH MODIFICATION</b> - replaced "skill" with "error rate"
5		12.2.1 and 12.2.1 a)	E	Historically, when articulating the results of friction ridge examinations, examiners have used words and phrases that are now considered inappropriate or misleading (including their usage under the caveat that it is an examiner's "opinion"). A prohibition against the use of such problematic phrases is documented in ASB Standard 013, Standard for Friction Ridge Examination Conclusions (Draft available from asb@aafs.org). The documented prohibited language includes the following: a) Individualization, Made by, Originated from the same source, Exclusion of all others. Use of the term "individualization" or phrases such as "originated from the same source" (outside of the presentation of propositions), "made by", "matched to", and "exclusion of all others" imply the reduction of an open population (i.e., the world's population) to a single source. These terms and phrases de facto exclude all other possibilities. Unless case related contextual information is considered when making this determination, such as a closed-set population, this claim is not supportable by the current research and empirical testing.	remove sections 12.2.1 and 12.2.1 a)	<p>12.2.1 and 12.2.1 a), contain several false statements to support the opinion of the authors of how they feel friction ridge identifications should be reported. The words that examiners have used and currently use are factually correct. Thousands of times everyday prints are "individualized, matched to, and are shown to originate from the same source". These statements are supported by the biological sciences and enjoy a track record of success in making correct and accurate identifications for over one hundred years. The ability to identify a friction ridge impression to its sole source is completely supported by science and has never been falsified. All scientific studies reinforce that all areas of friction ridge skin is unique. Uniqueness provides a foundation for a comparison and the ability to identify an impression to its sole source. The following statements and observations are factual, not opinion. No duplicate fingerprints or other areas of friction ridge skin have ever been found on two different persons. Identical twins do not have the same fingerprints. The establishment of a sole identity is done by all the identification bureaus around the world. The process is now supported by a multi-billion-dollar biometrics industry. The well-established ability to make same or sole source identifications is a necessary function that is paramount to society for many reasons. Friction Ridge identification (fingerprints) is currently being used by all governments around the world to establish the sole identity of a specific individual for the purposes of criminal prosecutions, to establish and track the criminal records of individuals (known as rap sheets), to verify a specific person's identity for security clearances, to establish a person's identity for the issuance of passports, and to make the positive identification of the deceased, just to name a few. The identification systems of every country in the world use fingerprint identification to establish a person's identity. There have not been any changes in the results of scientific research or in the acceptance of this form of evidence in the justice system that would justify this radical change in reporting comparison conclusions. The opposite is true. For just one example, in 2023, a team of scientific researchers from around the world published their research that has once again verified that all areas of friction ridge skin are unique. Glover et al., (2023) The Developmental Basis of Fingerprint Pattern Formation and Variation, Cell 2023,186, 1–17, Elsevier Inc.</p> <p>In addition to the extensive biological research that provides the scientific foundation that all areas of friction ridge skin are unique, there is also over one hundred years of empirical data that supports the demonstrated ability to correctly and accurately identify latent print impressions to their sole source. The identification of a latent print to its sole source has been demonstrated, accepted, and embraced by the courts of the world. There is extensive legal precedence because the ability has been demonstrated. "—there is tremendous variability among prints made by different fingers. This variability clearly provides a scientific basis for using fingerprints to distinguish individuals." AAAS, Forensic Science Assessments: A Quality and Gap Analysis- Latent Fingerprint Examination, P.18, September 2017. Even, the 2009 NAS report, Strengthening Forensic Science in the United States: A Path Forward, states that: "Because of the amount of detail available in friction ridges, it seems plausible that a careful comparison of two impressions can accurately discern whether or not they had a common source." Page 142. Nowhere in the 2009 NAS report does it suggest that we should abandon the use of sole source identifications. The opposite is true, it recommended the expanded use of fingerprints through the interoperability of Automated Fingerprint Identifications systems (AFIS) to solve more crimes. Recommendation number 12. From the NAS report, The Evaluation of Forensic DNA Evidence 1996 Committee on DNA Forensic Science: An Update, stated that DNA evidence will soon be reported as a unique identification as fingerprints are now. "We can confidently predict that, in the not-distant future, persons as closely related as brothers will be routinely distinguished, and DNA profiles will be as fully accepted as fingerprints now are. But that time has not yet arrived, and the winds of controversy have not been stilled. Hence this report", Preface of the report. The late eminent Professor of Zoology and Philosopher of Biology Ernst Mayr PhD of Harvard University states: "In the uniqueness of biological entities and phenomena lies one of the major differences between biology and the physical sciences. Physicists and chemists often have genuine difficulty in understanding the biologist's stress on the unique. The variation from individual to individual within the population is the reality of nature, whereas the mean value (the "type") is only a statistical abstraction. Biopopulations differ fundamentally from classes of inanimate objects not only in their propensity for variation but also in their internal cohesion and their spatio-temporal restriction. There is nothing in inanimate nature that corresponds to biopopulations, and this perhaps explains why philosophers whose background is in mathematics or physics seem to have such a difficult time understanding this concept" Mayr, Ernst, Toward a New Philosophy of Biology, p.15, (1988), Harvard University Press.</p>	<p><b>REJECT</b> - The request to remove the cited sections are rejected. The statements within the cited sections are appropriate as they provide valuable information regarding the requirements listed within STD 013. The statements made within the Revision Justification are not persuasive based on the following observations:</p> <ul style="list-style-type: none"> <li>- Without ground truth, experts cannot provide "fact" (experts provide "opinion" and within Standard 013 examiners are prohibited from using statements that state or imply "fact")</li> <li>- Over a hundred years of execution of friction ridge examinations does not prove the accuracy of frictions ridge examination (we cannot know the ground truth in these matters and therefore cannot use them to test the accuracy of the conclusion)</li> <li>- The biology and unique nature of friction ridge skin does not confer "uniqueness" upon reproductions of that skin (Friction ridge examiners do not examine the friction ridge skin)</li> <li>- The ubiquitous application of friction ridge examination does not prove the accuracy of friction ridge examinations</li> <li>- Examiners have been "factually" incorrect in their conclusions (at least definitively so within ground truth examiner performance studies)</li> <li>- While no two persons have been found to have the same set of friction ridge skin arrangements, two (or more) different persons have been identified to the same friction ridge impression in both ground truth performance studies and in operational casework; Furthermore, individuals that were the source of a friction ridge impression have been routinely excluded as the source of that impression. This effectively "falsifies" the assertion that friction ridge examinations are infallible (i.e., can be presented as "fact")</li> <li>- Quoted references to the AAAS report and NAS report are misrepresented and/or taken out of context as both of these reports were highly critical of sole source attribution in friction ridge examination.</li> </ul>

6		13.2.9		"examiners are resistant to the effects of biasing information"	This statement is unfounded and should be removed.	There is ample evidence that examiners are susceptible to cognitive bias.	<b>ACCEPT WITH MODIFICATION</b> - Statement was removed. In place of the statement, the results of various studies (see Hall & Pena) were summarized. These studies saw no changes in expert conclusions from the inclusion of biasing information.
7		13.2.9		"when influenced, [examiners] generally default to more conservative conclusions."	At minimum, citations must be added to support this claim.	In light of the research literature, this statement is dubious at best. At minimum, it needs to be amply supported by specific citations to empirical studies.	<b>ACCEPT</b> - Statement removed. (While there is some support for this statement, the commentor is correct that it is currently too limited)
8		13.2.9		"The presence of biasing information alone does not necessarily indicate that an examiner or their conclusion is inaccurate or unreliable."	This statement is misleading and should be removed.	This statement misses the point, which is that bias undermines the independent probative value of the expert's judgment, regardless of whether it lowers or (only incidentally) improves accuracy.	<b>ACCEPT</b> - Statement removed as it was judged to be redundant given the inclusion of results of bias studies.
9		13.2.9		"Conversely, lower complexity/non-complex impressions/comparisons require less personal judgment and as a result tend to be more resistant to the effects of bias."	"Complex decisions (e.g., involving incomplete, degraded, or otherwise ambiguous impressions) are especially vulnerable to the effects of bias and thus especially warrant safeguards against bias."	As written, this claim implies that "easier" comparisons do not warrant protections against bias, which is contingent on examiners' ability to accurately diagnose such situations. The extent to and the reliability with which examiners are able to accurately diagnose such situations is currently unknown.	<b>REJECT WITH MODIFICATION</b> - Statement was removed in favor of summary statements from bias studies showing the most changes associated with "difficult" prints and little to no changes associated with "easy" prints. A preceding caveat statement "While bias could influence any examination..." was also added prior to summary statements. [See Dror & Busey citation; see Kellman study for demonstration that examiners can recognize complexity/difficulty]
10		13.2.9	E	However, studies have also shown that, in general, examiners are resistant to the effects of biasing information or, when influenced, generally default to more conservative conclusions.	Delete	This is not a consensus read of the literature and unnecessary.	<b>ACCEPT WITH MODIFICATION</b> - Statement was removed. In place of the statement, the results of various studies (see Hall & Pena) were summarized. These studies saw no changes in expert conclusions from the inclusion of biasing information.
11			Ballot Comment	Fantastic job in resolving all these comments within a completely re-worked TR012 to include articulation of ALL Friction Ridge Examinations rather than just "Source Identification" as originally written. Kudos to all for your persistence and commitment to the end goal. This is a tremendous resource to active fingerprint practitioners whom are called upon to testify in their role.			<b>NOTED</b> - No revision requested