

# Selection of comparative material as objective basis of expertise in forensic document examination

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## Abstract

The comparative method is universally accepted and applied in forensic document examination. Comparing the questioned handwriting or signature against the comparative material reveals graphic elements which allow the expert to arrive at a technically and methodologically structured conclusion regarding authenticity. The opposing parties in a case provide comparative material for the expert to assess. Specimens deriving from public documents are initially considered to be of safe origin – these usually consist of signatures. However, handwriting samples are mainly found in private documents. Such circumstances make it easier for each party to contest the material provided by the opposite party while asserting the authenticity of their own. This, in turn, may lead to a debate between experts regarding the selection of appropriate comparative specimens. After all, the validity of their conclusions depends on whether the choice they make in this matter is correct. The present article provides some methodological guidelines, suggestions regarding the way of expressing the final expert opinion, as well as illustrates them through a specific case study.

**Keywords:** comparative material, signature, forgery, authenticity, public documents, private documents, handwriting, expert's conclusion, methodological criteria.

The universally accepted and applied method in forensic document examination is the comparative method. It allows the expert to contrast

the questioned handwriting or signature against specimens provided by individuals involved in a particular case in order to answer the question regarding its authenticity.

## 1. Methodological criteria of estimating the comparative material

The comparative material should meet the necessary methodological requirements. The possibility of applying these criteria leads to the amplified revelation of the graphic elements in which the conclusion of the expert will be technically and scientifically structured. The quality and quantity of this material is fundamental for the expert because the conclusion depends mainly on the completeness of it.

The scientific criteria at their core refer to:

- the possibility of the expert to access and examine original documents (or documents in other forms, such as photocopies, photos, scans, etc.), so as to carry out all the necessary kinds of analysis, some of which could only be applied to the originals. Lack of this possibility could diminish the diagnostic capacity of the expert (qualitative criterion);
- the quantity of comparative material, since the analysis of a large number of specimens could reveal the range of variability<sup>1</sup> of the writer's graphic skill (quantitative criterion);
- the existence in the comparative material of specimens contemporaneous to the questioned document, which gives the expert the opportunity to understand and define the graphic skill of the individual in the suspected chronological period (chronological criterion<sup>2</sup>).

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<sup>1</sup> D. Ellen, S. Day, C. Davis, *Scientific Examination of Documents: Methods and Techniques*, Boca Raton, FL 2018, p. 12; K. Koppenhaver, *Forensic Document Examination: Principles and Practice*, Totowa, NJ 2007, p. 27; H. Harralson, *Developments in Handwriting in Signature Identification in the Digital Age*, Oxford 2013, pp. 4–6; N. Stergiou, L. Decker, “Human movement variability, nonlinear dynamics, and pathology: Is there a connection?”, *Human Movement Science* 30, 2011, issue 5, p. 869.

<sup>2</sup> M. Wakshull, *Forensic Document Examination for Legal Professionals: A Science-based Approach*, Temecula, CA 2019, p. 133; L.A. Mohammed, *Forensic Examination of Signatures*, London 2019, p. 65; D. Purteil, “Dating a signature”, *Forensic Science International* 15, 1980, issue 3, pp. 243–248; P. Kipouràs, “Metodologické kritéria

It is rather indisputable that if the comparative material is compliant with these requirements, the expert could orientate their conclusion in a safer methodological direction.

In the case of expertise in forensic document examination (FDE) – or rather forensic handwriting examination (FHE), since in the modern times there are several forms of digital documents which sometimes demand a different approach by the expert – the opposing parties provide the comparative material of the person(s) involved to the case file. Such material may include not only their own specimens, but also specimens of the opposite party, which is a very common practice. Such a situation can lead to conflicts and sometimes even severe confrontations between private examiners hired by the parties and the court-nominated expert. It is undeniable that the definiteness of the comparative material is crucial for the court expert. In many cases, the forgers even create specimens for comparison – they usually derive from private documents, since creating a comparative specimen in a public document demands the collaboration of a state official, such as a notary public or a police officer (e.g., regarding a notary proxy or the authentication of a signature by the police or public services).

Discrepancies become a fertile field for disagreement, and this is a challenge many nominated experts deal with. Independently of their final opinion, the court expert's conclusion is usually attacked by one of the private examiners, who claims an inadequate estimation of the comparative material. Admittedly, a wrong conclusion regarding the identity of the writer who created the specimens could invert the results entirely.<sup>3</sup> It needs to be kept in mind, however, that the questioned document and comparative material having been produced by the same graphic hand does not necessarily mean that the suspected document is authentic. It is rather a question of a 'label' in the identity of the person who has written a specimen. A testament written by the same person in a private letter,

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v grafologickej expertise" [Methodological criteria in graphological expertise], *Slovenská grafologická spoločnosť* [Slovak Graphological Society Journal], 2019, issue 56, p. 5.

<sup>3</sup> A. Sulner, "Critical issues affecting the reliability and admissibility of handwriting identification opinion evidence – how they have been addressed (or not) since the 2009 NAS Report, and how they should be addressed going forward: A document examiner tells all", *Seton Hall Law Review* 48, 2018, issue 3, art. 5, <https://scholarship.shu.edu/shlr/vol48/iss3/5>.

which is declared to the court expert as a specimen of the testator, does not necessarily prove the validity of the testament.

## 2. Suggestions

The correct selection of the comparative material could protect the validity of the expert's conclusion and their professional figure. At the same time, it can prevent attempts of scientific confutation by the opposing examiners. How can one protect themselves in the procedure? Some initial suggestions could be expressed:

- It would be safe to conclude on the (in)compatibility of the hands which have written the suspected document and the comparative material rather than referring to the identity of the person, e.g., “the suspected document was written by the hand which has written the material declared as comparative.”

- Refer to the identity of the person only on the base of the hypothesis of authenticity – e.g. (in continuation of the aforementioned proposed expression), “if the specimen declared as comparative material of the person A really belongs to them, the suspected document is authentic. If not, the questioned document is forged.”

Such a way of opining gives our scientific conclusion to the court, but at the same time protects both ourselves and judges from attempts of fraud by the parties involved regarding the writer's identity. Undeniably, the basis and ultimate aim of the law is justice. Hence, under this assumption, the estimation of evidence and correctly determining the writer's identity are of utmost importance. On the other hand, the nominated FDE is restricted to their own scientific field, having the jurisdiction to opine only in relation to the technical questions of the court. Furthermore, the judges have a complete vision of the case file as well as the wide jurisdiction to cross-examine and estimate all the different forms of evidence. An expert's conclusion, therefore, does not restrict the court's estimation of the facts – according to the jurisdictional procedure, the judges have to adopt or reject the expert's opinion. It is preferable for them to have the opportunity to interpret the expert's research data and conclusion within the full context of the case and evidence rather than make a decision as to whether they should deem the whole expertise unreliable and exclude

it from their final evaluation. The last eventuality is definitely in favor of the party whose aims are deceitful.

### 3. Case study

After a long-lasting collaboration, there is a dispute between two accountants (called Mr. A and Mr. B) regarding a signature on a bank cheque. Mr. A has given an oral authorization for B to sign different kinds of documents in relation to their professional activity on his behalf. This situation has led to the establishment of Mr. A's signature which was conceived and evolved entirely by Mr. B and completely different from the original. After the court nominated an expert, Mr. B has presented comparative material in several documents (in practice signed by him on behalf of Mr. A), claiming that these were the signatures of Mr. A, although there was no morphological or ideological connection to the authentic signature. He also claimed that this was a second model of Mr. A's signature. Mr. A vehemently denied this assertion.

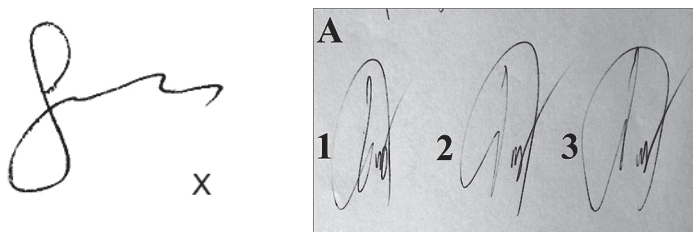


Figure 1. The suspected signature X and the comparative material of Mr. A (A)

The specimen declared by Mr. B as comparative material of Mr. A was the following:

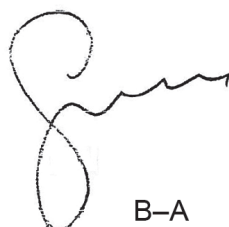


Figure 2. The signature model that Mr. B declared as Mr. A's authentic signature (B-A)

Mr. B tried to base his claim on the fact that the documents he presented which contained the alternative signature model were found in public documents.

Signatures on some documents declared or considered as public are related to the delicate issue of legal entities. If the FDE expert does not have basic legal knowledge, they can become disorientated. We have to distinguish between signatures in public documents in which their authentication and validity derives from the fact that they were traced in front of a public officer who confirms their authenticity, and documents which have legal validity as public due to the validation of their content. In the first case, we have an absolute certainty of authenticity (if the public officer did not commit fraud), in the second – we do not. The fact that a document was signed in private and then delivered to a public service in order to acquire legal validity does not necessarily mean that the signatures on it are authentic. This is the case for documents presented by Mr. B. as authentic specimens of Mr. A, followed by the claim of their public origin. We have to mention that in the majority of these documents, there was also the authentic signature of Mr. B next to the presumed signature of Mr. A.

The expert, in order to avoid being trapped by such claims, should take into consideration every aspect, including common sense. At the same time, the eventual plurality of comparative material at their disposal could give them the opportunity to exclude disputed specimens by cross-examining the other samples. Nevertheless, they should take into account the historical facts of the case, which may provide information useful for orientating the investigation. Experience indicates that the individuals favored by a forged document do not always create it themselves, but sometimes involve third persons. In the case examined, due to the nature of the collaboration of the persons involved, an eventual production of the forged signature by Mr. B should be examined. The authentic signature of Mr. B is the following:

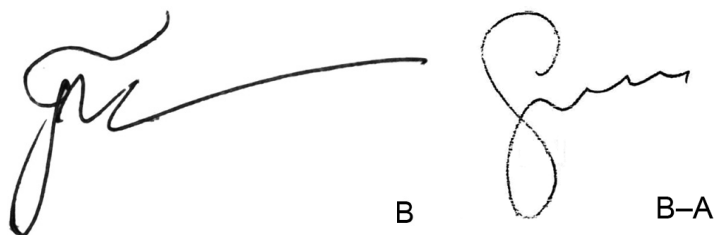


Figure 3. The authentic signature of Mr. B (B) next to the one declared by him as signature of Mr. A (B-A)

There are obvious points of compatibility between the specimens B and B-A (declared as specimens of Mr. A by Mr. B) which regard not only the morphology of the signature, but also the clockwise or anti-clockwise changes of direction<sup>4</sup> in the initial form which resembles the number 8.

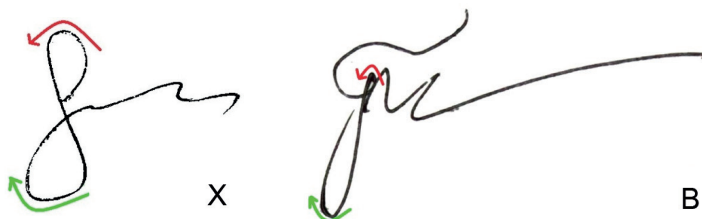


Figure 4. The same direction of strokes on the initial form of signatures X and B in the same points

Practically, the suspected signature X is traced by unifying the two parts of the authentic signature B and simplifying the initial part of authentic specimen B, which presents an even more complicated form in other authentic specimens.

<sup>4</sup> A.I. Kapandji, *The Physiology of the Joints*, vol. 1. *The Upper Limb*, Edinburgh, 2010, pp. 146–197; P. Kipouràs, “Evidence for a 3-stage model for the process of free-hand forgery of signatures and/or handwriting”, *IJISSET – International Journal of Innovative Science, Engineering & Technology* 8, 2021, issue 1, pp. 238–249, [http://ijiset.com/vol8/v8s1/IJISSET\\_V8\\_I01\\_23.pdf](http://ijiset.com/vol8/v8s1/IJISSET_V8_I01_23.pdf).



Figure 5. The morpheme of signature X is part of the authentic signature B

## Conclusion

The correct identification of the comparative material is the starting point of a successful FDE. The expert should take into consideration the fact that the parties' claims could be deceitful for obvious reasons (obtaining a favorable court decision). We can draw a parallel between a mathematic equation and the expertise procedure. An accurate estimation of the comparative material and attributing the real identity to the hand which has graphically produced the specimens in certain documents are crucial for an objective application of the methodological steps. An error in the initial part of the procedure may condemn the reliability of the conclusion, regardless of whether the next stages of the expertise are methodologically correct. Experts should rather express as a point of reference their opinion regarding the compatibility of the hands rather than the identity of the persons involved. In this way, they expand the significance of the expertise and allow the court to adopt the conclusion by adjusting it to the parallel findings of other means of evidence.

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