

The coincidental similarity of individual handwriting – a case study

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Summary

In the course of their opinion-making practice, handwriting experts are bound to face an issue of similar handwriting between different individuals. As there are several types and degrees of such similarities, depending on a particular similarity degree, they may also pose a risk of error. The questioned material itself may present an additional difficulty in the examination process, especially when it is limited to a small number of distinctive features of a low identification value. This article presents a case study, in which an expert encountered a very high similarity between two random, unrelated individuals' handwriting consisting of short forms of evidential signatures.

Keywords: similarity of handwriting, evidence, questioned material, exemplars, distinctive features, writer, graphical features

Introduction

Handwriting examination is based on several premises, which include, for example, the individuality of the writing habit, its relative stability, and syndromaticity, which assumes that certain features or sets thereof occur with a variable frequency in the writers' population, and this, in turn, determines these features identification value. These assumptions underline the validity of expert's opinion in handwriting identification analysis, however, they can also lead to erroneous conclusions, with a coincidental similarity of individual handwriting as the underlying cause.

Throughout their professional career, handwriting experts will encounter similarities in the handwriting of various individuals. These similarities may result from common environmental factors, including family relations, both in kinship correlations, e.g. grandmother, mother, daughter, siblings, cousins, as well as affinity (husband–wife, partners), school relations, in the teacher–student relation, as well as from coincidental similarities, including those in the strict sense, i.e. handwriting doubles. In addition, identification examination, where similar handwriting of different individuals can be encountered, may be hindered by the evidence itself, when it consists in a short form of signatures with a limited number of distinctive features. The case presented in this article demonstrates that when encountering such circumstances handwriting experts need to proceed with considerable caution during the examination.

Case study

In 2015, the local Forensic Laboratory received an order of the District Court in Zielona Góra to carry out

a handwriting examination. The case concerned forgery of an individual's ("I.B.") signatures on documents related to her employment under a mandate contract, in a general partnership company operating a chain of grocery stores in Zielona Góra. In order to provide more detailed information on the incidents, it should be noted that I.B. agreed to work in one of the stores on public holidays, when permanent employees are not allowed to do so. In addition, she was recommended to the store manager by her sister, who already worked in another store of the same chain, also under a mandate contract. However, at the last minute, I.B. decided not to take this job because she was pregnant. She was replaced, without her knowledge, by a permanently employed saleswoman from another store of the above-mentioned chain. The case came to light when in 2014 I.B. received the PIT-11 tax form which indicated an income of nearly PLN 1,000. The conducted preparatory proceedings resulted in referring an indictment to the court against the store manager. In the course of the trial one of the court orders was to commission a handwriting expert opinion.

The evidence included: alphanumerical records and two "Borczyk" signatures on the contractor's statement, one "Iwona Borczyk" signature on the mandate contract, and fourteen "Borczyk" signatures on four payment receipts. All documents were dated April and May 2013.

Exemplars submitted for examination, on the other hand, consisted of the handwriting of four women: the victim, 22 years old (I.B.), the store manager, 45 years old (K.K.), the victim's sister, 26 years old (E.G.), and the saleswoman who replaced the victim, 37 years

old (D.Z.). The handwriting samples obtained for the first three persons included both requested and collected writings, as well as the case material. In case of the last person, the writings consisted of collected handwriting samples and handwriting samples requested on two different occasions. What is more, the handwriting expert responsible for drafting an expert opinion asked another expert in the field of forensic

handwriting examination to take the second handwriting sample, as he resided in the area where the action ordered by the court had to take place.

The provided exemplars were assessed and qualified swiftly for further comparative analysis, even though the handwriting sample submitted upon request by K.K. demonstrated such characteristics as undulating lines, crossed out additional graphic elements,

Firma prowadzi sklepy AS.
 Ja jestem kierownikiem sklepu nr. 9 w Zielonej Górze
 ul. Wyszyńskiego.
 W kwietniu 2013 rozmowa prawdopodobnie do
 pracowników innych sklepów AS w Zielonej Górze
 pytałem czy znają kogoś kto może pracować na
 umowę zlecenie w dniach 1, 3, 19, 30 maja 2013 r.
 Nie pamiętam teraz kto polecił mi pracownika na
 zastępstwo. Po okazaniu druków KW nr 1/05/13
 2/05/13
 3/05/13
 6/05/13

Zeznaje że nie wypisałem tych dokumentów.
 Nie byłem obecny przy ich sporządzeniu.
 Pani Iwona Borayk, która jest wpisana na tych
 dokumentach najprawdopodobniej sama wypisała jej
 treści i dożyła podpisy.

Jestem zatrudniona w firmie System Sp. Jawna
 w Zielonej Górze.

Exemplars requested from K.K.

Oświadczam, że Umowa Zlecenie nr 255/2013 nie była wykonywana przez Iwonę Borczyk tylko przez mnie. Iwona Borczyk nie pobrała na dowody KF kwot 150 i 200 zł. Te dowody opisane są i podpisane są nawiśnikiem pani Borczyk. Myślę, że pani Borczyk wyraża na to zgodę.

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Myślę, że pani Borczyk wyraża na to zgodę.

Exemplars requested from D.Z.

single alterations and corrections, and distorted formation of individual characters.

As for the questioned exemplars, it is worth mentioning that its preliminary comparative examination allowed the expert to distinguish four writing sets, i.e. fourteen "Borczyk" signatures placed on blank payment receipts, "Borczyk Iwona" signature placed on the mandate contract, alphanumeric records filling in the required fields of the contractor's statement, and two "Borczyk" signatures placed on the above-mentioned statement.

For the purpose of this article, it is not necessary to present comparisons of examined exemplars from the third and fourth set, but only to indicate the results. These allowed the expert to, conclude definitively that the primary handwriting on the statement was placed by E.G., and two "Borczyk" signatures were placed by her sister - I.B.

The main challenge for the expert, however, turned out to be the first indicated set of fourteen "Borczyk" signatures juxtaposed with the handwriting samples from K.K. and D.Z. Before detailing a comparison of

the above-mentioned exemplars, it is pertinent to present scanograms illustrating the general handwriting of both subjects.

The similarity of the handwriting between two unrelated women of similar age carrying out similar work is evidenced by the following comparisons based on individual sets of synthetic, topographic, motor, measurable, and structural features.

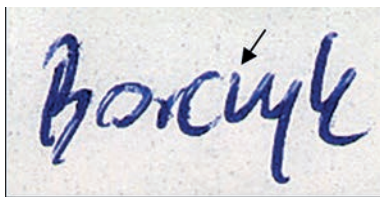
In order to better trace these characteristics, it is worth adding at the outset that the questioned

signatures were placed by the saleswoman, D.Z., who replaced the victim, I.B., at work when the latter resigned. D.Z. also confessed that she had placed those signatures, reasoning that she was convinced that I.B. had given her consent.

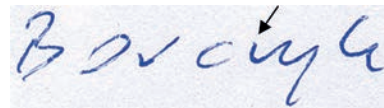
The scanograms presented below demonstrate the “common similarities” between the questioned handwriting and the handwriting of both the saleswoman, D.Z., and the store manager, K.K.

- In terms of key features:
 - Class of handwriting
 - Degree of signatures legibility and placement accuracy, e.g. with a simplified form of the “z” letter

Evidential material



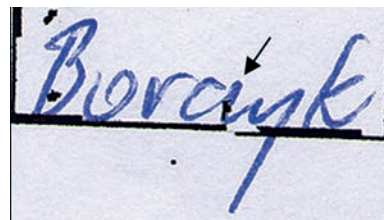
Exemplar from D.Z.



Evidential material

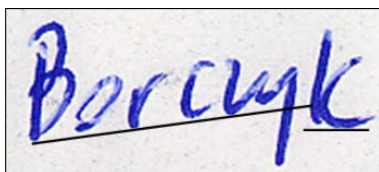


Exemplar from K.K.

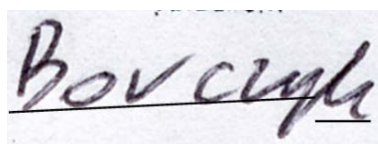


- In terms of the topographic features:
 - Alignment of the surname baseline

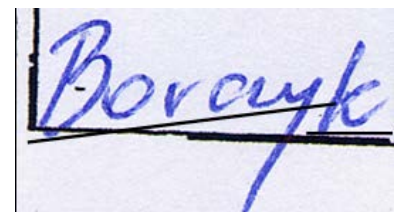
Evidential material



Exemplar from D.Z.

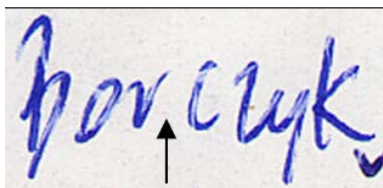


Exemplar from K.K.

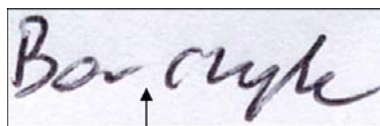


- Occurrence of a greater spacing between the "r" and "c" minuscules in the surname entry

Evidential material



Exemplar from D.Z.

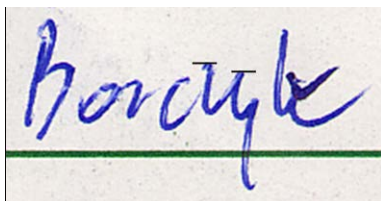


Exemplar from K.K.

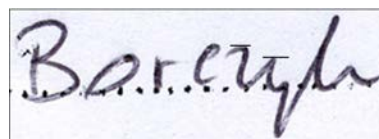


- Location of the "y" letter mean line below the top of the preceding "z" character in the word "Borczyk"

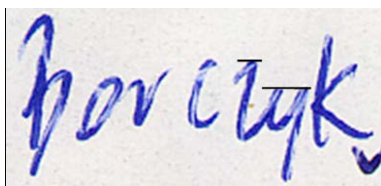
Evidential material



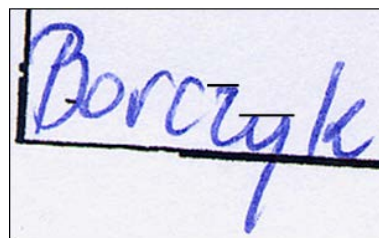
Exemplar from D.Z.



Evidential material

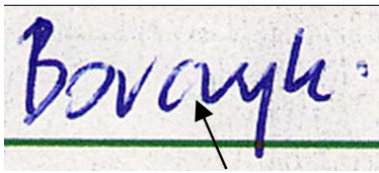
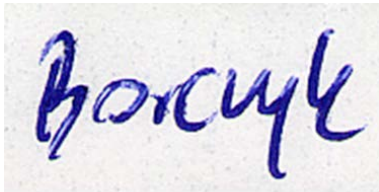


Exemplar from K.K.

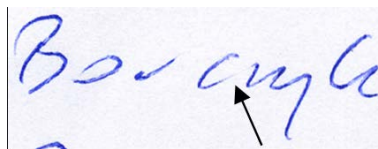
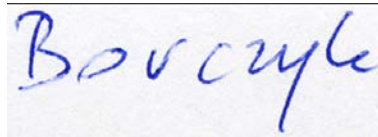


- In terms of motor features:
 - Pen lifts
 - System of connecting characters in the surname entry: “B-o-r-c-zy-k”, “B-o-r-czy-k”
 - Handwriting line shading

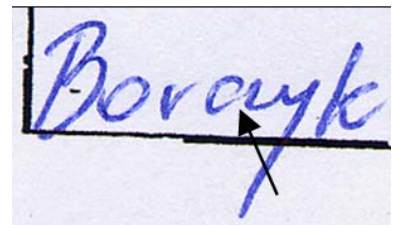
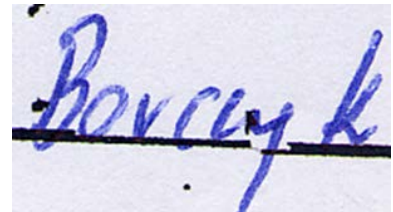
Evidential material



Exemplar from D.Z.

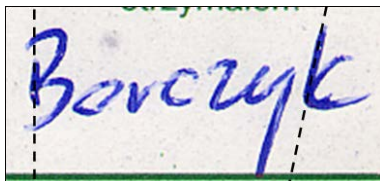


Exemplar from K.K.

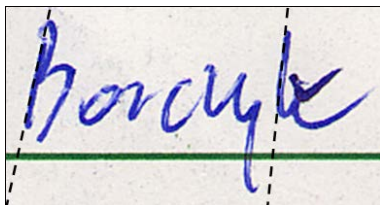


- In terms of measurable features:
 - Overall handwriting size
 - Characters located perpendicular to the baseline, on the right side relative to the baseline

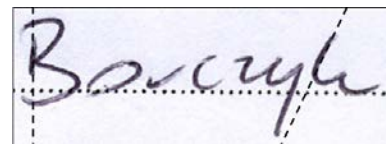
Evidential material



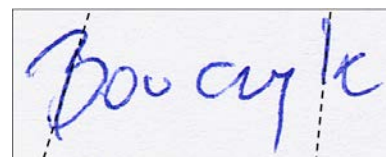
Evidential material



Exemplar from D.Z.

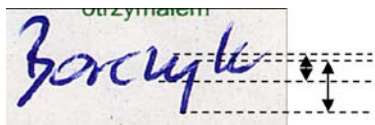


Exemplar from K.K.

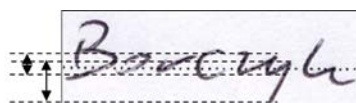


- Size proportions between components in the "y" minuscule

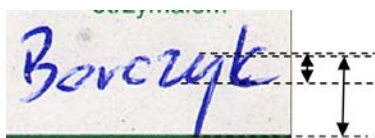
Evidential material



Exemplar from D.Z.



Evidential material

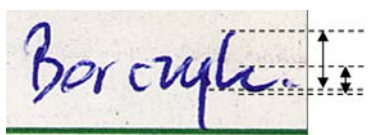


Exemplar from K.K.

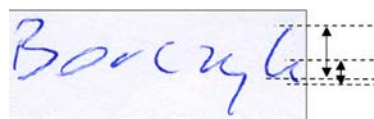


- Size proportions between the staff and the terminal stroke in the "k" letter

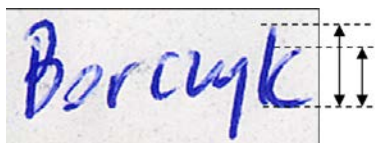
Evidential material



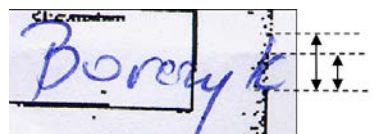
Exemplar from D.Z.



Evidential material

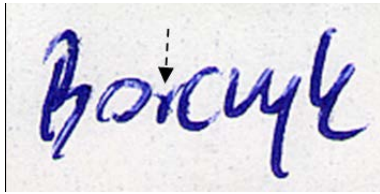


Exemplar from K.K.

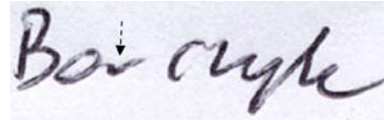


- The "r" letter characterised by smaller dimensions in relation to the adjacent "o" and "c" minuscules in the word "Borczyk"

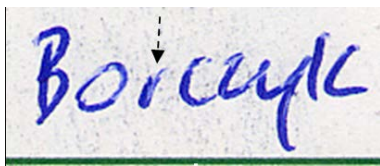
Evidential material



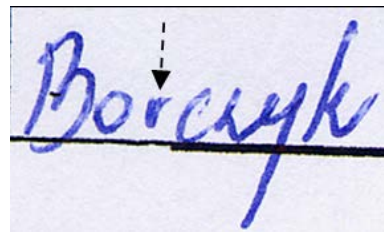
Exemplar from D.Z.



Evidential material

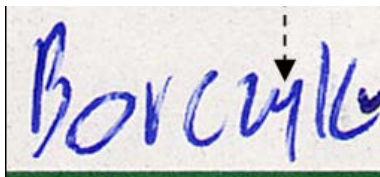


Exemplar from K.K.

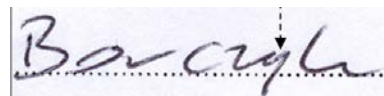


- Small size of the "y" letter part located in the mean line

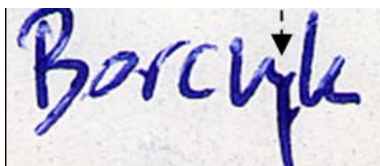
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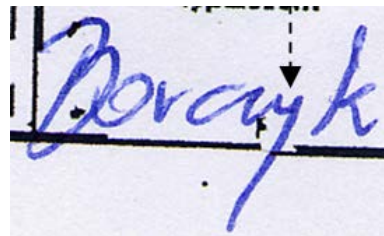
Exemplar from D.Z.



Evidential material



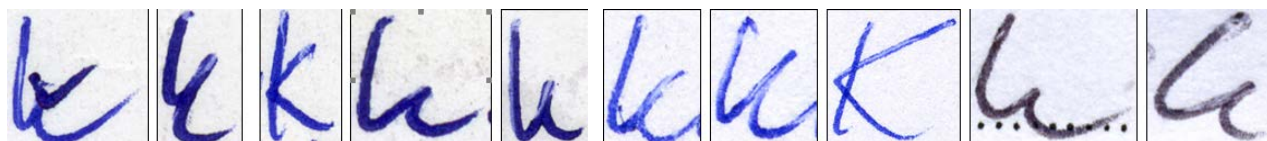
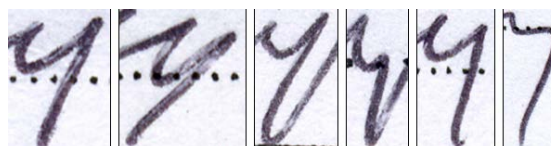
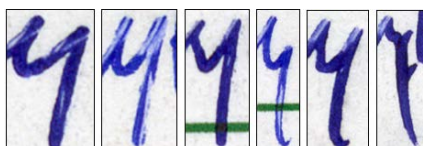
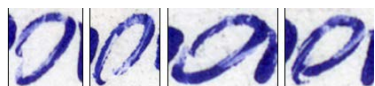
Exemplar from K.K.



- In terms of structural features:
 - Construction method for the “B,” “o,” “r,” “c,” “z,” “y,” “k,” characters

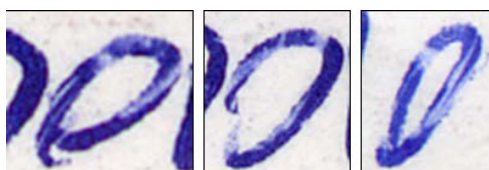
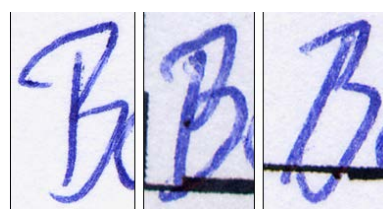
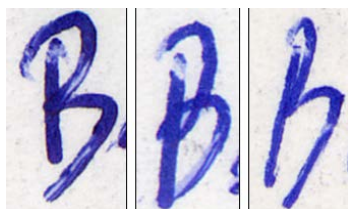
Evidential material

Exemplar from D.Z.

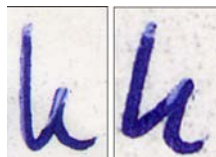
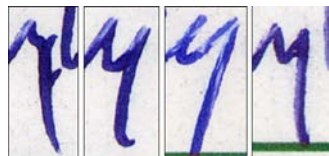
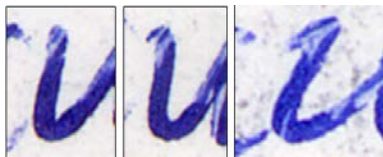
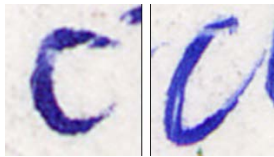
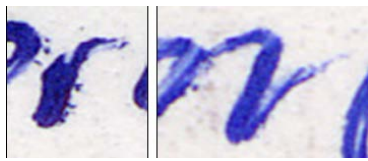


Evidential material

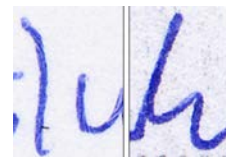
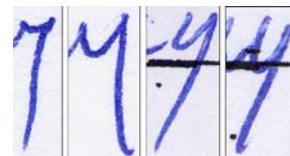
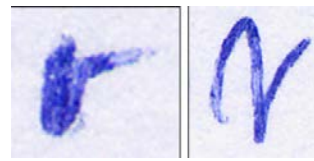
Exemplar from K.K.



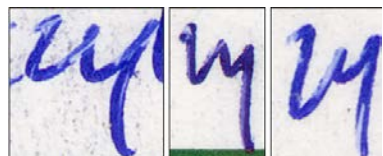
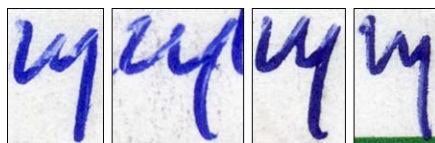
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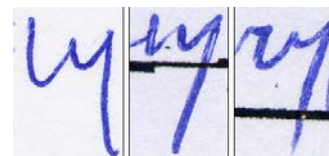
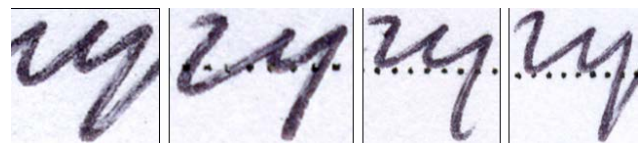
Exemplar from K.K.



Evidential material



Exemplar from K.K.



A detailed analysis based on the features that were not common to the two comparative materials presented above and which did not have their counterparts in the questioned handwriting allowed the expert to exclude the store manager (K.K.), against whom there was an ongoing lawsuit, from placing the fourteen signatures. However, she turned out to be the writer of the "Borczyk Iwona" signature, placed on the mandate contract. In this case, it was easier for the expert to draw the right conclusions, as the signature consisted of both handwritten surname and first name. Thus, the expert had at his disposal a greater number of distinctive features he could differentiate in the signature.

Conclusion

Any handwriting expert in the field of forensic handwriting examination is likely to come across similar handwriting originating from different individuals. The examination difficulty in such a case will depend not only on this "similarity" of comparative materials but also on the questioned material itself. The shorter the evidential record, the smaller the number of individual features is, and, by extension, the greater the "degree of feature similarity" between the evidential record and handwriting of potential writers. In order to ensure that the actual writer is identified, an expert needs to carry out a robust analysis which includes searching for features that would differentiate these comparative materials demonstrating similarities to the evidential handwriting. This, in turn, will allow the expert to avoid making a mistake when formulating his opinion.

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Translation GTC AMG Sp. z o. o