

Forensic relevance of Concurrently Written Signatures in Document Report Writing

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Abstract –In forensic handwriting science, it never happened that an individual is able to write their genuine signatures identically, which leads towards the principle of natural variation. As human is not a machine so they cannot produce the replica but it can be possible in case of concurrently written signatures and their identification & examination in this scenario becomes important. Concurrently written signatures are the consciously written by the person concerned and just by superimposing of these suspiciously similar signatures may not solve the problem during the case examination. The document expert should examine such cases with techniques presented in the paper and elaborate the features of concurrently written signatures in the Forensic Report to rule out the possibility of their existence.

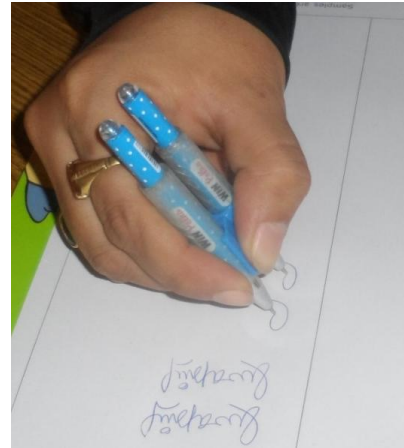


Fig 1: Concurrently written signature

Key Words: Concurrently written signatures, Concurrent signatures, Normal signatures, M.B. Ruler.

INTRODUCTION

Normal/natural are the signatures which are having natural variation and written one after other. Basically, the signature which is executed without controlling to writing habits is known as 'Natural signature'. Actually, it is the typical or original signature of a person. Whereas in 'Concurrent signatures' two or more signatures are written in such a way that they generate pictorially identical signatures.

These types of signatures can be produced when two or more writing instruments are fixed in one device and when this device is moved at similar time (Concurrently) in contact with the writing surface. The signatures which are formed at the similar time (Concurrently) by a multi writing instrument pronounced to be as '**Concurrent Signatures**'. Hence Concurrent Signatures are formed by a device containing of more than one writing instrument in such a way that all writing instruments can rotate as per the neuromuscular coordination of the writer. These 'Concurrent Signatures' may produce the pictorially identical signatures.

On the other way, it is a multiple signature device, having combination of two or more writing instruments connected via connectors. The device is to be held in the vertical position with respect to writing surface in such a way that vertical movement can occur in order to write the signatures.

One of the major principle of handwriting identification is principle of 'Natural variation' i.e. "No one person can write exactly the same way twice." These signatures can create ambiguity in experts mind since these are pictorially similar signatures. If a handwriting expert finds an identical signature to the one that is being questioned, it is an indicator that one may be a copy of the other which may be based on a tracing, a copy or a scan of one signature that is placed on another document. No two specimens are absolutely identical. How much they vary from one another depends on the individual writer and the conditions under which each was written (**Gupta & Singla, 2018**).

Pictorially identical signatures are generally present in case of trace forgery (model forgery), cut & paste forgery (transplanted forgery), autopen (mechanical device) etc. Basically, concurrent signatures are the genuine signatures which can be formed by the individual concern. Concurrent signatures don't show signs of forgery and their pen pressure is also uneven. Therefore, concurrent signatures may be used by an individual to take undue benefits as he/she can deny accepting his/her signatures in future because if two signatures are pictorially identical then one of them must be a forged one. The objective of research includes the points that should be considered during the examination of concurrently written signatures and their relevance in that particular case. Moreover, if there is presence of any such signature what criteria should be taken into consideration during opinion/report writing.

The main scenario is the time gap while writing the signatures, if two signatures are being written simultaneously by a device having two instruments, then the signature written/formed may be pictorially identical. These signatures are called as ‘**Concurrently Written Signatures**’. These signatures can be present in property related cases e.g. a person sells his/her property and use two concurrent signatures onto two different sheets of the same document. These types of signatures are signed by the person concern in original and anyone can deny his/her signatures at later stage for accepting as his/her original (Gupta et al, 2017).

Thus, in the concurrent forgery, a person writes his/her signature that its identical pictorialness will pass casual scrutiny and under normal circumstances, will be accepted as genuine. At the same time, the signature will, by virtue of some features of a less conspicuous handwriting attribute, deceive handwriting examiners into concluding and believing that the signature is spurious (Gupta et al, 2018).

EXAMINATION OF CONCURRENTLY WRITTEN SIGNATURES

Examination of these signatures can be performed with the following techniques/procedures:

A. Examination of Handwriting Characteristics

The following mandatory variations should be been examined in case of concurrent signatures, i.e.

- (I) Inter-sectional Variation
- (II) Dimensional Variation
- (III) Connection Variation
- (IV) Commencement and Terminal Variation
- (V) Positioning Variation of Diacritic and Punctuation

These variations are covered under the various handwriting characteristics detailed below:

S. N.	Handwriting Characteristics	Mandatory Variations
1.	Construction of Signatures	Inter-sectional Variation
2.	Dimension of Signatures	Dimensional Variation
3.	Spacing of Signatures	Connection Variation
4.	Commencement and Termination of Signatures	Commencement and Terminal Variation
5.	Diacritic, Punctuation and Embellishment of Signatures	Positioning Variation of Diacritic, Punctuation and Embellishment

B. Examination by Video-graphic Techniques

Video-graphic technique uses a combination of a camera, specialized light sources and filters that cover the visible, ultraviolet and near-infrared range of the electromagnetic spectrum. The ability to observe and capture document features non-destructively makes this system beneficial for document examinations. Image enhancement software enables the examiner to digitally record images of the document being examined and also allows the user to rotate, flip and render negative the pictures for easier viewing. The examiner is also capable of maneuvering the stored digital images, enabling distinct images to be superimposed or compared side by side. **Docubox HD** Projectina offers a new concept allowing comprehensive and systematic examination of documents in field application. It incorporates 14 integrated light sources, motorized 20x zoom optics and IR sensitive colour camera with auto focus. With the operative software PIA-7 and a Personal Computer or Notebook the Docubox HD is extended to a complete system for documentation, comparison and measuring.

C. Examination by Photo-graphic Techniques

(I) Adobe Photoshop Comparison

Adobe Photoshop allows the user to change the “blending mode” of each layer so that it affects the layers beneath in various ways. For FDEs, one of the most useful settings is “multiply.” Using this mode, areas of a layer that are white have no impact on layers below. Coloured portions of the

image, however, blend with those of the underlying layer. This allows the relationship between the two to be better appreciated. This is the latest method that can be employed for the examination of concurrently written signatures. In the current research Adobe Photoshop CC 2015 [Adobe Photoshop Version: 2015.0.0 20150529.r.88 2015/05/29:23:59:59 CL 1024429 x64 Operating System: Windows 8.1 64-bit] have been used.

(II) MB Ruler Software Comparison

MB (Markus Bader) Ruler software is helpful for measuring distances and angles on the screen (computer or laptop screen). This software can also be used as portable application, means no need of its installation in the computer. MB-Ruler works on WinXP / Windows Vista / Windows 7 / Windows 8 and Windows 10. It is freeware for private and non commercial use as well as the complete package (ZIP file) can be downloaded from its website. After downloading, the setup can be easily installed on to the computer. Software MB-RULER can also be employed the Forensics, as it is very useful to measure angles and distances in the identification of concurrently written signatures.

DISCUSSION & SUGGESTIONS

Tracing is a widely used method to copy signatures, especially when the signature has to reproduce exactly as possible. In some cases, signatures are traced, but to do so possession of some signatures is required. Many a times, forensic experts receive the cases where two or more signatures are critically matching. Experts usually examine these signatures by various tools and techniques including one of the basic methods that is ‘Transparency Method’. In this method, two or more signatures are matched by means of superimposition after making transparency of one of the disputed signatures. If it matches exactly at the corresponding positions, then the opinion leads towards forgery (Gupta, et al, 2017).

Although concurrent signatures are very much suspiciously matching signatures but its forensic examination is not an impossible task. Concurrent signatures may produce doubt-fullness in expert’s mind as they will think how exactly similar signatures are formed although not superimposing exactly over each other. Inter-se examination of questioned signatures is mandatory for the handwriting examination and it is the crucial step before their comparison to the standard signatures. But sometimes it is not the same case; experts should also go through the following points as discussed below;

1. Shorter Size of the Signatures

(Refer captioned figures 2 and 3)

The shorter size in signature may lead to the perfect concurrent written signatures. These types of signatures

almost superimpose over each other. It may be due to the position of pen without changing its pivot. These types of signatures are having very limited characters/strokes in terms of forensic examination. More short signatures mean better the execution of concurrent signatures.

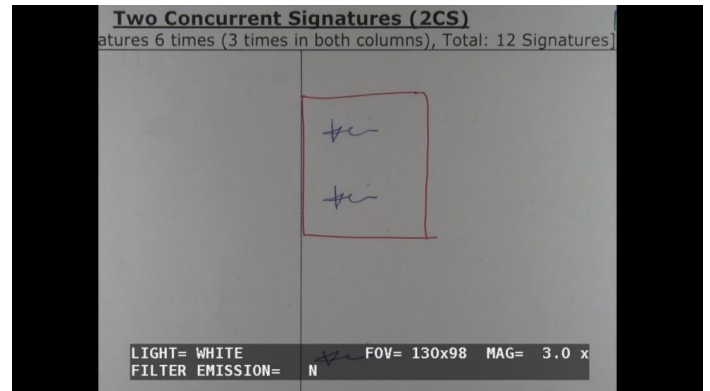


Fig 2: Shorter Size of the Signature (2CS)

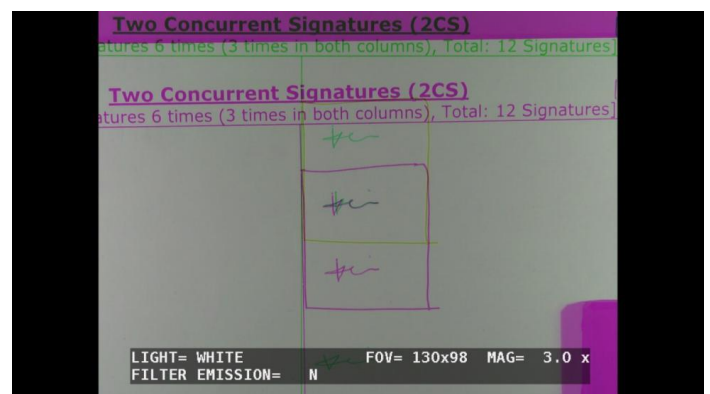
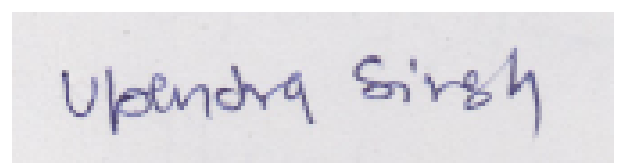


Fig 3: Superimposition of both Signature of Fig 2

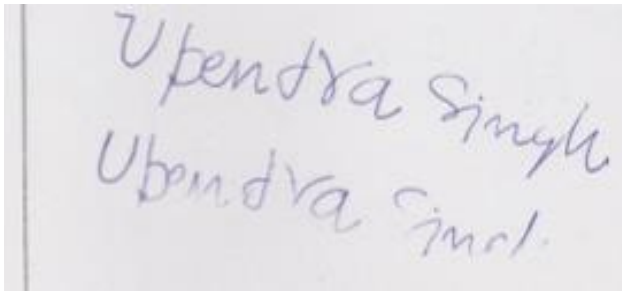
2. Difference in Formation of Signatures

(Refer captioned figures 4 and 5)

Some of the concurrent signature showed variation in the formation of strokes in comparison with the normal signatures of the person concerned. It may be due the reason that person may not be able to grasp the writing device properly. Some person is not having the capability to manage the instrument as directed so the formation of signatures especially the pictorial appearance changed in case of concurrent signatures.



One of the normal signature of Fig: 4



One set of concurrent signatures of Fig: 5

3. Penlifts in the Signatures

(Refer captioned figures 6 and 7)

It is found that less penlift in the signature caused more complexity in the concurrent signatures. Although many authors says less penlift works as weapon forgery-proof signatures but this scenario fails in case of concurrently written signatures.

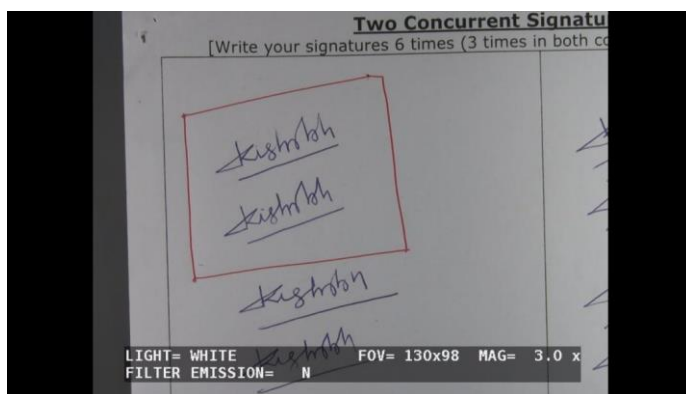


Fig 6: Penlifts in the Signatures (2CS)

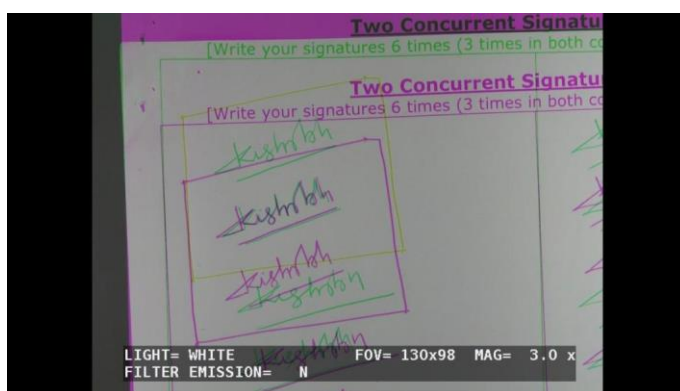


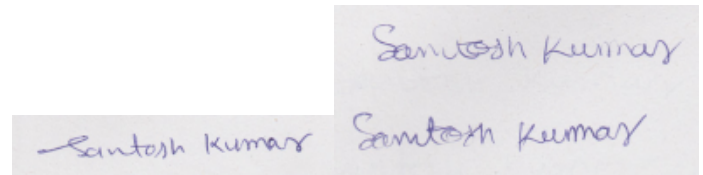
Fig 7: Superimposition of both Signature of Fig 6

4. Minute Difference in Model of Signatures

(Refer captioned figure 8)

In many signatures, the model of the signature was found little bit different in the concurrent signatures in comparison with the normal signature. It showed less impact in the

discussion as concurrent signatures are having sign of genuineness not of forgery. As the signatures are stored in form of master pattern, slight rethinking about the model while executing the concurrent signatures may lead some differences in the model of the signatures.



Normal (left) & set of concurrent (right) signatures of Fig: 8

CONCLUSIONS

Superimposition of signatures is not the only way for the forensic examining these signatures, although concurrent signatures matches in shift in basis, but one should also go with all the techniques/methods explained in this paper. Whenever two or more original signatures especially short/initials found in a case are suspiciously matching in nature means superimposing over each other either fully or in parts, It always does not mean that one or more of them are forged as per the 'Law of Traced Forgery'. Such signatures may belong to concurrently written signatures, so in that case it is necessary to rule out the chances of concurrently written signatures.

Although it is proved that, 'No one can write exactly the same way twice even though in the case of concurrent signatures' but still an expert should be taken care of their possibilities especially in case of short signatures/initials. It is possible to deal with such types of cases whenever received in the Forensic Science Laboratories. Document expert should examine and identify these types of concurrently written signatures as well as reflect its existence in their forensic report/opinion otherwise gravity of the case might be change.

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