

## A study on mechanically transplanted forgery by genuine model signature

VC Misra, Nitasha Agrawal, Manas Mishra, SK Shukla

Amity Institute of Forensic Sciences, Amity University, Noida, U.P, India Associate Document Expert, Indrapuram, Gaziabaad, Uttar Pradesh, India.

### Abstract

In the absence of natural variations and in the presence of exact measurement in two disputed signatures, both would be proved as forged either by tracing manually or mechanically. No individual is capable of writing his/her two signatures in a mathematical precision. The present case study deciphers the originality of the signatures on the document which were forged by photocopy transplantation.

**Keywords:** Forgery, absence of natural variations, exact measurements, transplanted forgery

### 1. Introduction

Now a days, with the advent of computers and photocopiers, the incidents of transplanted forgeries are increasing dramatically. The principles of handwriting identification have proved that the natural variation is the most important factor to prove the writing / signature as genuine [1]. The judicial systems of all civilized countries of the world admit the truth of the axiom that a person cannot write his signatures twice exactly alike [2]. On the other hand a total absence of natural variation in two signatures proves forgeries [3]. In earlier times, the tracings were accomplished manually by the forgers while tracing genuine signatures with the help of glass and transmitted light and in such tracings the line quality was found defective at various places viz. tremors, hesitations, concealed joining, unnatural pen pauses and pen lifts. That is why in earlier times, to demonstrate the tracings, the evidence of line quality defects were taken as very important parameter [4]. Moreover if the exact mathematical sameness were found in two disputed signatures it establishes that the companion tracings are made manually [5]. In cases of mechanical and photocopied transplantation of one genuine signature, two times, it is obvious that the line quality defects will not be found in such companion transplantation as tracing has not been done manually. But, definitely the exact mathematical sameness will be found [6]. In such matters the only evidence of exact mathematical sameness is enough to prove forgery by mechanical transplantation. Transplantation here refers to a signature when it is transferred from some genuine source to a fraudulent document either by using computers or by photocopying machines. Such transplanted/ pasted/ transferred signature on some fraudulent document is called transplanted forgery. To prove such signatures as forged (transplanted), a search for genuine source is sometimes necessary but if there are two transplanted disputed signatures, a search for genuine source is not required. In these circumstances, in two companion transplanted signatures, if exact mathematical sameness is found then the forgery is established. In two transplanted companion forgeries, both would show rubber stamp effect.

This study draws a demarcation line between companion forgeries, made manually and two companion transplanted

forgeries, made mechanically. In the former there would be line quality defects and 90-95% exact sameness but in the later there would be 100% exact sameness without line quality defects and there would be rubber stamp like sameness (Replicas) in two transplanted signatures.

### 2. Material and Methods

The photocopied samples of two disputed signatures were taken and marked as D-1 and D-2. One admitted signature was also taken and was marked as A-1. Various tools that were used in decipherment of the forged signatures include hand lens, butter paper, transparency, mathematical tools, markers, scales, pencil, etc.

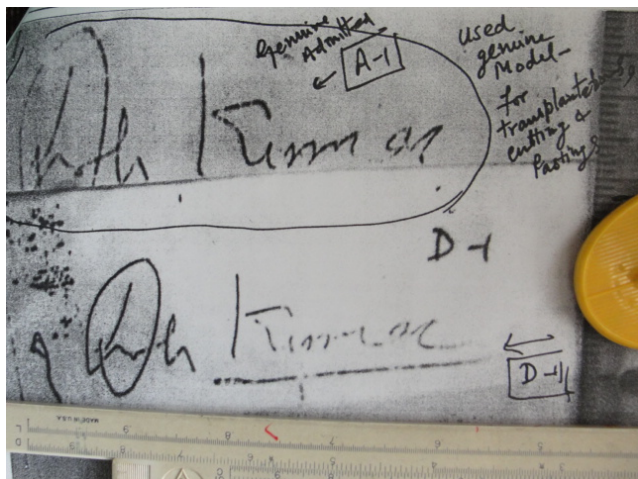


Various tools used in the comparison and analysis of signatures

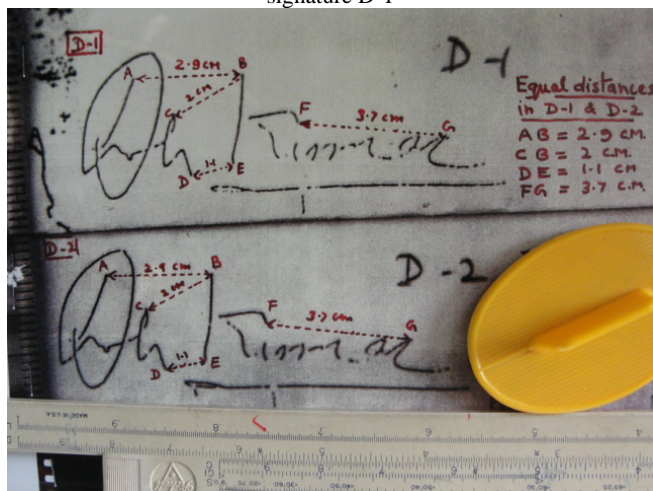
### 3. Observations

The admitted signatures marked as A-1 (as shown in figure 1) is the original signature from which the two mechanical transplantations were made. All the three signatures were found exactly and mathematically similar showing a rubber stamp effect. In all these three signatures the evidence of natural variation were found totally absent. When test of superimposition was conducted on all the three while using

butter paper etc, all the three were found mathematically similar. In reconstructing the process of this fraudulent transfer it was found that it is certainly a case of mechanical transplantation of one genuine signature on two different fraudulently made documents. To understand clearly we can give the example of two rubber stamp impressions made by single rubber stamp. When we examine all the alphabets in transparency of butter paper, the two signatures completely cover-up (coincide) with each other in totality.



**Fig 1:** Admitted signature (A-1) in comparison with disputed signature D-1



**Fig 2:** Mathematical comparison of disputed signatures D-1 and D-2

#### 4. Result and Discussion

In photocopied transplantations of one genuine signature, it is obvious that the class and individual characteristics would be similar as the model which was transplanted two times was written by the genuine person. So, in such inquiries, the examiner has to prove only one thing that there is a cut and paste method of transplantation and one signature was used at two different documents which are the exact replicas of each other. Thus, this kind of fraudulent transplantations proves that figure 2 (disputed signatures D1 and D2) are forgeries by transplantation using photocopying method. On photocopies of D-1 and D-2, everything even the dotted lines were found exactly similar which is a suspicious circumstance. Because of the suppleness of the muscles of hand and also because of various intrinsic and extrinsic factors, natural variations are

bound to occur in two or three genuine signatures of each person. In fact, such kind of natural variations are indicative of genuineness. Wherein the exact sameness can only be found in tracing or when a genuine model is used and after re-photocopying, it is cut and pasted at different places of fraudulent documents. Whatever the method of duplication is, it is taken for granted that, if two signatures show exact duplication, they cannot be called as genuine signatures. On viewing the enlarged photographs of D-1 and D-2 (Figure 2) the demonstration of equal distances at point AB, CB, DE and FG are shown which proves the exact duplication and transplantation of one model at two places. The samples D-1 and D-2 are pasted re-photocopies of the admitted signature marked A-1. The size of D-1 and D-2 is slightly smaller because the reduction and enhancement of sizes can easily be made by photocopy machines.

#### 5. Conclusion

If a genuine signature (model) is photocopied and two re-photocopies of this model pasted on a fraudulent document twice and photocopied again after pasting, it can give a wrong picture (deceptive look) of genuineness. Such kind of photo static duplications of genuine model do not show line quality defects i.e. tremors, hesitations and concealed joining, etc. which are found in tracings made by glass and light projections, etc. manually. The disputed signatures D-1 and D-2 (figure 2) are two fraudulent transplanted signatures in making the forged documents and D-1 and D-2 are forgeries by transplantation by photocopying and re-photocopying method. This study is useful in drawing a demarcation line between manual tracing and mechanical transplantation. In mechanical transplantations, exact sameness (100%) will be found and line quality defects would not be observed.

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