

Janet Fenner Masson,<sup>1</sup> B.J.

## Felt Tip Pen Writing: Problems of Identification

---

**REFERENCE:** Masson, J. F., "Felt Tip Pen Writing: Problems of Identification," *Journal of Forensic Sciences*, JFSCA, Vol. 30, No. 1, Jan. 1985, pp. 172-177.

**ABSTRACT:** At times the document examiner must compare questioned handwriting to samples of genuine writing which are written with a different kind of writing instrument than the questioned writing. This raises the question of whether or not individual writers change their handwriting habits as a result of the writing instrument used. The writing instrument of particular interest to the author was the broad point felt tip marker. A study of handwriting with various writing instruments revealed the acceptability of comparing ballpoint pen or fiber tip pen writings with questioned felt tip marker writings, with certain limitations.

**KEYWORDS:** questioned documents, handwriting, pens, writing instruments, felt tip pens, markers

The document examiner is occasionally asked to determine the authorship of writing written with a broad point felt tip pen, but is given only samples of writing made with a ballpoint pen or fiber tip pen as standards of comparison. As recently written by Hilton [1], a broad point marker usually produces writing that has blunt beginning and ending strokes and filled in or closed loops in letters such as "a," "o," "e," and so forth. When recently examining a case involving questioned writing made with a felt tip marker, even though the characteristics of the broad point marker were taken into consideration, I found that I was not able to arrive at a definite opinion either identifying or eliminating the suspect as the writer of the questioned handwriting.

Work on this case raised the question of whether or not individual writers change their handwriting in any way as a result of using a broad point felt tip pen or marker, and whether standards written in ballpoint pen or fiber tip pen (with a fine or standard point) can be correctly used when examining questioned writing written with a broad point felt tip marker. Upon reviewing the literature, I found that Mathyer studied the effect of various writing instruments on the handwriting habits of individual writers [2]. However, this work does not include the broad point felt tip pen or marker.

Therefore, I decided to conduct some research in an attempt to answer some of these questions. For the purposes of this research, samples of handwriting were obtained from 34 individuals. Each of the writers wrote specimens of handwriting with three different writing instruments—a Bic® fine point ballpoint pen, a Flair® fiber tip pen (with a standard point), and a Marks-A-Lot® broad point felt tip pen. The three specimens from each writer were compared to determine whether or not there were any changes in the following characteristics:

- (1) size;
- (2) slant;

Received for publication 26 March 1984; revised manuscript received 31 May 1984; accepted for publication 4 June 1984.

<sup>1</sup>Examiner of questioned documents, Houston, TX.

- (3) direction of beginning strokes (including the presence or absence of lead strokes or hooked beginning strokes);
- (4) direction of ending strokes;
- (5) open or closed tops of letters, such as a, g, d, and o (Figs. 1 and 2);
- (6) formation and relative length of tails of letters, such as y, g, p, j, and so forth;
- (7) placement and relative length of t crossbars;
- (8) relative height of letters;
- (9) proportions of individual letters (such as the size of the staff of a letter as compared to the body portion);
- (10) formation of letters (Fig. 3);
- (11) connecting strokes between letters;

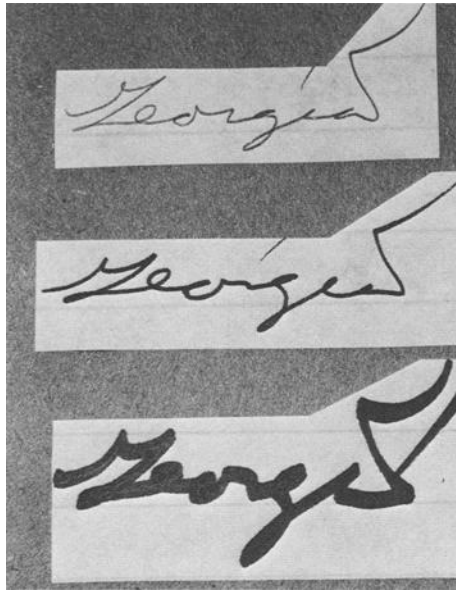


FIG. 1—Even though the broad point felt tip marker makes a much wider stroke, it can be readily seen that this writer maintains his habit of leaving the letter “o” open at the top with all three writing instruments.

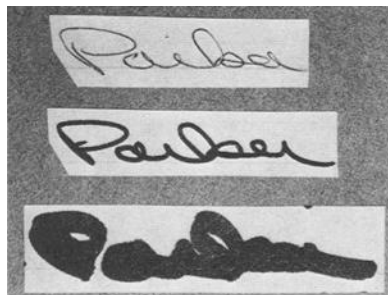


FIG. 2—The wide ink line of the felt tip marker sometimes makes it impossible to determine how letters are formed, as seen in the bottom name “Parker.”

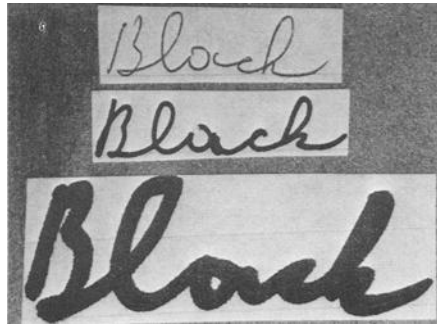


FIG. 3—If a writer has an unusual formation of a letter, it may not be possible to determine how the letter is formed by examination of the felt tip marker writing alone. Note the formation of the letter “a” in the name “Black.”

- (12) relationship of writing to baseline;
- (13) punctuation;
- (14) placement and size of i dots; and
- (15) spacing between letters or words or both.

### Comparison of Writing Samples

Comparison of the writing samples resulted in the following findings.

#### *Size*

The majority of the writers (21 out of 34) had the smallest writing with ballpoint pens, writing of intermediate size with the Flair, and the largest writing with the Marks-A-Lot marker. Eight writers produced writing which was about the same size with the ballpoint pen and the Flair fiber tip pen, but larger writing with the broad point marker. Four writers wrote smaller with the Flair fiber tip pen than with either of the other writing instruments. These writers had writing of intermediate size with a ballpoint pen, and large writing with the felt tip marker. One writer produced writing that was approximately the same size with all three writing instruments. Note that this person had large writing with all writing instruments.

#### *Slant*

One writer had a variation in slant with the three writing instruments. This writing was vertical with broad point marker, slanted slightly to the right with a Flair, and slanted even farther to the right with a ballpoint pen.

The other 33 writers maintained a consistent slant, regardless of the writing instrument used.

#### *Direction of Beginning Strokes*

Because of the thickness of the strokes made by the broad tip marker, it was not always possible to determine the direction of a beginning stroke, particularly if the writer often retraced beginning strokes, or began letters with a short retraced hook or loop. However, no consistent variation in beginning strokes was found.

*Direction of Ending Strokes*

Each of the writers maintained consistent habits, regardless of the writing instrument used.

*Open or Closed Letters*

Some letters made with a felt tip marker appeared to be closed, or were so completely filled in that it was impossible to tell whether or not the writer would normally leave a letter open or closed. However, particularly in the case of writers who made a thinner stroke with the felt tip marker, it was often possible to determine whether letters were open or closed. In the samples taken, 19 writers maintained consistent habits in this regard with all 3 writing instruments. In 15 cases, the writers were consistent with the ballpoint pen and the fiber tip (Flair) pen, but because of the thickness of the ink line, it was not possible to determine whether letters written with the felt tip marker were open or closed.

*Formation and Relative Length of Tails*

Twenty-nine writers maintained consistent habits in the formation and size of the "tails" of letters with all three writing instruments. Four writers made shorter tails with the felt tip pen than they did with either the ballpoint pen or the fiber tip pen. One writer used a printed formation when using the felt tip pen which was not comparable to the script formations made using the ball point pen and fiber tip pen.

*Length and Placement of Crossbars*

All 34 writers maintained consistent habits with the 3 writing instruments.

*Relative Height of Letters*

All 34 writers maintained consistent habits with all 3 writing instruments.

*Proportions of Letters*

No consistent changes in habits were found.

*Formation of Letters*

One writer handprinted the entire sample with the felt tip pen, but wrote in script when using the ballpoint and fiber tip pen. Another writer printed some of the capital letters with the felt tip pen, while making the same letters written with ballpoint pen or fiber tip pen in script formations (Fig. 4). A third writer used a totally different formation of the letter "a" (Fig. 5) and the numeral "2" with felt tip (broad point) pen than he used with either of the other writing instruments. The remaining writers maintained the same formation of the individual letters, regardless of the writing instrument used.

*Connecting Strokes Between Letters*

When the writer normally wrote with a continuous stroke, there were no differences found among the samples with the three writing instruments. However, if the writer normally had pen lifts within words, these pen lifts were often not detectable in felt tip pen writing because of the thickness of the stroke. In addition, one writer lifted the pen within words more often with the felt tip pen than with the ballpoint or fiber tip pen. No differences were found in the placement of connecting strokes.

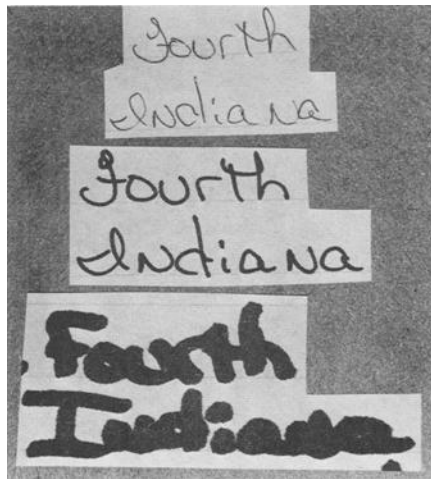


FIG. 4—Note the change to a blockprinted formation of capital letters when using the felt tip marker.

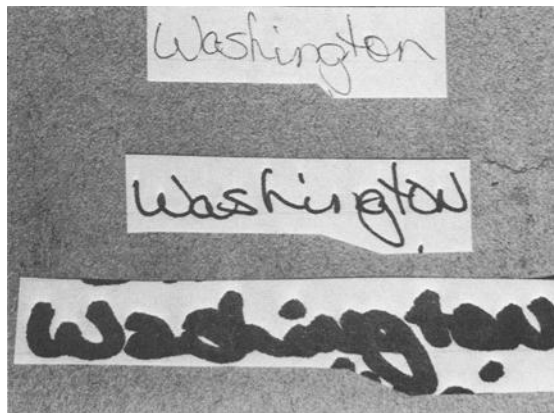


FIG. 5—The writer consistently changed the formation of the printed letter "a" when using a felt tip marker—see the "a" in Washington.

#### *Relationship of Writing to Baseline*

Because of the thickness of the ink line, felt tip pen writing often appeared to be closer to the printed baseline than did fiber tip or ballpoint pen writing. Two writers completely ignored the printed baseline when using the felt tip pen, but wrote on the baseline when using ballpoint pens and fiber tip pens.

#### *Punctuation*

Each of the writers maintained consistent habits in punctuation, regardless of the writing instrument used.

*i Dots*

In samples where the writer made "circle" i dots, the dots made with a felt tip pen were often filled in. However, no differences were noted with regard to the placement or relative size or shape of the i dots, regardless of the writing instrument used.

*Spacing Between Letters or Words*

Each writer maintained consistent habits with each of the three writing instruments.

**Conclusion**

It is always best to examine standards of comparison that are written with the same writing instrument as the questioned writing. However, in this survey, the majority of the 34 individuals who provided writing samples maintained remarkably consistent handwriting habits, regardless of the writing instrument used. With these writers, if the only genuine handwriting that was available was written with a ballpoint pen or fiber tip pen, there would be no problem in identifying the individual as the writer of questioned felt tip marker writing.

However, I found that some writers do make changes in their handwriting when using a felt tip pen or marker. These changes may include the use of a letter formation which is not found in samples of the writer's handwriting written with a ballpoint pen or fiber tip pen. In addition, the thickness of the ink line produced by a broad point marker often makes it difficult to determine exactly how a letter is formed. If the examiner finds any cause for concern in examining felt tip pen writing, he should obtain standards of comparison that are written with the same type of writing instrument as the questioned writing before rendering a definite opinion.

**References**

- [1] Hilton, O., "Effects of Writing Instruments on Handwriting Details," *Journal of Forensic Sciences*, Vol. 29, No. 1, Jan. 1984, pp. 80-86.
- [2] Mathyer, J., "The Influence of Writing Instruments on Handwriting and Signatures," *Journal of Criminal Law, Criminology and Police Science*, Vol. 60, No. 1, March 1969, pp. 102-112.

Address requests for reprints or additional information to  
 Janet Fenner Masson  
 Examiner of Questioned Documents  
 1415 Esperson Bldg.  
 Houston, TX 77055