

Communicating Forensic  
Findings:  
*Forensic Document  
Examination*

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# What does a Forensic Document Examiner (FDE) do?

Examine documents to determine...

- Who wrote them
- Whether they are authentic
- Facts about them, such as how they were created or handled

# FDE Expertise – Handwriting

Studies on FDE vs. Layperson performance on handwriting and signature comparisons

- Similar rates of correct association responses
- Laypersons make significantly more incorrect associations

# Differentiability of Handwriting

- “...FDEs appreciate the sources and range of natural variation both between and within individuals.
- The causes of intra- and inter-writer variation, and the arguments for why intra-writer variation is smaller than inter-writer variation, have deep roots in motor control theory.” (*Forensic Handwriting Examination and Human Factors, 2021*)

# Handwriting is the Result of a Behavior/Activity

- A person's handwriting can vary beyond normal due to
  - internal or external factors (such as illness or uncomfortable writing conditions)
  - purposeful change (disguise or simulation)

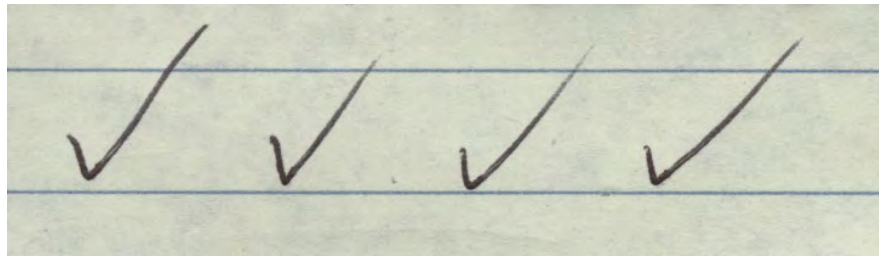
# Basis for a Handwriting Opinion Supporting Same-Source

- “No two people write alike”

# Same writer?

Total Cost c  
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For valuabl  
work shall

Q



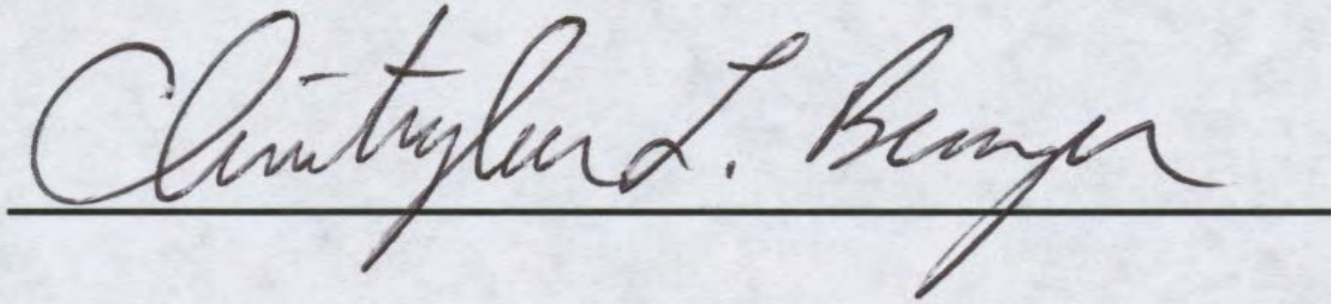
K

# Basis for a Handwriting Opinion Supporting Same-Source

- ~~“No two people write alike”~~
- Given a *sufficient amount* of *natural* writing, no two people are *likely* to produce handwriting that is exactly the same in terms of character construction, line quality, and other handwriting features.



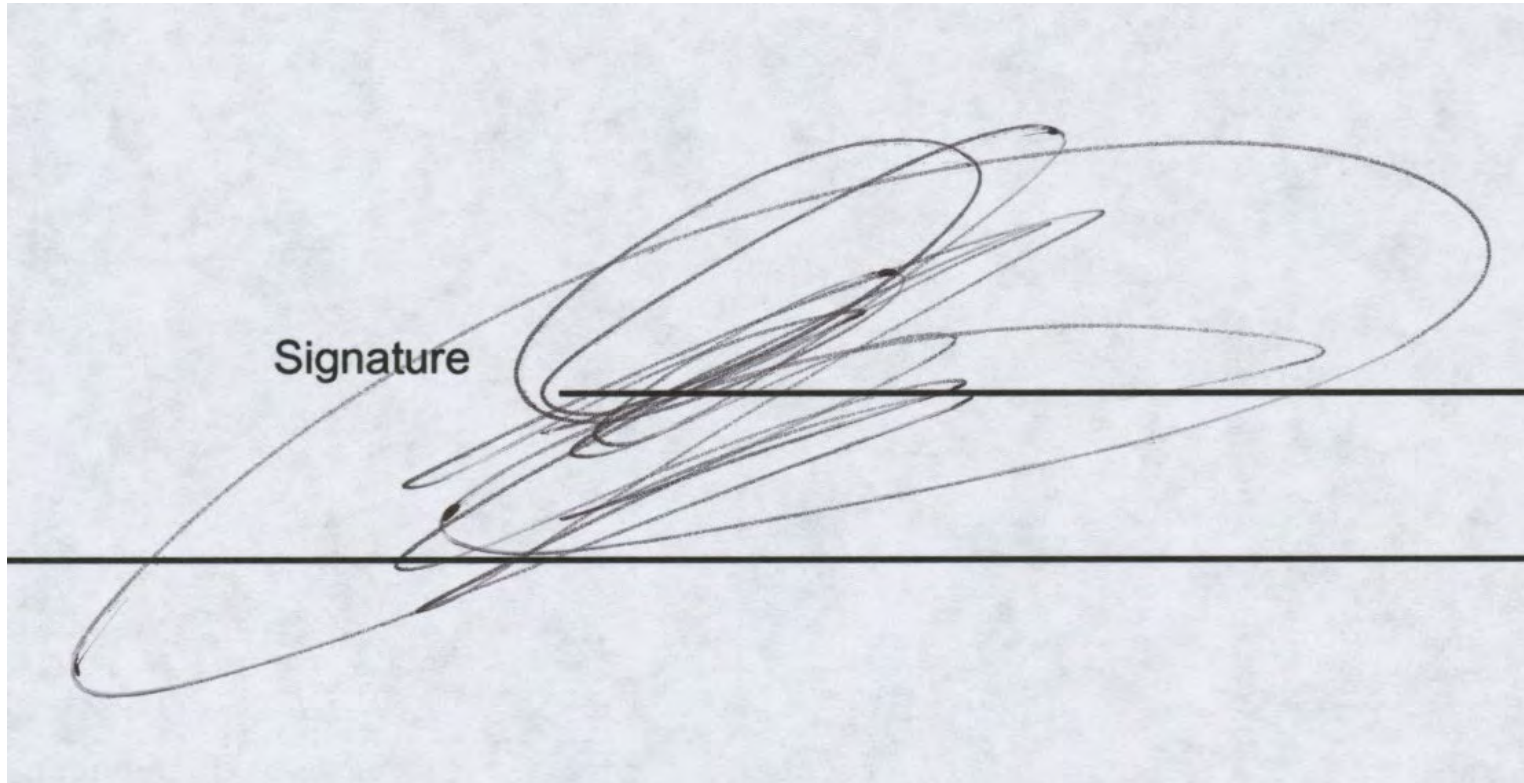
# Complexity



Clintaylor L. Bumpers

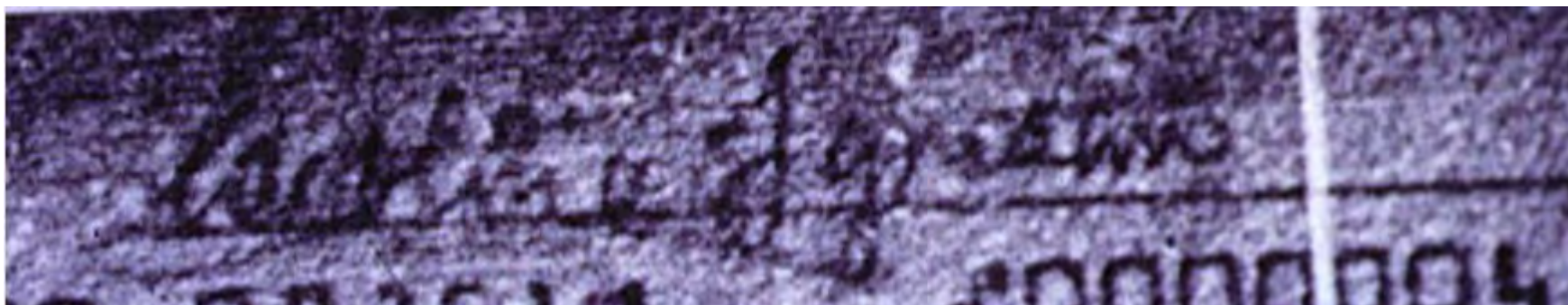
I certify the above to be true.  Check if Telephonic

# Complexity?



# Limitations

near you.  
Mr. Roque took ship  
lessons in 1967 from me  
for a year or so in my  
first year of teaching.  
He never took lessons  
after that and seldom  
does any letter writing.  
He just has a natural



# Assessments are Subjective

Forensic handwriting examination, as currently practiced, is not about:

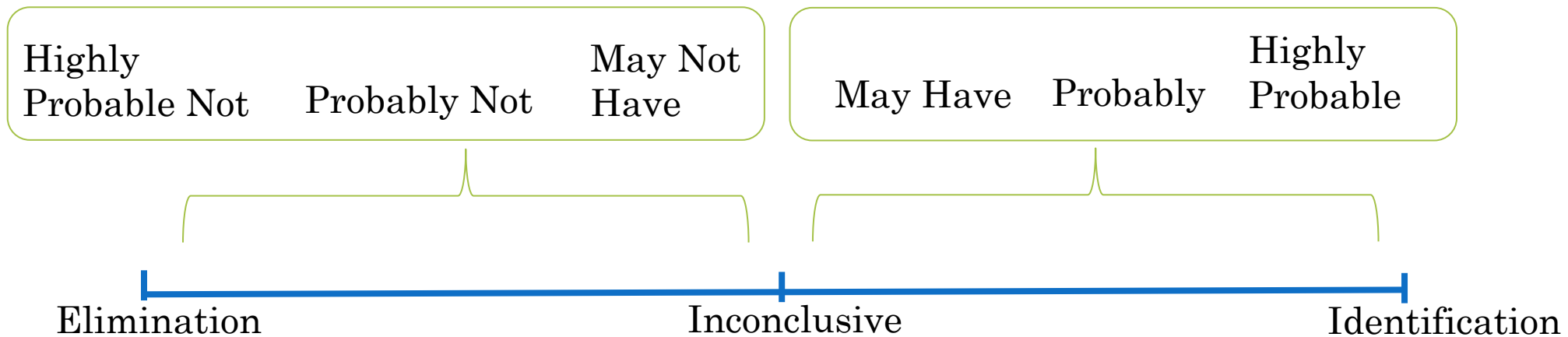
- Weighing similarities and differences (only)
- Frequency occurrence proportions of individual characteristics

# Assessments are Subjective

Opinions are based on the examiner's...

- understanding of the case information and request
- knowledge of handwriting
- experience
- reasoned judgment

# Current Opinion Scale





# Current Conclusions Standard

## 4. Terminology

### 4.1 *Recommended Terms:*

**Identification (definite conclusion of identity)**—this is the highest degree of confidence expressed by document examiners in handwriting comparisons. The examiner has no reservations whatever, and although prohibited from using the word “fact,” the examiner is certain, based on evidence contained in the handwriting, that the writer of the known material actually wrote the writing in question.

# Current Conclusions Standard

**strong probability (highly probable, very probable)**—the evidence is very persuasive, yet some critical feature or quality is missing so that an identification is not in order; however, the examiner is virtually certain that the questioned and known writings were written by the same individual.



## Questioned (Q)

Janet, you know how much I love you,  
if you cannot be with me, you will  
never be with nobody. I will put  
acid on your face and I will destroy  
you and we both have to die.

**Known Writer 1**

**K1**



**Known Writer 2**

**K2**



Q

Janet, you know how much I love you,  
if you cannot be with me, you will  
never be with nobody. I will put  
acid on your face and I will destroy  
you and we both have to die.

K1



Butterfinger Blondies  
Heat oven to 350°. Grease a  
9 x 13 inch glass baking dish well  
with butter or a non stick spray.  
Set dish aside. If you do a spotty  
job of greasing the pan, the bars  
will stick.  
In a medium bowl with a  
mixer on medium speed, combine  
butter and brown sugar. Mix until  
smooth. Beat in eggs and vanilla.  
In a small bowl, combine  
flour, baking powder and salt.  
Stir flour mixture and 1 cup of  
the chopped Butterfingers into batter.

The Plover  
- Major Potigrew's  
test stand

The Vardetta  
Defense  
by Lisa  
Scottalini

Almond Crescent Cookies  
1 pkg (16oz) or 2 cups c  
1 1/4 cups flour  
1/2 cup sugar  
1 cup butter  
1 tsp vanilla extract  
1 cup powdered sugar  
Measure 1 1/3 cups almond  
in blender until fine,  
sugar and ground almonds in a pan.

② 398A  
Tapaz crystal  
lined cranberry  
(25grams) Kingshley lined  
860 copper  
(25grams) 173 copper  
③ Silver lined  
tapaz  
Cranberry / Tapaz  
2 - S/L Pink AB  
2 - S/L Amethyst AB  
30 grams each  
BERKSHIRE HATHAWAY  
RealService  
California Properties

Q

Janet, you know how much I love you,  
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never be with nobody. I will put  
acid on your face and I will destroy  
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K2



Movie Times  
3:20  
4:50  
5:30  
6:20  
7:15

# Opinions using current standard

- Examiner A
  - It is highly probable the K1 writer wrote Q.
  - No determination could be made whether the K2 writer wrote Q.
- Examiner B
  - It is highly probable the K1 writer wrote Q.
  - It is highly probable the K2 writer did not write Q.



# Proposed Standard Opinions

- Extremely Strong Support for Different Sources
- Strong Support for Different Sources
- Moderate Support for Different Sources
- Limited Support for Different Sources
- Equal support
- Limited Support for Common Source
- Moderate Support for Common Source
- Strong Support for Common Source
- Extremely Strong Support for Common Source

# “Support”

- If the probability of observing the handwriting features if proposition X is true is larger than the probability of observing these features if proposition Y is true, then the findings support proposition X over proposition Y.
- If the probability of observing these features is about the same under both propositions, the findings provide approximately equal support for each proposition.



# Transition Phase

If your opinion in SWGDOC terminology is:	Your conclusion should/may be worded:
Elimination	Extremely strong support for different sources
Highly probable did not	Strong support for different sources
Probably not	Moderate (or strong) support for different sources
Indications may not have	Limited (or moderate) support for different sources
No conclusion / Inconclusive	Equal support
Indications may have	Limited (or moderate) support for same source
Probably	Moderate (or strong) support for same source
Highly Probable	Strong support for same source
ID	Extremely Strong support for same source

\*Important Note: The conclusions in the second column follow from those in the first column. However, the reverse is not true; conclusions in the first column **do not** necessarily follow from those in the second column.

# Evaluative Reporting Approach

Ideally, the examiner would

- Assess the probability of observing the findings if the same person wrote both samples of writing

*and*

- Assess the probability of observing the findings if different people wrote both samples of writing



<b>If the findings are...</b>	<b>Verbal expression...</b>
Exactly as expected	Extremely high probability
Largely as expected	Very high probability
Moderately as expected	Moderately high probability
Neutral	Balanced probability
Moderately divergent	Moderately low probability
Largely divergent	Very low probability
Completely divergent	Extremely low probability



Limitations move the probability/probabilities toward Neutral

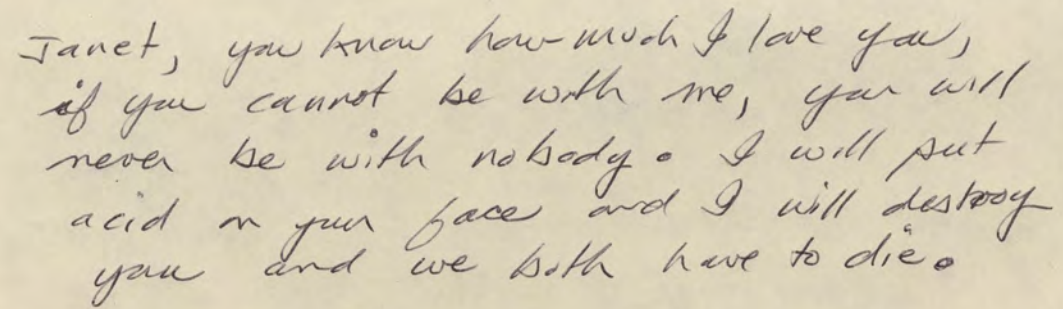
\*Table adapted from Brent Ostrum's Table 3.2 in Forensic Document Examination in the 21<sup>st</sup> Century

# Example Case

- H1: The writer of the known writing K wrote the questioned document Q
- H2: Someone other than the writer of the known writing K wrote the questioned document Q

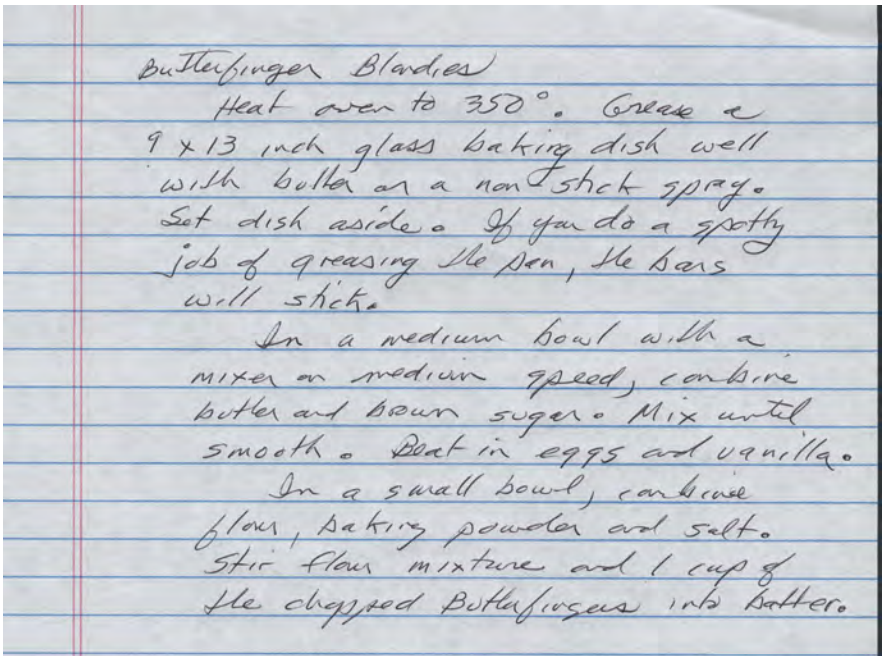
# Evaluation

- Probability of the findings given H1 is **Very High**
- Probability of the findings given H2 is **Very Low**



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Q



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In a small bowl, combine  
flour, baking powder and salt.  
Stir flour mixture and 1 cup of  
the chopped Butterfingers into batter.

K





# Opinion

The findings provide strong support for the writer of the known document (K) having written the questioned document (Q), rather than someone other than the K writer having written it.

This results because (1) the probability of the findings if K1 wrote Q is very high, due to the strong similarities between the samples in almost all handwriting features and (2) the probability of the findings if someone other than the writer of K1 wrote it is very low, due to the large amount of questioned writing, where the combination of handwriting features are unlikely to be observed in more than one person's writing.