

FORENSIC LINGUISTICS & DIGITAL DOCUMENTS

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FORENSIC LINGUISTICS

“Linguistics” is the scientific study of language as a human activity. It is concerned with both the structure of language and the ways in which it functions in different settings.

The term ‘forensic linguistics’ is used for the first time by the linguistics professor Jan Svartvik (1968) in his book “The Evans Statements: A Case for Forensic Linguistics”. In the 1980s, Australian linguists discussed the application of linguistics and sociolinguistics to legal issues. They discovered that a phrase such as ‘the same language’ is open to interpretation.

“WHO SAID THIS? WHO WROTE THIS? AND WHY?”

Use of Linguistic evidence in Legal proceedings.

The following areas of application have different degrees of reliability within the field.

- Author Identification: The identification of whether a given individual said or wrote something relies on analysis of their idiolect, or particular patterns of language use (vocabulary, collocations, pronunciation, spelling, grammar).
- Forensic Stylistics: This discipline subjects written or spoken materials (or both) to scientific analysis for determination and measurement of content, meaning, speaker identification, or determination of authorship, in identifying plagiarism.
- Discourse Analysis: Discourse analysis deals with analyzing written, oral, or sign language use, or any significant semiotic event.

Use of Linguistic evidence in Legal proceedings.

The following areas of application have different degrees of reliability within the field.

- Linguistic dialectology: This refers to the study of dialects in a methodological manner based on anthropological information.
- Forensic phonetics: The forensic phonetician deals with the production of accurate transcriptions of what was being said.
- Forensics transcription: The two main types of transcriptions are written documents and video and audio records. Accurate, reliable text transcription is important because the text is the data which becomes the available evidence.

Use of Linguistic evidence in Legal proceedings.

The following areas of application have different degrees of reliability within the field.

- Variation: Intra-author variations are the ways in which one author's texts differ from each other. Inter-author variations are the ways in which different authors' writing varies. Two texts by one author do not necessarily vary less than texts by two different authors.

Social or Physical separation.

There are some degree of relative isolation from one another:

- Prestige norms (acceptability by upper social classes)
- Norms of social convention or necessity.
- Norms governing use of registers, varieties and other languages.
- Class norms (age/sex/race/ethnicity).
- Regional norms (geographic location).
- Circumstantial norms of situation (purpose/topic/reader/time/place).
- Appropriate language norms (proper social behaviour).
- Correct language norms (correct linguistic behavior).

Forensic Linguistics:

Two main areas:

(1) Voice Identification and (2) Authorship Profiling

- **Voice Identification or Forensic phonetics:** Speaker profiles are generated on basis of vocal characteristics.
- This method is to narrow down the suspects based on: sex, social/regional background, age and dialect.
- It is performed by combining auditory and acoustic analysis.
- The goal is to provide an evidence whether a particular voice “example-a voice recorded in a telephone call is that of a particular known person/speaker or not.”

Voice identification:

Main areas:

- **Quality Enhancement:** “Decoding of disputed utterances”. A criminal recording usually has a poor quality, often very noisy. Therefore, there is ample scope for the defendant to challenge prosecution’s version of what was actually said in the course of a recorded conversation.
- **Authentication:** “Tampering of a recording”. The phonetician is asked to give opinion on the linguistic evidence on the form of unnatural changes in the rhythm, tempo and intonation of text.
- **Voice line-ups:** “By lining up suspects”. These recordings will be played to the witnesses and asked whether they can identify the voice of the perpetrator or not.

Authorship Profiling.

Forensic texts:

- **“To know who wrote the text by comparing it with a known sample of a suspect”.**
- If a text is somehow implicated in a legal or criminal context, then it is referred to as a “Forensic text”.
- (1) Emergency calls: “Feature of urgency”. Attitude of speaker towards the incident.
- (2) Ransom demands/Threat texts: Sender of the text is anonymous.
- (3) Hate mails: “Goal is to express hatred”.
- (4) Suicide letter: “Main question is did the author really kill himself? Or is the murderer?”

Authorship Profiling.

Central parameters:

- **Lexis:** All the words and phrases of a particular language.
- **Grammar:** Formation of words together in sentences.
- **Punctuation:** Various marks used for dividing writings into sentences and phrases.

Authorship Profiling.

Lexis & Grammar:

- **They are non-standard usages.**
- Example-1: Suicide letter (check for spellings, third person singular/tense forms)
- Example-2: Ransom letters. An individual from another geographical region attempting to speak English (identification of lack of ability to form or frame sentences in a proper format-“A case of Australian ransom where the kidnappers pretended to be an Asian gang, and from their language and choice of words it was gathered that they are native speakers of English”).

Authorship Profiling.

Punctuation:

- **Comma vs full stop:** “It seems to be too precise, In fact the sentence is a...”
- **Superfluous punctuation:** “by two rude and self important folks., or I fear...”
- **No sentence separations:** “all of us are guilty of becoming heated at the moment, which is very understandable as we all, enjoy the wonderful world of dogs....”
- **Supernumerary punctuation:** “lies, malice, and frivolous behaves...”

Authorship Profiling.

Various approaches:

- **Qualitative Approach:** The qualitative approach assess error and personal behavior of author also known as idiosyncrasies. “Blade could mean war to one person and it could symbolise a surgery to another”.
- **Quantitative Approach:** Often referred to as “Stylometry”. Format or page arrangement, punctuation, misspelling, capitalisation, expression of emotion, word compounding, etc.

Authorship Profiling.

How are style-markers identified?

- The first and the foremost step is to work within a hypothetical model of linguistics that views stylistic variation as inherent to the system of language itself but not a characteristic of language performance. This will guarantee the detection of patterned variation needed for the identification of the actual author.
- Recognise the unique style markers, which maybe found in other writers, but there are very few chances of being present together in a single individual writer.

Authorship Profiling.

Forensic Applications:

- It includes voice identification, interpretation of expressed meaning in laws and legal writings.
- Analysis of discourse in legal settings, interpretation of intended meaning in oral and written statements. (Example: confessions).
- Authorship identification, the language of law, analysis of courtroom language used by trial participants (judges, lawyers, witnesses, etc.).
- Trademark law, interpretation and translation when more than one language must be used in a legal context.

Authorship Profiling-Assignment-1:

Take 15 mins. Analyse and give your observations:

Hey Akanksha,

I'm very happy in bangalore. Everybody is good and friendly here. There are so many places to visit and explore. And it is exciting to finally be independent. My college is good too, my classmates, teachers are very nice. I miss you, I wish you could have joined me as well. It would have been so much fun. I hope you at least visit me sometime soon. I will take you to one of these huge malls here. Hope to see you soon.

Hi!

I would like to rise a complain regarding my last trip with uber. I am very disappointed with your service as the drivers do not accept a pre-paid payment at all. I wish you knew that your drivers cancel the rides after continuously calling the customer and asking multiple questions. They say they are going to come, but they don't. This has happened to me many times now and if the same repeats again, I will un-install your app and use Ola instead.

Authorship Profiling-Assignment-1:

*Take 15 mins. Analyse and give your observations: **SAME INDIVIDUAL!***

Hey Akanksha,

I'm **very** happy in bangalore. Everybody is good and friendly here. There are so **many** places to visit and explore. And it is exciting to finally be independent. My college is good too, my classmates, teachers are **very** nice. I miss you, **I wish you** could have joined **me** as well. It **would** have been so much fun. I hope you at least visit me sometime soon. I will take you to one of these huge malls here. **Hope to see you soon.**

Hi!

I **would** like to rise a complain regarding my last trip with uber. I am **very** disappointed with your service as the drivers do not accept a pre-paid payment at all. **I wish you** knew that your drivers cancel the rides after continuously calling the customer and asking multiple questions. They say they are going to come, but they don't. This has happened to **me many** times now and if the same repeats again, **I will un-install your app and use Ola instead.**

Authorship Profiling-Assignment-2:

Take 15 mins. Analyse and give your observations:

U r d worst thing that has eva happened to me. Do not talk to me. I never thought u will treat me like dis. I keep texting u but you never respond on time. U always make me wait for hours n hours and then reply like nothing happened only. If you do not have time then stay away from me. U don't hav to show to people that u r in a relationship, plz. Have little self-respect also. Bcoz of u I am unable to concentrate on my work. This is too much to deal with. I think you are not understanding hw much u r hurting me...my feelings...like this. Stay away from me. U will understand hw it feels to be hurt wen someone doe not show same feelings. No need to talk also.

I am sorry I troubled u so much. This is nt ur fault. I wish I could tell u hw much I love u. But there r so much disturbance in my mind and it is my fault that I will not be able to support you. I will leave dis world fr gud. I do not think that I am right for dis world. I irritated and annoyed u a lot. I am sorry fr dt. My parents don't deserve me also. I cannot deal with this anymore. I am leaving, leaving dis world fr gud. I do not blame anyone for this, it is my choice only....plz take care of my parents. Tell them that I am sorry fr nt taking care of dim anymore, plz u take care of them.....bcpz of me no one was happy, fr den I am leaving so that they will be happy. Plz be happy. bye.

Authorship Profiling-Assignment-2:

*Take 15 mins. Analyse and give your observations: **DIFFERENT INDIVIDUALS!***

U r d worst thing that has eva happened to me. Do not talk to me. I never thought u will treat me like dis. I keep texting u but you never respond on time. U always make me wait for hours n hours and then reply like nothing happened only. If you do not have time then stay away from me. U don't hav to show to people that u r in a relationship, plz. Have little self-respect also. Bcoz of u I am unable to concentrate on my work. This is too much. I think you are not understanding hw much u r hurting me...my feelings...like this. Stay away from me. U will understand hw it feels to be hurt wen someone doe not show same feelings. No need to talk also.

I am sorry I troubled u so much. This is nt ur fault. I wish I could tell u hw much I love u. But there r so much disturbance in my mind and it is my fault that I will not be able to support you. I will leave dis world fr gud. I do not think that I am right for dis world. I irritated and annoyed u a lot. I am sorry fr dt. My parents don't deserve me also. I cannot deal with this anymore. I am leaving, leaving dis world fr gud. I do not blame anyone for this, it is my choice only....plz take care of my parents. Tell them that I am sorry fr nt taking care of dim anymore, plz u take care of them.....bcpz of me no one was happy, fr den I am leaving so that they will be happy. Plz be happy. bye.

DIGITAL DOCUMENTS AND SIGNATURES

Digital documents & signatures.

What are they?

- Digital signature is a mathematical scheme for verifying the authenticity of digital messages or documents. A valid digital signature, where the pre-requisite are satisfied, gives recipient very high confidence that the message was created by a known sender, and that the message was not altered in transit.
- The information that would be stored on digital/electronic device (laptop/computer/mobile/server) is called digital documentation (e-books/e-mails/social media posts/online bill payments: which are encrypted).

Digital documents & signatures.

Security features:

- Putting the private key or smart card: Private key is stored on a user's system and protected by local password. But this has two disadvantages:
 - The user can only sign documents on that particular computer.
 - The security of the private key depends entirely on the security of the computer.
- Digital signatures cryptographically bind an electronic identity to an electronic document and the digital signature cannot be copied to another document.

Digital documents & signatures.

Security features:

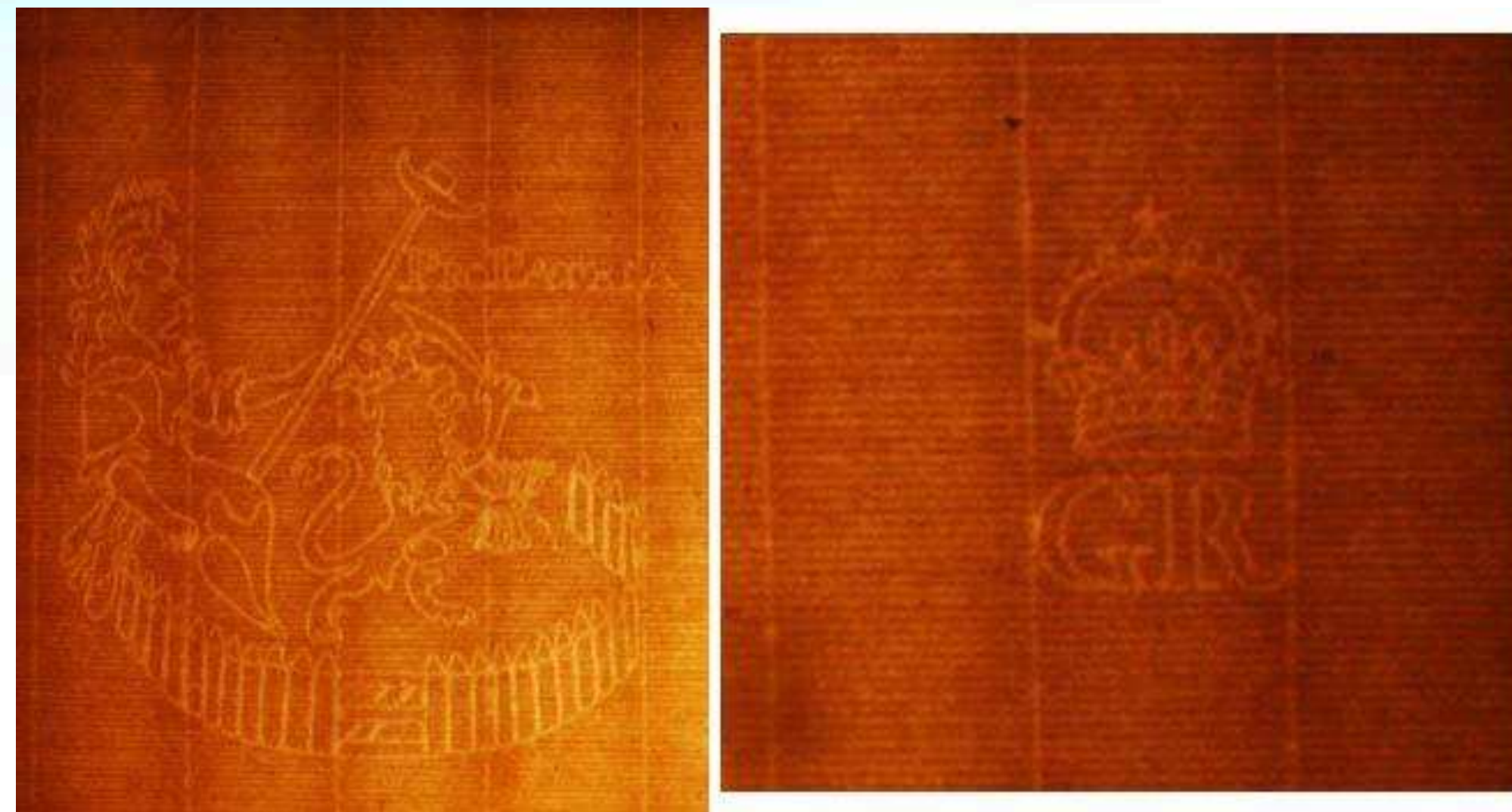
Watermarks and other digital signatures either in the form of signatures, increase or decrease in brightness in a video file after a specific period of time can help us to get the following information:

- Origin of paper.
- Determine the manufacturer of the paper/file.
- Date of manufacturing.
- Technology involved in the dating of the paper/file.

Digital documents & signatures.

Forgery and its detection in cases of watermarks and digital signatures:

- Presence of laid marks. The dandy rolls is covered with wires at irregular intervals.



Digital documents & signatures.

Forgery and its detection in cases of watermarks and digital signatures:

- Comparison of wire marks.
- Simulation of a watermark. The artificial watermark shows high thickness in the area where the watermark is placed on the paper.
- Genuine watermark shows slight thinness at the watermark area. To achieve this, forgers use a strong acid/apply oil or grease on a metal block and press it on the paper.
- The above mentioned forgery can be detected by treating the area with dilute cystic solution which makes the fake watermark light/dim.

Digital documents & signatures.

Forgery and its detection in cases of watermarks and digital signatures:





THANK YOU!