



A NOVEL FRONTIER FOR SOFT-BIOMETRICS: LINKING PERSONALITY AND RECOGNIZABILITY IN CHATS

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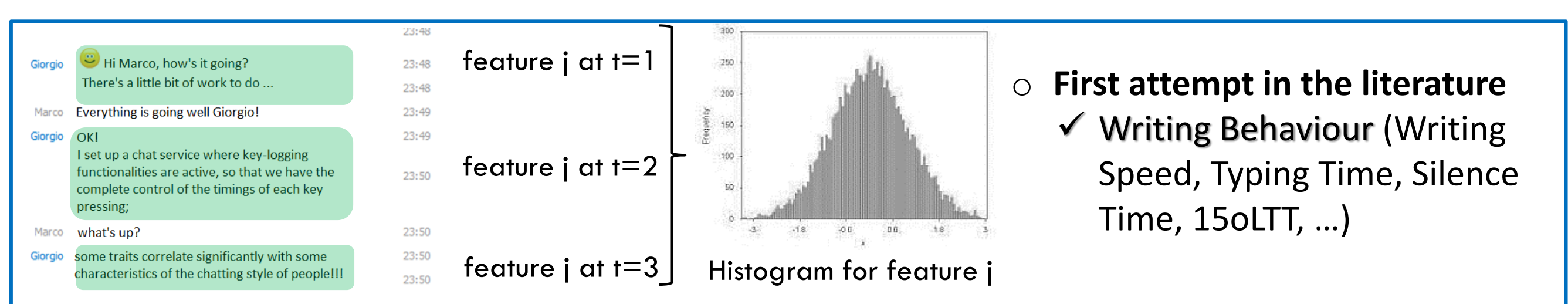
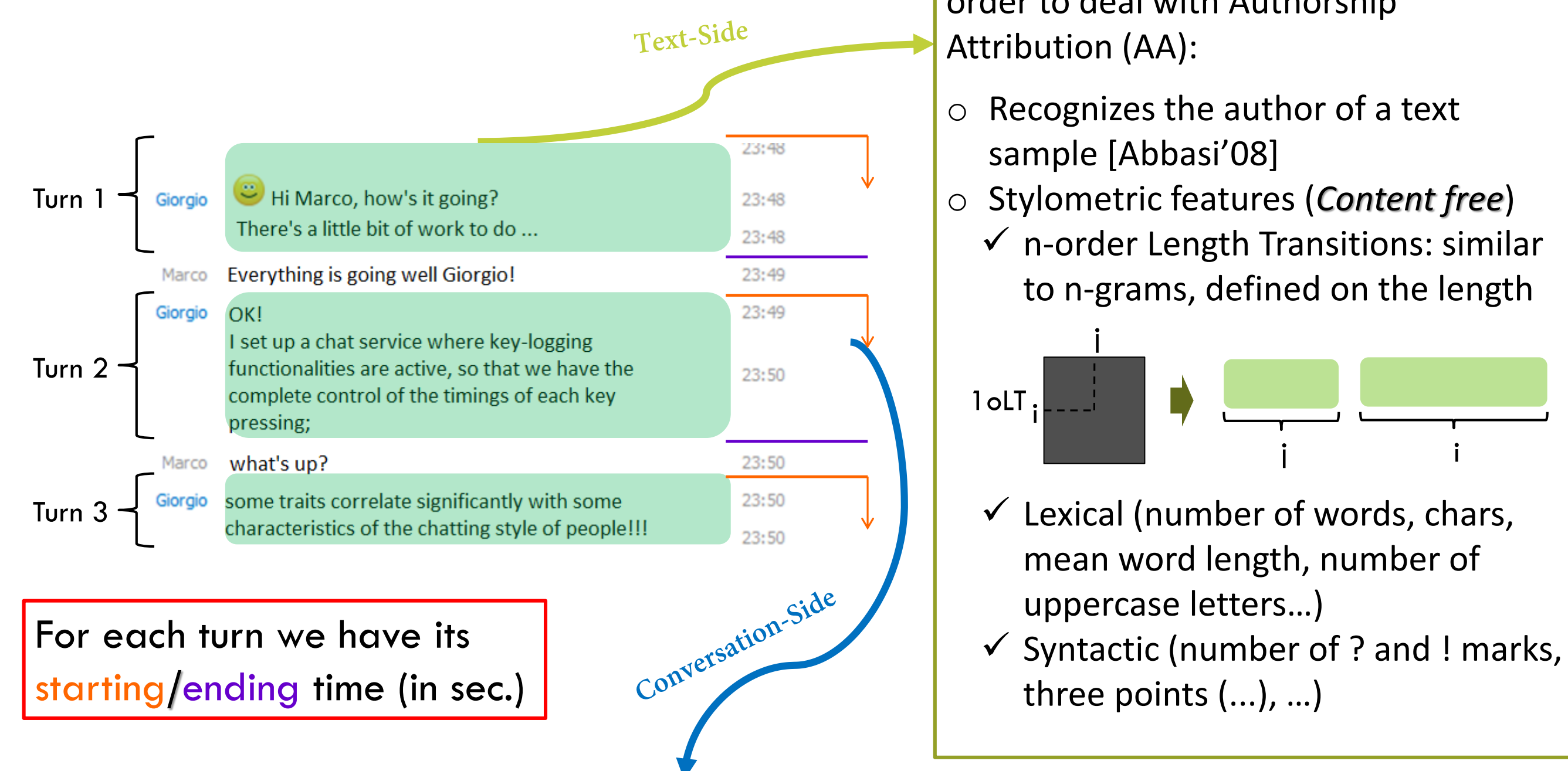
Abstract

Interacting via text chats is a channel of communication whose usage has augmented considerably in the last years. It is interesting to understand whether social behaviour can emerge in chats, similarly as it does in face-to-face exchanges. In this work, we focus on the writing style of an individual, analysing how it can be recognized given a portion of chat, and how personality comes into play in this scenario. To this aim, we set up a chat service where key-logging functionalities are active, embedded into the Klimble social network. What emerges from this study is that some traits correlate at the 5% significance level with some characteristics of the chatting style of people, captured by stylometric features; at the same time some of such features are very effective in recognizing a person among a gallery of diverse individuals. This seems to suggest that some personality traits may lead people to chat in a particular style, which turns out to be very recognizable. As a result, chatting is definitely more than just typing.

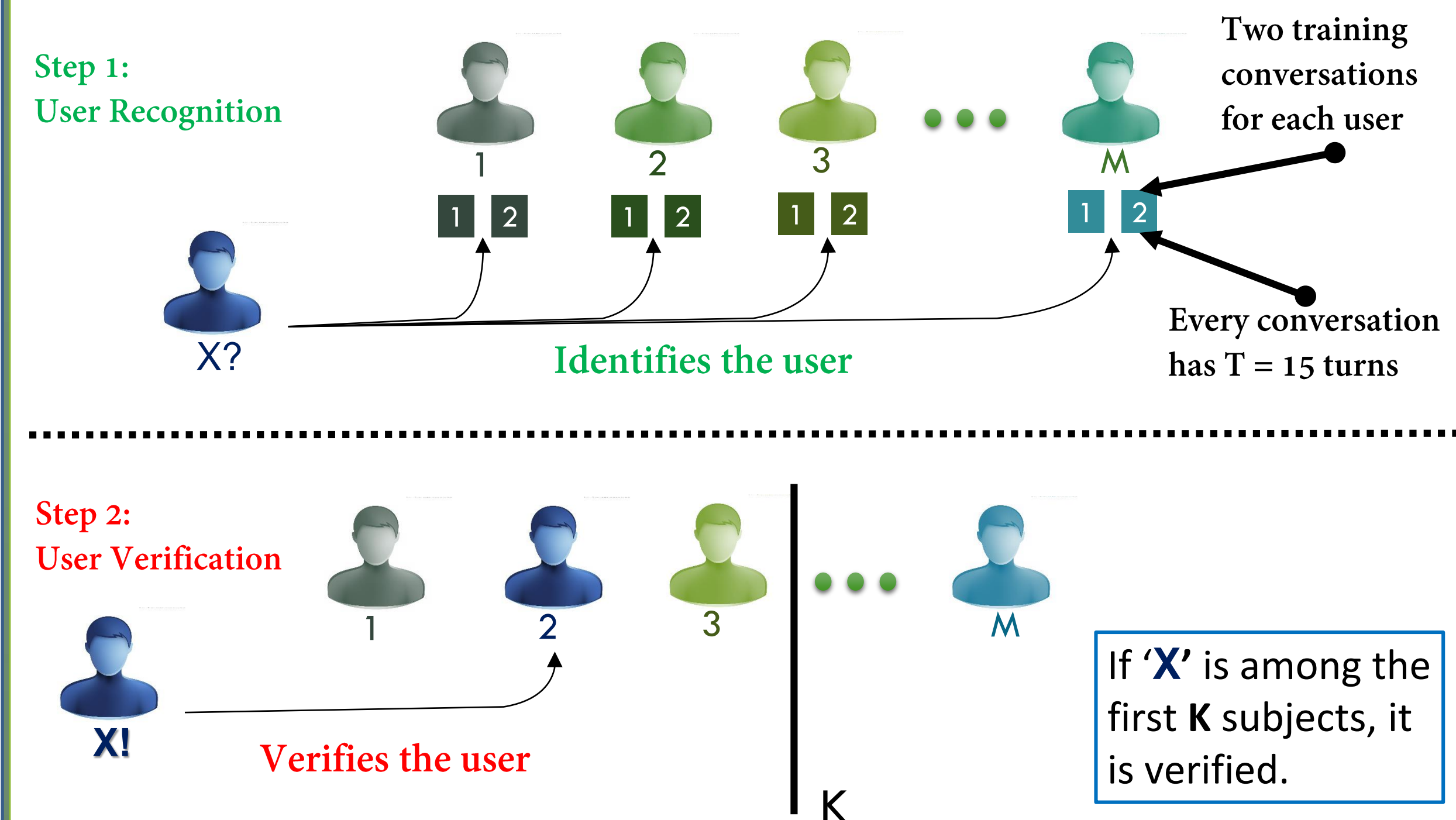
1. Introduction

- There is more than words in chats [1,2,3]:
 - A chat is like a medal, on one side there is **the text**, on the other side there is its **intrinsic conversational nature**:
 - The **presence of text** and the **turn taking mechanism**.
- The Challenges
 - Extract signals from chats by using a soft biometrics strategy.
 - Exploit these signals to recognize and verify the identity.
 - Study how personality traits come into play in this scenario.

2. A New Set of Features

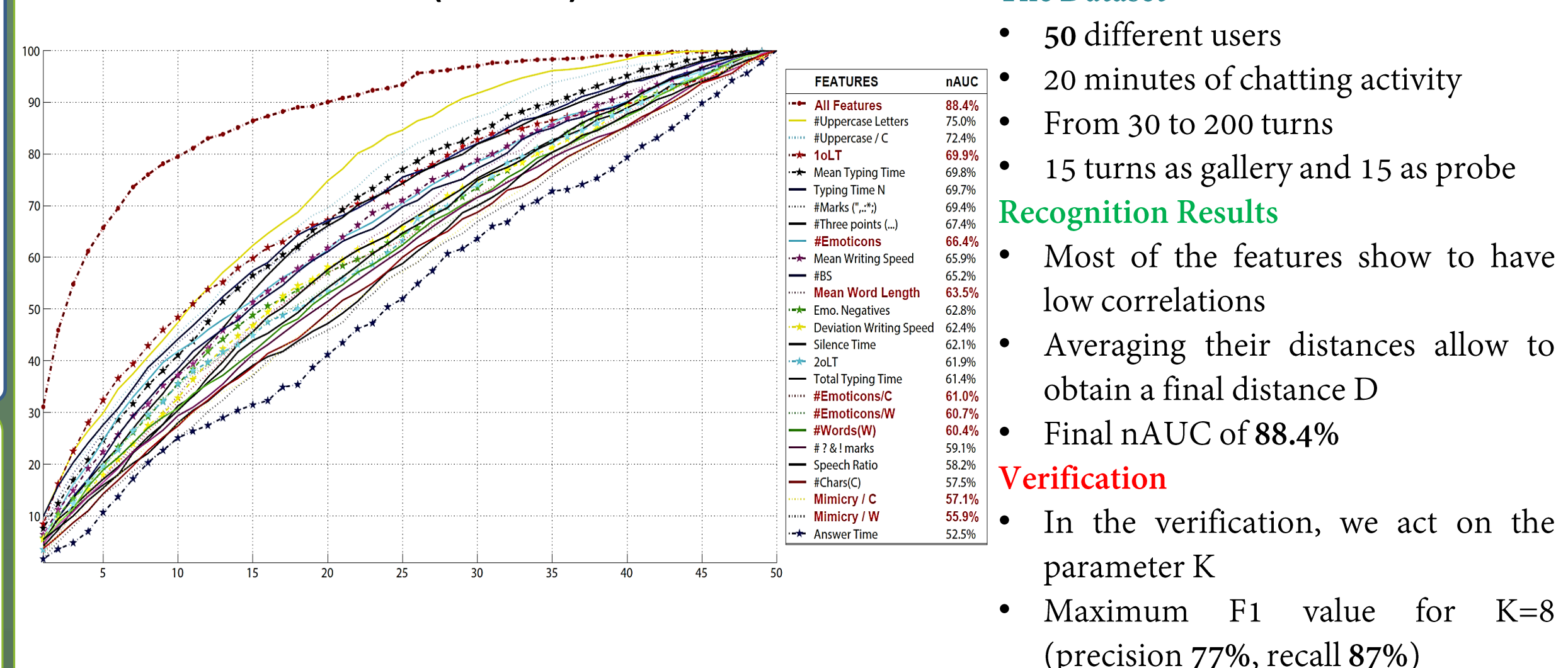


3. Identity Recognition and Verification



4. Re-Identification Performance

- As a performance measure for the identity recognition, we use the normalized Area Under the Cumulative Matching Characteristic (nAUC).



5. Personality Traits

- What seems to emerge is that there are personality traits that lead one to chat in a particular manner.
- We analyse 8 personality traits.
- Significant correlation found of 6 traits with 10 of the suggested features.
- This interactions can be decisive in determining whether it is possible to recognize the personality traits independently from the kind of interaction.

Traits	Features
Non Planning Impulsiveness	Mean Word Length, Mimicry, Emoticons, ...
Motor Impulsiveness	Mean Word Length.
BIS	#Emoticons, Mimicry, ...
PA	Mean Word Length, Word Writing Speed, Emo. Pos., #Words, 1oLT, ...
NA	Mimicry, #Emoticons..
PANAS	Mimicry, Emo.Pos.

6. Conclusions

Two important results do emerge: 1) some personality traits correlate significantly with some soft biometrics traits; 2) some of such features are very effective in recognizing a person among a gallery of diverse individuals. The contribution of this research paves the way for multimodal interfaces capable of recognizing the identity and/or the personality traits of a person, recommending e.g. kinds of interlocutors whom they would be more comfortable to talk with.

7. References

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