Voice-Tracking in Criminal Investigation

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Abstract

Over the last few decades, in criminal proceedings, the investigators have been increasingly using forensic biometrics techniques in order to determine or verify the identity of a subject through the automated use of physiological parameters. Voice print is a particularly important technique to identify a person. The urge to utilize voice-tracking in investigations has gradually increased due to an increase in the number of devices employed for remote communication and via the Internet; consequently, techniques aimed at making the user's identity anonymous have improved. This is not enough, though. Islamic terrorist acts and cyber threats are leading the state response to a retreat to unprecedented forms of crime prevention, with the main purpose of neutralizing the offense and prevent devastating damages from happening. Among the new preventive investigation techniques, forensic linguistics plays a fundamental role for intelligence bodies of governments.

Despite the centrality of linguistics and forensic phonetics in criminal investigations, national legislation appears to be not very avant-garde: in spite of what happens in other countries, no regulation of phonic investigation exists, thus causing a hindrance to the procedural use of the acquired evidence.

This paper provided an overview of the state of the art of repressive and preventive vocal investigations in Italy, identifying possible solutions de jure condendo.

Summary

Voice as a track – The State of the Art in the Italian Context – The Possible Openings of the Forensic World to the Use of Linguistic Evidence – Bibliography.

Voice as a track

Over the last few decades, in criminal proceedings the physical and behavioral characteristics of an individual have taken a leading role in **determining the facts**: investigators have been increasingly using **forensic biometrics** techniques in order to determine or verify the identity of a subject through the automated use of physiological parameters.

Voice print is a particularly important technique to identify a person. The urge to utilize voice-tracking in investigations has gradually increased due to an increase in the number of devices employed for remote communication and via the Internet; consequently, techniques aimed at making the user's identity anonymous have improved. It is in such cases, and more generally whenever it is

not possible to identify a subject using other elements, that voice-tracking represents an important starting point for investigators.

It follows that forensic linguistics become pivotal in procedural-criminal circuit, not only in courtrooms as a technique of proceedings rhetoric or analysis of legislative and case-law language, but also and above all as a useful tool in **police investigations**.

This is not enough, though. Islamic terrorist acts and cyber threats are leading the state response to a retreat to unprecedented forms of crime prevention, with the main purpose of neutralizing the offense and prevent devastating damages from happening. Among the new **preventive investigation** techniques, forensic linguistics plays a fundamental role for *intelligence* bodies of governments. Among other tasks, what is highly relevant for *intelligence* work are the following: a) automatic identification of mother tongue, useful for identifying the country of origin of political refugees who are not in possession of valid identity documents; b) predicting radicalization through linguistic attitude; c) identifying power (dominant vs. dominated) by studying overlaps and changes in voice intensity.

The State of the Art in the Italian Context

Despite the centrality of linguistics and forensic phonetics in criminal investigations, national legislation appears to be not very avant-garde: in spite of what happens in other countries, no regulation of phonic investigation exists, thus causing a hindrance to the procedural use of the acquired evidence. On a closer inspection, in fact, national legislators regulate voice identification techniques only when they are used in criminal trials, carrying out **expert reports and technical consultancy services** (art. 220 of the Italian Code of Criminal Procedure), or using **reconnaissance** (art. 216). Much more complex is the question of investigation activities based on **informal or "atypical" recognition** carried out by investigators who employ "subjective" recognition techniques based on the repeated listening of the voices of the subjects involved in the investigation. Far from representing an obstacle to getting such "evidence" into the trial, as it is subject to the witness of the operators (Court of Cassation., Section II, 27 January 2017, n. 12858, Electronic Data Processing Centre n. 269900), **the element collected is hard to be reliable**.

This happens for several reasons. As claimed, the item is "a bioindicator with an '**imperfect characterizing**' capacity" (Biral, 1842), since: a) it is not immutable, as it is subject to significant changes due to various factors; b) it does not possess the sufficiently univocal characteristics to allow a distinction between one individual and another; c) there is no "limit threshold over which the level of compatibility can be considered a generally absolute value" (Chimici, 386). In addition, the recognition methods based on instrumental analysis and objective parameters also make use of the active intervention of an operator who should be **properly trained** to carry out speech extraction process and, consequently, guarantee result reliability. At present, however, **such a professional figure is not acknowledged** and everything is managed by investigators, who are often poorly trained in carrying out such delicate actions. This causes the uncertainties connected to the use of phonic evidence in criminal trials.

As is well known, **evidence** can be defined "**scientific**" when it is based on general or statistical coverage with a coefficient of probability of "1" (Court of Cassation, Joint session, 10 July 2002, n. 30328, Electronic Data Processing Centre n. 22213). Procedural certainty is based on the comparison between reconstructive hypothesis and the evidence being available, and it is essential that it resists attempts at falsification. Statistical regularities brought by experts, however, are subject to the evaluation of the logical probability that **pertains to the judging party** as *peritus peritorum*. Besides the methodologies used, the expert must clarify the technique chosen, explaining the error rate, as the tests carried out have to be made public to probe the reliability of the tools used, as well as the size of the database that was used to carry them out, and the reasons why some parts of the signal were privileged and others were considered to be random. Since accredited professional figures and shared recognition methods are inexistent, forensic linguistics can currently be considered as **non-science**, failing to exceed the criteria of the so-called **Daubert test.**

The Possible Openings of the Forensic World to the Use of Linguistic Evidence

The possible evolutions of the subject are remarkable. Among them, it is possible to include the voice biometrics project of *the Carabinieri* (Rome, 13 July 2017), whose aim is **sharing** the results obtained with semi-automatic recognition techniques for the **creation of a database** that will be adopted according to the legal model already envisaged for the DNA database.

In light of these considerations, it may be desirable to introduce **standardized operating procedures**, provide them to the police force, and apply them to concrete cases. Such protocols play the double role of guarantors of the correct assessment of *status quo* by operators in the field, and that of guide for the subsequent judicial control, even though they do not bind the activity of the Attorney General. They actually enable to outline a "stable" and generally shared regulatory framework, contending the risk that the interpreters' discretion, first, and those of the operands, later, results in pure arbitration (See Proposal of Guidelines of the Italian Association of Voice Sciences, 2019).

Furthermore, the first and most serious investment to identify speakers should be carried out in the **training** field, along with the support of scientific associations which should assist experts' activities by preparing specific resolutions and guidelines, as it already happens in other countries. These supporting activities would also assist the control activity performed by the judge and will be applied not only on the methodologies used for the assessment but also on the qualification of the expert to be called to perform it.

Works Citation

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