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## The Protection of Genetic Identity

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# THE PROTECTION OF GENETIC IDENTITY \*

Laura Maria Franciosi<sup>†</sup> & Attilio Guarneri<sup>‡</sup>

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\* The present article represents the development of a research activity carried on by the authors.

Part I is an expanded version of Attilio Guarneri, *Identità genetica e privacy doctrine (il modello statunitense)*, 4 LA NUOVA GIURISPRUDENZA CIVILE COMMENTATA 37-42 (2007); and Part II is an expanded version of Laura M. Franciosi, *Identità genetica e ricerca di forme alternative di tutela nell'esperienza statunitense*, 4 LA NUOVA GIURISPRUDENZA CIVILE COMMENTATA 43-61 (2007).

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## INTRODUCTION

As everyone knows, the mapping of the basic components of the genetic code was completed in June of 2000.<sup>1</sup> Its beneficial effect gave us the ability to analyze the smallest biologic samples derived from an individual (a drop of blood invisible to the naked eye, a strand of hair, or a scale of dandruff), and it allowed us to verify the presence of specific genes, hence to reveal a multitude of information regarding the individual that the sample originated from. In particular, the DNA structure contains an infinite amount of information regarding the specific traits of an individual, such as, *ex multis*, the body's morphology, skin pigmentation, ethnic and racial traits. Furthermore, studies have shown that DNA determines, at least to some extent, intelligence and personality and it provides additional means of detection for the identification of hereditary illnesses, such as Down syndrome, hemophilia, and cystic fibrosis. Its negative effect was to establish a different, ulterior method, by which the personal rights of that same individual can be illicitly violated.

The analysis of the legal implications of such a phenomenon is a very complex one because of the needs to balance two opposite interests. On one side is scientific research, which fears that imposing overly strict limitations on the developments of new techniques of manipulation of genetic information would excessively restrict the research itself and would impede the achievement of new results beneficial to human society. On the other side are the privacy concerns; the need to take into account the interests of individuals to be granted efficient protection of their genetic identity. In addition, the complexity of such an analysis is increased by the speed of the above mentioned developments in respect of the lack of *ad hoc* legal provisions in

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1. See for example Michael J. Malinowski, *Separating Predictive Genetic Testing from Snake Oil: Regulation, Liabilities, and Lost opportunities*, 1 JURIMETRICS J. 23 (2000) (arguing that the completion of the maps of human genome has raised concerns related to the inadequacy of existing law provisions to properly deal with the new challenges of biotechnology); and Michael J. Malinowski, *Ethics in Global Biopharmaceutical Environment*, 1 SANTA CLARA J. INT. L. 57 (2006) (identifying different options to establish a workable baseline of protection of human subjects in order to develop in a responsible manner the biopharmaceutical research, and, therefore, being benefited by the manifold opportunities related to such developments).

order to deal with such new issues, and the consequent need to try to address these challenges by means of the traditional legal doctrines.

It is interesting to consider the North American judicial system in this respect, in view of the fact, as some may say, that it has developed the most advanced genetic research and techniques, and also because, as Antonio Gambaro says, it was the “cradle” of *privacy* rights.<sup>2</sup> Because of this, this system has been acclaimed as being the best foreign model from which to derive legal provisions aimed to discourage these new types of attacks on personal rights, and mandate compensation for their victims. Within this context, we find not only the analysis of the collection of different possible violations (*intrusions*), but also a list of entities capable of executing them, an array of legislative, doctrinal and jurisprudential sources that are used to protect the genetic identity of the individual, and an initial *panel* of solutions to the problems encountered so far. The reference to privacy rights in particular deserves to be highlighted because of the strong arguments supporting the idea that a violation of an individual’s genetic information could be deemed a violation of their right to privacy.

On the contrary, the specific topic of genetic identity within the Italian legal framework, with some exceptions,<sup>3</sup> appears to be taking off.<sup>4</sup> This may be due to several factors, among which we

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2. Antonio Gambaro, *Falsa luce agli occhi del pubblico*, 1 RIV. DIR. CIV. 84 (1981).

3. See in particular, Stefano Rodotà, *Tra diritto e società. Informazioni genetiche e tecniche di tutela*, RIV. CRIT. DIR. PRIV. 571 (2000); AMEDEO SANTOSUOSSO, *CORPO E LIBERTA, UNA STORIA TRA DIRITTO E SCIENZA* (Milano, 2001) (both focusing on the legal implications of the human body as a source of genetic information and dealing with the issues that will be addressed later in the present paper, for example that of biologic group and the collection of DNA samples).

4. Within the Italian scenario, as well as many other countries, the topic of genetic information has been deemed as a *species* of the broader notion of “sensitive data” pertaining to an individual and falling within the notion of “privacy right.” In particular, Stefano Rodotà, the former President of the *Garante per la protezione dei dati personali* (the Italian Authority for the protection of privacy rights, hereinafter “Garante”), highlighted that genetic information has a “structural and lasting attitude,” because “the genetic asset is defined and unalterable during the whole biological life of an individual; it shows his/her uniqueness and puts the individual in relation with others; it is the direct biological link between the individual and the other generations; and, as a consequence, it is an immortal element, while, on the contrary, all the other

can briefly recall two concurring elements. On one side is the issue of genetic identity as a new concept of personal identity which shows to have a peculiar nature because the whole identity pertaining to an individual can be found even in the smallest—and, at least at first sight, insignificant—sample of human biological material separated from the body to which it pertains,<sup>5</sup> seems to have been neglected within the Italian scenario in favor of other issues related to the implication of the DNA manipulation and the

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biological traits will die with the individual.” Stefano Rodotà, *Le informazioni genetiche*, TECNOLOGIE E DIRITTI 208 (1995). The same, in addition, pointed out that, since the genetic information is almost always manipulated in order to transform it in “genetic data,” such data must be equated to the category of “personal data,” subjected to the protection allowed by Italian privacy provisions. However, those provisions lack a specific definition of “genetic data” (as highlighted by the *Garante* in its decision as of May 22<sup>nd</sup>, 1999) and, consequently, it becomes very difficult to grant an appropriate protection to such a peculiar category of information. In order to fill this gap, it has been suggested to apply the definition of genetic data adopted by the Eur. Council *Recommendation*, Doc. No. R (97) 5, which includes in such a concept all data—regardless of their nature—concerning the hereditary characters of an individual or the ways to transfer them within a group of individuals linked by blood ties. Within the legal category of personal data, genetic data belong to the sub-class of “sensitive data,” which—according to the Italian privacy provisions—can be used only with the written consent of the owner and the previous authorization of the *Garante*. But, it must be stressed that, in spite of such a general rule, several exceptions to the collection and utilization of those data are allowed: for further details see the so called Privacy Code (*Codice della privacy*) enacted with the D.lgs. as of June 30<sup>th</sup> 2003, no. 196, issued in the Ordinary section of the Italian official bulletin of the law (*Gazzetta Ufficiale*) as of July 29<sup>th</sup>, 2003, no. 174; and, in particular, art. 90 of it, named *Trattamento dei dati genetici e dei donatori di midollo osseo*. This rule requires an authorization *ad hoc* of the *Garante* for the purposes of the utilization of those data and, therefore, it could help in better dealing with the issue at stake: but, it must be warned that such a provision is a pretty recent one, since it has been adopted as of February 22<sup>nd</sup>, 2007. In the meantime, in order to fill such a gap, temporary provisions had been enacted, which contributed to render the Italian legal scenario more complex and more heterogeneous. Anyway, it deserves to be highlighted that the Italian legal framework, as well as that of many other countries, is grounded around the idea of “free and informed consent” of the individual as main element to deal with the issue of genetic information and, therefore, it raises concerns similar to those already addressed in other foreign legal models and among them the US one represents a very interesting model of comparison, as already explained.

5. For example: a broken nail, a hair, a droop of saliva left on a cup of coffee, a droop of blood in the event of an accidental cut, etc.

notion of genetic material: i.e., assisted procreation, utilization of human embryonal staminal cells, the legal status of the embryo and of the so called pre-embryo, the issue of genetic modified organisms, and so on.<sup>6</sup>

On the other side, the specific topic of genetic identity and the related opportunity to identify an individual by means of his/her genetic information, has thus far been presented to the eyes of the Italian society mainly in its positive aspects, as an efficient and fundamental tool in order to pursue very worthwhile aims, especially for investigational purposes: in this respect, two significant examples may be provided.

The Italian judge Giovanni Falcone—who was well known even outside Italy because of his fight against the phenomenon of the mafia, and who also had the opportunity to actively cooperate with the American investigative authorities—was killed by an explosive device while he was driving from the airport of Capaci to his apartment in Palermo. Since this event occurred in 1992, and at that time the new tools of DNA investigation were not so developed in Italy, the Italian investigative authorities required the cooperation of Americans in order to try to identify the perpetrator of such a crime. The identification was possible by extracting the DNA sample of the killer from the saliva left on the cigarette filters he had smoked while waiting for Mr. Falcone's car. In current news, the whole European society is riveted by the story of Maddy, an English child who disappeared in Portugal during a holiday with her family. At one point, it appeared she was in Belgium because a lady had seen in a coffee shop a child who resembled her. In

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6. See, among others, Massimo C. Bianca, *Nuove tecniche genetiche, regole giuridiche e tutela dell'essere umano*, 3-4 IL DIRITTO DELLA FAMIGLIA E DELLE PERSONE, 955-970 (1987) (focusing on the legal implications of artificial insemination); Stefano Rodotà, *Trasformazioni del corpo*, in *Politica del diritto*, 2006, issue no. 1, at 3-24 (dealing with the manifold notions of the term *body* when related to the human being). In addition, such an issue has been perceived as falling within the more complex area of the relationships between law and ethics and, in particular, within the bioethics field, about which the debate is very developed and many contributions have been published: see, for example, FRANCESCO DONATO BUSNELLI, *BIOETICA E DIRITTO PRIVATO. FRAMMENTI DI UN DIZIONARIO* 3-4 (2001); Paolo Zatti, *Verso un diritto per la bioetica*, in *UNA NORMA GIURIDICA PER LA BIOETICA* 3 (Cosimo M. Mazzoni ed., 1998). See also the reports of the Italian "Comitato nazionale per la bioetica," available at <http://www.governo.it/bioetica.html> (last visited November 6, 2008).

order to verify whether that child truly was Maddy or not, the competent authorities were able to obtain a sample of her DNA by the glass she had used to drink, and then they could compare it with the sample of DNA provided by the family of Maddy. Thanks to such a technique, they were able to determine that (unfortunately) the child was not Maddy.

In Italy, the debate about the opportunity of establishing DNA databanks for the collection of DNA profiles and/or DNA samples for investigational purposes—as well as it has been done within the US and in other European Countries—has just arisen.<sup>7</sup> Consequently, the analysis so far carried out has not yet reached a deep perspective, unlike those which have occurred within the US, at least with reference to the concerns about the possible new forms of intrusion and violation of the individual's genetic identity together with the manifold legal implications of such a phenomenon.

Within the European Union, such a topic so far has been addressed only from a specific perspective: the protection of so-called “biological inventions.” In fact, the Directive 98/44/CE,<sup>8</sup> which has been implemented in Italy by Law 78/2006, addresses the new phenomenon of biological inventions and manipulation of organic material (even human). It allows such inventions, provided that they meet all the requirements to be deemed an “invention” according to the Directive's provisions, to be subjected to the rules of patent law. The first concern of the Directive, therefore, appears to be economic. Nevertheless, the same Directive shows a willingness to take into account the moral concerns related to such a phenomenon, together with the opportunity to preserve the dignity of the individual. Therefore, it

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7. As of November 2007, such an issue is in the agenda of the Italian Parliament: see, for example, the Attachment A to the hearing n. 221, held on October 10<sup>th</sup>, 2007, at 34-35, including proposal of amendments to article 6 of the draft of law n. 782 (arguing, in particular, for the introduction of *ad hoc* DNA databanks, to be created with the consent of the *Garante*), available at <http://legxv.camera.it/docesta/312/14367/documentoesterno.asp?a=internet&annomese=2007%2C10&commit=invia> (last visited November 6, 2008).

8. Directive 98/44/EC of the European Parliament and of the Council of July 6<sup>th</sup>, 1998 on the legal protection of biotechnological inventions. Official Journal L 213, 30/07/1998 P. 0013–0021; available at <http://eur-lex.europa.eu/en/index.htm> (last visited December 19, 2008).

expressly recognizes some limits to the activity related to biotechnology, in particular those of public order and good morals, in addition to strictly forbidding the patentability of human cloning and the utilization of human embryos for commercial purposes (Art. 6 § 2 of the Directive). Finally, the Italian law implementing the Directive requires the free and informed consent of the donor of biological material as a fundamental element in order to submit the request of patentability of the invention, thus complying with art. 3 of the Charter of Fundamental Rights of the European Union.<sup>9</sup>

But, again, such provisions appear to address the present phenomenon only from a specific point of view. The mere reference to the notion of “public order and good morals” is not able to cover all the juridical implications of it; furthermore, those are evolving concepts, whose determination is subject to periodical assessment. In addition, as we will show with our analysis, the “consent argument” does not always seem to be the best solution in order to address such an issue. Therefore, in spite of the regulation, the specific issue of genetic identity cannot be deemed to have yet been thoroughly examined or have taken into account all the possible and manifold legal implications pertaining to it. Furthermore, in order to try to reach a more complete awareness of those implications, the analysis of genetic identity, in our opinion, could benefit from comparison with the developments in a different legal system, such as the American one.

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9. Charter of Fundamental rights of the European Union (2000/C 364/01): Article 3–“Right to the integrity of the person”

1. Everyone has the right to respect for his or her physical and mental integrity.

2. In the fields of medicine and biology, the following must be respected in particular:

. The free and informed consent of the person concerned, according to the procedures laid down by law,

. The prohibition of eugenic practices, in particular those aiming at the selection of persons,

. The prohibition on making the human body and its parts as such a source of financial gain,

. The prohibition of the reproductive cloning of human beings.

The full text of the Charter is available in English at [http://www.europarl.europa.eu/charter/pdf/text\\_en.pdf](http://www.europarl.europa.eu/charter/pdf/text_en.pdf) (last visited November 6, 2008).

Accordingly, the present work will try to address the legal implications surrounding the issue of genetic identity by referring to the complex and heterogeneous scenario of doctrines and legal provisions which characterizes the American legal system in attempting to better understand such a phenomenon.<sup>10</sup>

PART I  
THE LIMITS OF THE LEGISLATIVE APPROACH

*A. Intrusions and the Intruders*

Initially the ability to perform DNA analysis was beneficial to the individual, as it was used to diagnose illnesses, and determine the best course of medical treatment. However, thereafter, these tests started to have a negative impact on the individual. They provided an ideal tool to benefit and facilitate the potentially discriminatory activities of entities such as employers and insurance providers, for example, that could use the otherwise unknown genetic information to determine who to hire and who to insure.<sup>11</sup> As it has been highlighted:

The danger is that individuals will be judged according to genetic stereotypes and divided into groups based upon their genetic predispositions. Thus, invasions of genetic privacy are not only selective, but also segmenting: they balkanize a population based upon its genes, generating genetic divisions that may produce new structures of inequality.<sup>12</sup>

The potential for misuse of the data is at times augmented by the prevailing cultural environment that tends to regard genetic data as a magical force and some sort of cultural icon.

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10. Attilio Guarneri wrote Part I of the present paper, while Laura Franciosi developed Part II.

11. See for example: Nathalie Smith *The right to Genetic Privacy? Are We Unlocking the Secrets of the Human Genome Only to Risk Insurance and Employment Discrimination?*, 2000 UTAH L. REV. 705 (2000).

12. Radhika Rao, *A Veil of genetic ignorance? Protecting Genetic Privacy to Insure Equality*, 51 VILL. L. REV. 827, 828 (2006).

Ken M. Gatter has addressed the current gene hegemony in his speeches,<sup>13</sup> and the anthropologist Kaja Finkler described the central role of DNA in the definition of our identity:

Everything about an organism's existence is predetermined and genetically programmed, including its variation, although geneticists recognize that the program may be affected by unknown and external factors in the environment, chance, or human manipulation. The sequence of our DNA reveals to us who and what we are; that is, what it means to be human. With DNA sequencing, some scientists have maintained that the riddle of life is close to being solved.<sup>14</sup>

Dorothy Nelkin and M. Susan Lindee, in turn, described how public opinion views the role of DNA:

Just as the Christian soul has provided an archetypal concept through which to understand the person and continuity of self, so DNA appears in popular culture as a soul-like entity, a holy and immortal relic, a forbidden territory. The similarity between the powers of DNA and those of the Christian soul, we suggest, is more than linguistic or metaphorical. DNA has taken on the social and cultural functions of the soul. It is the essential entity—the location of the true self—in the narratives of biological determinism.<sup>15</sup>

The information's potential for misuse is made particularly dangerous by the fact that the practice of analyzing data has quickly spread over multiple levels. In fact, today there is much apprehension surrounding potential misuse of genetic information. The results of a survey conducted in North America in 1997 showed that two-thirds of the people interviewed would refuse to undergo genetic testing if they knew that their employer, or the

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13. Ken M. Gatter, *Genetic Information and the Importance of Context: Implications for the Social Meaning of Genetic Information and Individual Identity*, 47 ST. LOUIS L.J. 423 (2003).

14. KAJA FINKLER, *EXPERIENCING THE NEW GENETICS: FAMILY AND KINSHIP ON THE MEDICAL FRONTIER* 48 (Univ. of Pennsylvania Press 2000).

15. DOROTHY NELKIN & M. SUSAN LINDEE, *THE DNA MYSTIQUE: THE GENE AS A CULTURAL ICON* 41-42 (1995).

insurer that covers their medical expenses, could become aware of the results of said analysis.<sup>16</sup>

Scholars remind us that this is also quite relevant within the scope of major decisions that concern the private life of individuals. A person's decision regarding choices such as whether or not to marry someone, or whether or not to have children with someone, could be affected if that person became aware of the other individual's genetic profile.<sup>17</sup> Other studies remind us that DNA findings pertain not only to the individual that was tested, but also concern all members of the family that person belongs to.<sup>18</sup>

Illicit use of data is particularly insidious because—and here we move beyond the analysis of intrusion to the analysis of intruders—genetic information is no longer the exclusive monopoly of researchers, as it will soon be made available to private parties as well. In the near future, the general public will be able to purchase reasonably priced *market tests*. Now consider the analysis that could be conducted on exfoliated skin left on objects handled in an office or in a waiting room. The vulnerability of a person's genetic privacy has increased dramatically.

### *B. Protective Legislative Measures*

The US Congress has intervened several times, and with increasing frequency, to protect the genetic identity of the individual, and prevent private entities from using genetic information as basis for discriminatory practices. The *Privacy Act* of 1974 addresses the need to protect *privacy* in general terms, with no specific provisions for genetic *privacy*. It only protects government employees from divulgence of confidential data already on file, and it offers no protection to prevent private parties from acquiring information, even if genetic by nature.<sup>19</sup> It was followed in 1990 by the *Americans with Disabilities Act* (ADA), which aimed to prevent discriminatory practices against disabled

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16. Gatter, *supra* note 13, at 427-428. See also Paul S. Miller, *Genetic Discrimination in the Workplace*, 26 J.L. MED. & ETHICS 189 (1998).

17. See, for example, George J. Annas, *Genetic Privacy: There Ought to Be a Law*, 4 TEX. REV. L. & POL. 9 (1999).

18. On this topic see *infra* Part II, paragraph 4.

19. See generally Anita Silvers & Michael A. Stein, *Human Rights and Genetic Discrimination: Protecting Genomics' Promise For Public Health*, 31 J.L. MED. & ETHICS 377 (2003).

individuals in the workplace. It contains at least two prerequisites: an act of discrimination and a documented disability. However, because the Supreme Court has interpreted the ADA in a manner that excludes genetic predispositions, and also because it does not pertain to acquiring data *per se*, it is largely inept for the purpose of safeguarding genetic identity.<sup>20</sup>

In 1996, the *Health Insurance Portability and Accountability Act* (HIPAA) followed. It was issued to protect the *privacy* of health records, and specifically addresses genetic information, but the law only applies to specific types of information and not others.<sup>21</sup> In summary, the overall scope of federal legislation does not offer sufficient protection against illicit genetic data acquisition. For this reason some states, such as Florida, have adopted more rigorous and restrictive laws, which mandate that DNA testing may only be conducted after obtaining consent from a duly informed individual, and that violators are subject to sanctions, incarceration, and fines.<sup>22</sup>

Practitioners express, however, that there are some doubts concerning the effective application of these more rigorous state laws.<sup>23</sup> If we look beyond the actual legislation (Federal and State), and consider the jurisprudential and doctrinal aspects, we immediately notice that there are two distinct levels of protection for genetic information: protection from government intrusion and from intrusion by private entities. The first contains a collection of cases pertaining to military personnel, inmates, etc.; the level of protection here is “weak,” and at this point somewhat established, although not free of problems, both old and new.

The analysis of the second level of protection, which we now expand upon, starts with a reconstruction of the *protection of*

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20. See, for example, Mark A Rothstein, *Genetic Privacy and Confidentiality: Why They Are So Hard to Protect?*, 26 J.L. MED. & ETHICS 198, 201 (1998).

21. Joanne L. Husted & Janlori Goldman, *The Genetics Revolution: Conflicts, Challenges and Conundra*, 28 AM. J. L. AND MED. 285, 287-292 (2002).

22. See, for example, Ben F. Overton and Katherine E. Giddings, *The Right of Privacy in Florida in the Age of Technology and the Twenty-First Century: A Need for Protection From Private and Commercial Intrusion*, 25 FLA. ST. U.L. REV. 25 (1997).

23. June Mary Makdisi, *Genetic Privacy: New Intrusion a New tort?*, 34 CREIGHTON L. REV. 965, 978 (2001).

*privacy in tort*, which finds its roots in the history of North American *common law*. The ancestry of the current *remedy for privacy intrusion* lies in the *physical trespass*, which was, in turn, the heir to the British medieval *transgressio*. It was elaborated upon in a famous essay written by Samuel D. Warren and Louis D. Brandeis, *The Right to Privacy*, that was published by the *Harvard Law Review* in 1890,<sup>24</sup> and preceded, two years prior, by a treatise named *On the Law of Torts* by Judge Cooley, the author who defined *privacy* as being *the right to be let alone*.<sup>25</sup>

Approximately 70 years later, William L. Prosser, in a famous essay that appeared in 1960 in the *California Law Review*, tried to systematize the variegated constellation of juridical examples of personal rights violations. On the theme of *privacy*, he created four related yet distinct subsections: *Intrusion; Public Disclosure of Private Facts; Appropriation of the Name or Likeness; and False Light in the Public Eye*.<sup>26</sup> That classification, after being widely circulated in literature and Courts' opinions, was incorporated in the *Second Restatement on the Law of Torts*.<sup>27</sup>

In order to analyze the juridical instruments most widely used in genetic identity proceedings that pertain to violations made by private parties, we must start with the sub-tort named *Intrusion*. Its origins can be reconstructed, by means of Prosser's classification, to the violation of *privacy*. The sub-tort of *Intrusion*, as a type of disturbance, may have three different aspects: physical, spatial, and psychological. The first and second indicate an actual physical space, as expressed by the aphorism: *A man's home is his castle*. Let us also recall the famous quote from *The Right to Privacy*: *'The common law has always recognized a man's house as his castle, impregnable, often, even to its own officers engaged in the execution of its commands. Shall the courts thus close the front entrance to constituted authority, and open wide the back door to idle or prurient curiosity?'*<sup>28</sup> The third relates to non-physical intrusions, and is tied to technological advances, such as telephone taps, microphones, etc., that involve some sort of high-tech prying,

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24. Samuel D. Warren & Louis D. Brandeis, *The Right to Privacy*, 4 HARV. L. REV. 193 (1890-1891).

25. THOMAS M. COOLEY, COOLEY ON TORTS 29 (2d ed. 1888).

26. William L. Prosser, *Privacy*, 48 CAL. L. REV. 383 (1960).

27. RESTATEMENT (SECOND) OF TORTS, § 6A, v. "Privacy."

28. Warren & Brandeis, *supra* note 24, at 220.

espionage-like virtual trespassing; investigative harassment, continual phone calls and sexual harassment can also be viewed in this context. The common factor in these type of cases is Judge Cooley's "right to be let alone," that when extended from its original material and spatial concept of what is proprietary by nature, to a scope that also includes the degree of control any individual has over his/her information, impacts the overall dignity "profile" of a person. The original proprietary concept of the inviolability of a castle or a sanctuary can also be associated with the last mentioned personal profile, and in this manner convey the image of a person as being inviolable.

Psychological violations evoke the idea of *peace of mind*, an area that is proprietary and personalistic at the same time; it pertains to information about an individual, and is ruled by the principle of *jus excludendi alios*.<sup>29</sup> The intrusion truly consists of a violation of this private sphere, which is dominated by the identity and personality of a single individual.

Protection against intrusions into the sphere of information about oneself (information one wishes to keep private) preserves the dignity of the individual in two ways. On the one hand, it precludes unauthorized access to personal information; on the other, it prevents falsification of this data. In both directions this protection is applicable to *Genetic privacy*.

### C. Balancing the Rights

Privacy protection, even genetic, must not however mean absolute protection from all types of intrusions by others. As proposed in the *Restatement Second of the Law of Torts*, the rights must be properly balanced. According to that disposition, *one, who intentionally intrudes, physically or otherwise, upon the solitude or seclusion of another or his private affairs or concerns, is subject to liability to the other for invasion of his privacy, if the intrusion would be highly offensive to a reasonable person.*<sup>30</sup>

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29. From a comparative perspective, such an argument is very interesting because it involves also the proprietary paradigm because, for example, according to art. 832 of the Italian Civil Code, the so called *ius excludendi alios* is one of the main powers embodied in the definition of property and therefore granted to the owner of a good.

30. RESTATEMENT (SECOND) OF TORTS § 652B.

Hence, making annoyance calls and probing into someone's life with no due cause are considered to be illicit activities. On the contrary, the need to establish an adequate level of protection against thefts can justify an employer's "intrusions" upon the privacy of employees, and similar intrusions are permissible when government authorities need to gather evidence for a case.

While talking specifically about genetic identity violations, we must consider Prosser's principle, by which the right of being let alone does not apply to an individual while in a public place unless, as mentioned in the *Restatement Second of the Law of Torts*, the matter involves a violation of private rights. To better identify what constitutes this type of matter, it's useful to recall cases that involved photographers taking pictures of people who, while in public places, unwillingly found themselves in a vulnerable situation. An example of this could be a woman whose skirt had been thrown up by the wind, and is therefore photographed with her private parts exposed.<sup>31</sup> Briefly, the act of regulating the balance of rights poses restrictions upon Prosser's principle when there are specific reasons to aptly justify the applicability of *privacy* protection measures. The current trend is to progressively expand the sub-tort of *intrusion*, as occurred within the specific contexts later discussed, and apply this definition to cases that pertain to the protection of genetic identity.<sup>32</sup>

The topics of sexual harassment in the workplace, employee drug testing, and surveillance conducted by mechanical means such as cameras, video recording equipment etc. require, as always, the careful balancing of interests. Actions undertaken to fight drugs and thefts justify intruding upon someone else's private life, as long as any reasonable individual would deem that they did not violate the personal integrity of an individual. Sometimes, the valuation depends upon the actual intent (or lack thereof) of the intrusion, and the values involved. For example, in a spousal separation civil suit that included awarding custody of a minor, the husband took a picture of his semi-nude wife from the window of her lesbian lover's bedroom. This was not deemed to be a violation of the wife's right to privacy in view of the intent to protect the minor from being exposed to sexual activities that could occur in

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31. See generally Makdisi, *supra* note 23.

32. *Id.*

the family dwelling. Briefly, a reasonable opinion takes into consideration the purpose, the psychological motives (intentional or not), the means, the methods used, and the intensity of the identity violation committed towards others.

*D. The Applicability of the Sub-Tort of Intrusion within the Scope of Genetic Identity*

According to June Mary Makdisi, there are at least three specific questions that need to be answered in order to verify whether the sub-tort of intrusion could be applied to protect genetic identity: a) can genetic information be qualified as strictly personal information, and be protected under the assumptions of tort by *intrusion*; b) whether this constitutes a tort when it pertains to genetic information obtained from biological samples initially collected in a “public place;” c) if the extraction of genetic DNA information from biological tissues would be deemed as being highly offensive by a reasonable person.<sup>33</sup>

Genetic information resides within tangible materials, ones that can be seen, touched, and collected, and performing any of these actions does not necessarily mean committing a tort of *intrusion*. Genetic material exposed to public view does not reveal any information by itself. It can yield genetic information only after being subjected to close-up examinations, such as being viewed under a microscope for example, or via a genetic test. There is no doubt, in answer to the first question, that genetic data is strictly tied to someone's identity, and that acquiring all of the genetic information is essential in discovering the identity of an individual. There is no doubt, in answer to the second question, that the act of collecting genetic information does not *per se* constitute a tort of *intrusion*: if that were the case, professionals could be at fault each time they perform a genetic test. In this scenario, the genetic doctor's position is equivalent to that of the previously mentioned photographer's position. The doctor could be held liable of committing an act of *intrusion* only if he takes advantage of the involuntary vulnerability of the test subject and, without the informed consent thereof, breaches the sphere of *privacy* of an individual.

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33. *Id.* at 1024.

The *Restatement Second of the Law of Torts* suggests that illicit *intrusions* should be considered as being those that are deemed to be offensive by the victim, and those the extent of which is objectively disproportionate compared to the interests of the aggressor. Generally, the diffusion of genetic information could subjectively be considered as being both offensive and unreasonable. Let's consider the case of a genetic test that reveals a predisposition to pedophilia. Even a test that is the most accurate from a scientific standpoint can not reliably predict the future development, or on the contrary, the regression of the hereditary genetic traits of a person. In the same manner, no one can be sure that a person predisposed to develop great musculature will actually become an athlete.

In view of this premise, it then becomes clear that individuals should have the right to choose if they wish to reveal or not to others genetic information that by its nature could compromise their personal dignity. Some could argue that a genetic test showing a predisposition to rise early in the morning or retire late contains no information that warrants legal protection. What would happen if those genetic traits were later found to be connected to other chromosomes, and thereby yield a store of genetic information that current science is unable to predict? How could we deny responsibility for that *intrusion* when genetic information, once disclosed, cannot be retracted?

These questions are only indicative of the overall complexity of the topic, and, in answer to the third question, lead us to conclude that the legalities of disclosing genetic information should be established on a case by case basis. It is certain that we should consider that: a) the extraction of genetic information from someone else's tissue without their prior consent is illegal; b) the potential for *intrusion* should be assessed not at the time of collection of the sample, but when said sample is used; c) the *intrusion* may be justified in some cases due to extraordinary circumstances, such as the need to obtain relevant genetic information to prove that certain events took place and provide equitable evidence for a legal case; and d) when a person is subjected to any kind of justified genetic *privacy* intrusion, he should always be notified of it (a sub case of c).

*E. The Limits of Privacy Protection*

This panorama is completed by the assessment of the perplexities and limits surrounding the generalized application of the privacy doctrine for the purpose of protecting genetic identity. First of all, we should mention the concerns expressed by several worldwide medical associations regarding the establishment of generic genetic privacy regulations. In their opinion, these would protect the patient but would also represent a major obstacle for medical research.

From the same environment arises a somewhat myopic view, one that would, on one hand emphasize some sort of genetic existentialism, while on the other hand it proposes equal treatment of genetic data, with no distinction between data worthy of legal protection and data that is not. Specifically, as far as the insurance and employment worlds are concerned, it would be useful to identify and limit the scope of information employers and insurance providers may legally obtain.

It is true that by acquiring genetic information about their respective insured persons and workers these entities would be able to attain various types of cost reductions, and better plan their activities. This notwithstanding, it is also true that said access could constitute a violation of the privacy of those same individuals.

PART II  
SEARCHING FOR OTHER DOCTRINES

Much of the doctrine and the jurisprudence of the US maintains that an adequate form of protection for an individual's genetic information can be found in the methods used to regulate other types of medical information, which mandate that no data may be collected or disseminated without the informed prior consent of the subject it pertains to.<sup>34</sup> In this fashion, genetic information would

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34. For a synthesis of said trends, see for example, Henry Miller III, *DNA Blueprints, Personhood and Genetic Privacy*, 8 HEALTH MATRIX 179 (1998), that resorts to philosophical discourses to prove that the identity and individuality of a person do not coincide with the store of genetic information contained in DNA. According to this train of thought therefore, this data would only have mere medical value and should be regulated accordingly. Said trend is in opposition with that of the so called *genetic exceptionalism*, according to

be protected as well as medical data *tout court*, and would fall under the owner's privacy rights, meaning that the owner would have the right to control the management and diffusion of said information,<sup>35</sup> in accordance with the traditional concept of the right to privacy formulated by Warren and Brandeis.<sup>36</sup>

This legislative option however has proven itself to be an inadequate solution to the delicate issue of effective protection of genetic information. This is due to the peculiarities that connote this type of information and the values inherent thereto (e.g., the identity of the person, protection of individual dignity, etc.). The inadequacy of privacy protection is especially evident in view of three specific issues: (a) the collection and storage of DNA samples from innocent people; (b) the collection and storage of what is commonly known as "abandoned DNA"; and, (c) the issue of the "biologic group."

#### *A. Collection and Storage of DNA Samples from Innocent Individuals*

Scientific progress has not only made it possible to gather "physical" samples of DNA, but it has also given us the ability to create, using specialized programs, a series of DNA profiles that can be stored in specialized data banks.<sup>37</sup> While the usefulness of this data is unquestionable, especially for investigative purposes, some of the techniques used by public authorities have created

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which genetic information constitutes a *unicum*, and as such should be subject to *ad hoc* discipline. See on the subject: Deborah L. McLochlin, *Whose genetic information is it anyway? A Legal Analysis of the Effects that Mapping the Human Genome Will Have on Privacy Rights and Genetic Discrimination*, 19 J. MARSHALL J. COMPUTER & INFO L. 609 (2001).

35. See, for example, Sonia M. Suter, *Disentangling Privacy from Property: Toward a Deeper Understanding of Genetic Privacy*, 72 GEO. WASH. L. REV. 737 (2004); R.A. Curley & L.M. Caperna, *The Brave New World Is Here: Privacy Issues and the Human Genome*, 70 DEF. COUNS, J. 22 (2003). Within the case law, for example, *Skinner v. Ry. Labor Executives Ass'n*, 489 U.S. 602, 616 (1989); and, lastly *United States v. Kinkade*, 379 F.3d 813 (9th Cir. 2004).

36. Warren & Brandeis, *supra* note 24, at 193.

37. See, for example, Michael J. Malinowski, *Taking Genomics to the Biobank: Access to Human Biological Samples and Medical Information*, 66 LA. L. REV. 43 (2005) (focusing on the legal implications of storing human biological material in biobanks).

many doubts regarding the constitutional legitimacy of mass gathering and storing data and information of such a delicate nature.

Some of these activities are in fact conducted by means of a technique named *dragnet* (which, figuratively speaking, means “trawling”). When performed on a large scale for investigative purposes, it gives the authorities the ability to gather, analyze and archive genetic information on a multitude of individuals, the majority of whom have no penal record, or have never been connected to any potential criminal activity.<sup>38</sup> Consequently, once the investigative purpose has been concluded, and the criminal identified, the authorities find themselves in possession of vast amounts of sensitive information that, aside from its former investigative value, may be of interest to many other entities (such as insurance companies, administrative agencies, and employers).<sup>39</sup> Since current legislative measures and previous legal rulings do not seem to offer adequate protection in this context, there is a trend of thought that advocates addressing the issue by means of a paradigm similar to the one already instituted to protect privacy. Specifically, such a trend seems to favor granting to individuals that provide genetic information some type of actual ownership right, therefore affirming that they would hold the *proprietary rights* for the data.

Such an option would allow for the vigorous reaffirmation of constitutional guarantees of protection for the rights of individuals, the efficacy of which would actually be paralyzed if the norms that regulate privacy were to be used.<sup>40</sup> In order to better understand the juridical implications of this debate, we must closely examine the subject matter itself. As stated, the collection of DNA samples

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38. See *infra* note 47.

39. See, for example, the critical remarks of Michael J. Markett, *Note, Genetic Diaries: An Analysis of Privacy Protection in DNA Data Banks*, 30 SUFFOLK U. L. REV. 185 (1996).

40. Examples of the large portion of the doctrine that favors the institution of actual protection measures founded on the recognition of proprietary rights for genetic data versus personal rights, based on the privacy rights, are among others: Catherine M. Valerio Barrad, *Genetic Information and Property Theory*, 87 NW. U. L. REV. 1037 (1992); and recently, Leigh M. Harlan, *When Privacy Fails: Invoking a Property Paradigm to Mandate the Destruction of DNA Samples*, 54 DUKE L.J. 179, 187 (2004). There is no lack of decidedly antagonistic views, for example, Suter, *supra* note 35. The question will be specifically addressed in the paragraph that follows.

and the creation of an ensuing genetic profile have assumed a fundamental role in investigative environments. The process that leads to the identification and incrimination of the perpetrator of a crime is conducted in four steps:<sup>41</sup> the DNA must be collected from the scene of the crime, and analyzed;<sup>42</sup> the investigative authorities, on their part, must compile the profile of the potential crime perpetrator, and select the individuals from which DNA samples should be obtained; DNA samples are collected from selected individuals; and the samples so obtained must then be analyzed and transformed into an equivalent number of profiles to be compared with the profile obtained from the sample collected at the crime scene. After this process is concluded, and after all the investigative venues have been exhausted, the question of whether to store or destroy the collected samples arises.<sup>43</sup>

As can be noted, one of the crucial stages in this process involves the ability to obtain a series of DNA samples from members of a selected group and compare them with the sample collected from the crime scene. Another fundamental factor is the selection of the group of individuals from which to obtain DNA. Traditionally the authorities selected these individuals by availing themselves of various methods. First of all, legislation was instituted at state level to impose *ex lege* the collection of DNA from individuals known to have committed violent crimes. Recently, many states have expanded the parameters that apply to the collection of genetic material by passing *ad hoc* legislation. Some states actually also allow for collection of DNA samples of people convicted of non-violent murders, meaning lesser crimes. Other states provide for mandatory collection upon a simple arrest, prior to the actual determination of the individual's guilt.<sup>44</sup>

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41. Paul E. Tracy & Vincent Morgan, *Big Brother and His Science Kit: DNA Databases for 21<sup>st</sup> Century Crime Control?* 90 J. CRIM. L. & CRIMINOLOGY 635 (2000).

42. The nature of DNA is such that there is a high level of probability of finding "genetic material" left by the person that committed the murder at the scene. Everyone knows that, in fact, DNA is found in the blood, skin cells, tissues, organs, muscles, brain cells, bones, hair, saliva, mucus, nails, urine and human sperm. *Id.*

43. *Id.*

44. For further details see SETH AXELRAD, SPECIAL REPORT: SURVEY OF STATE DNA DATABASE STATUTES (2005), that can be found on the following web address web: <http://www.aslme.org/> (last visited November 6, 2008).

Lately, a forth technique of genetic material sampling has gained popularity. It is called *DNA dragnets*, meaning massive “trawling” of DNA samples from subjects that fall within a group that is deemed potentially relevant for the investigation. This selection criteria uses parameters so broad that the connection to the crime committed usually loses much of its significance.<sup>45</sup> The implementation of this technique has raised major concerns. While in the first three instances the collection and storage of the DNA samples appears to be constitutionally legitimate according to the *search and seizure clause* contained in the Fourth Amendment of the US Constitution,<sup>46</sup> there have been many questions raised regarding the constitutional legitimacy of DNA samples obtained using *dragnets*.<sup>47</sup>

Since, generally, the “trawling” occurs with the consent of the subjects, the constitutional rights of the Fourth Amendment can not be applied.<sup>48</sup> The voluntary basis of this consent however, appears to be rather weak, certainly not one that is strong enough to overcome the predicament of the above mentioned constitutional rights issue, considering that, if the individual refuses to give his DNA,<sup>49</sup> the authorities can obtain a court order that obligates said

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45. A paradoxical example, yet one that is apt to understand the import of the phenomena and the constitutional implications thereof, could be one where DNA dragnets are performed on all of male individuals of Caucasian ancestry that live in a State, for the purpose of looking for the perpetrator of a rape. See Fred W. Drobner, *DNA Dragnets: Constitutional Aspects of Mass DNA Identification Testing*, 28 CAP. U. L. REV. 479 (2000), according to whom *dragnets* are essentially “perquisitions with no mandates, mass conducted on multitudes of individuals, whose only tie to the crime is the authorities’ suspicion that they belong to a class of subjects that could possibly have committed that crime”.

46. See *infra* contained in the text.

47. See, for example, Roberto Iraola, *DNA Dragnets—A Constitutional Catch*, 54 DRAKE L. REV. 15 (2005).

48. Edward J. Imwinkelried & D.H. Kaye, *DNA Typing: Emerging or Neglected Issues*, 76 WASH. L. REV. 413 (2001).

49. It must be highlighted that such a collection of sampling, thanks to the scientific progress and to the circumstance that the DNA is present in many human tissues, is usually carried out by means of a wood stick with a cotton-made end which is simply rubbed inside the mouth of a person, in order to absorb the saliva. Therefore, the circumstance that the technique applied to collect such sampling is not intrusive at all, seems to have weakened the arguments of who used to deem such a method as a form of *physical intrusion*, with prejudice to the individual. See, for example, M.A. Rothstein & S.

person to undergo sampling, on the basis that he refused to cooperate with the investigation.<sup>50</sup> In this regard however, it may be best to make a distinction. The collection of biologic material is only the initial phase of the analysis process. Once the material has been obtained, it will have to be processed in order to extract its DNA profile.

The DNA sample thus obtained will then be transformed into a DNA profile (commonly compared to some type of digital print) and this profile will be used for investigative purposes.<sup>51</sup> The process of comparing genetic information obtained from the crime scene to that of the samples collected pertains exclusively to the DNA profile, and is totally independent from the storage of the organic material the sample was derived from (blood, saliva, hair, etc.). On the other hand, the fact that organic material containing an individual's DNA is accessible could allow someone to obtain highly sensitive genetic information concerning said individual, for purposes that are extraneous to actual investigative needs. For example, analysis of DNA samples could reveal personal information concerning predisposition to more than four thousand different illnesses and hereditary conditions; the propensity towards a certain sexual orientation, predisposition to become addicted to some narcotic drugs or other substances (for example, the tendency to become an alcoholic) and, according to some, any criminal tendencies.<sup>52</sup>

Vice versa, since a DNA profile really only consists of a sequence of numbers, it can only be used for identification purposes and is not apt as a mean by which to discover any relevant information concerning the peculiarities of each

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Carnahan, *Legal and Policy Issues in Expanding the Scope of Law Enforcement DNA Data Banks*, 67 BROOK. L. REV. 127 (2001).

50. See Drobner, *supra* note 45, at 508; and Imwinkelried & Kaye *supra* note 48, at 423-24.

51. On this and other aspects pertaining to the manipulation of DNA, see R.A. Nakashima, *DNA Evidence in Criminal Trials: A Defense's Attorney Primer*, 74 NEB. L. REV. 444, 447-50 (1995).

52. D.H. Kaye & Michael E. Smith, *DNA Identification Databases: Legality, Legitimacy, and the Case for Population-Wide Coverage*, 2003 WIS. L. REV. 413.

individual.<sup>53</sup> For this reason, the DNA profile can be intended as being an investigative tool.<sup>54</sup>

In this context, all fifty states have adopted laws that authorize the storage of DNA profiles of anyone that has been convicted of a crime in the appropriate data archives. To integrate the activities that occurred at the state level, in 1994 the US Congress issued the *DNA Identification Act*,<sup>55</sup> which authorizes the Federal Bureau of Investigation (FBI) to create a federal reference system that centralizes all of the DNA-profiles contained in the national archives. This activity led to the creation of the National DNA Index System, a national database that allows local authorities and administrative agencies to contribute DNA profiles in their possession. The system thus created allows administrative and state authorities to use and share data originated from the collective databases, and is known as the *Combined DNA Index System* (CODIS).<sup>56</sup>

As briefly mentioned, in the US the cause of major concern, and the object of the current debate, is the legitimacy of storing the organic material (the DNA profile) of an individual after the investigative requirements of identifying the perpetrator and obtaining a conviction have been satisfied. It is notable that, while one side asserts that it is legal to preserve the DNA profile of a person who has been convicted of a crime, and the other side states that there are still doubts regarding the legitimacy of also preserving organic materials taken from those subjects, or vice versa, almost everyone agrees that the overall issue of storing the

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53. *Id.*

54. In this regard, the American doctrine agrees that due to the regulation of “specification” (such a juridical concept can be compared to the Italian “*specificazione*” as a peculiar way to acquire property rights on a thing), the proprietor of the DNA-profile should be the investigative authorities. Recently, Harlan, *supra* note 40. In particular, an Italian scholar admits that there is the possibility that the norms on specifications may be applied to the subject of the legal relationship between the individual, the body and the parts of the body. See Gambaro, *infra* note 106, at 45. Otherwise, it could be argued that the rules concerning intellectual property and copyrights might be applied to such an issue.

55. 42 U.S.C. 14, 312 (2000).

56. Daniel J. Solove, *Digital Dossiers and the Dissipation of Fourth Amendment Privacy*, 75 S. CAL. L. REV. 1083 (2002).

DNA samples of innocent people is a genuine “constitutional emergency.”<sup>57</sup>

The debate is also fueled by the notable discrepancies that exist between the laws of different states. At least twenty-nine states have adopted legislative measures that expressly authorize preserving the DNA samples in debate.<sup>58</sup> In contrast, only five states expressly prohibit the preservation of samples once the DNA profile comparison has been completed,<sup>59</sup> while at least eleven states have yet to adopt any measures on the subject.<sup>60</sup> As previously highlighted, part of American doctrine is of the opinion that the issue should be re-conducted to the *right of privacy* and to the constitutional status that said principle accords.

### *B. The Limitations of the Privacy Doctrine and the Affirmation of the Proprietary Paradigm*

In this regard, it should be noted that the most significant systemization of the American right of privacy is contained in the celebrated essay of Warren and Brandeis, followed by other doctrinal contributions of remarkable prestige, together with a series of jurisprudential precedents that acted upon those same lines.<sup>61</sup> As far as specific legislative measures, the Constitution

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57. *Id.* and Iraola, *supra* note 47.

58. Among these for example we can cite: Alabama, Connecticut, Idaho, Massachusetts, Oregon, South Carolina, and Washington State.

59. Alaska, California, Montana, New York, and Vermont.

60. For further details, see Jonathan Kimmelman, *Risking Ethical Insolvency: A Survey of Trends in Criminal DNA Databanking*, 28 J.L. MED. & ETHICS 209 (2000).

61. Warren & Brandeis, *supra* note 24. Warren was a well known lawyer from Boston, while Brandeis eventually became a Judge of the US Supreme Court. In synthesis, within their publication—defined as “perhaps the most famous and certainly the most influential article of doctrine ever written” [LANDMARKS OF LAW, HIGHLIGHTS OF LEGAL OPINION 284 (Henson ed. 1960)], the authors tried to demonstrate that the *Common Law*, within a collection of old decisions, thanks to the recourse to different *doctrines*, had in the end recognized the existence of a general sphere of privacy rights, or of a right to privacy worthy of protecting. Among the decisions that were inspired by said premise we can recall specifically a verdict of the Supreme Court of the State of Georgia, that distinguished itself because of its strongly convincing opinion on behalf of such a theory: *Pavesich v. New England Ins. Co.*, 122 Ga. 190, 50 S.E. 68 (1905). For an initial in depth elaboration of the rights of persons from the comparative point of view, see 2 KONRAD ZWEIGERT & HEIN KÖTZ,

does not acknowledge any type of privacy right in any of its articles, or in the Bill of Rights, the fulcrum of the fundamental rights granted to individuals.<sup>62</sup> Nonetheless, the route followed by the legal interpreters while striving to institute a constitutionally warranted privacy right involved their having to resort to the *substantive due process clause* of the Fifth Amendment of the Constitution, and the so called *theory of penumbra*.<sup>63</sup>

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INTRODUZIONE AL DIRITTO COMPARATO (INTRODUCTION TO COMPARATIVE LAW)  
396, 415 (E. Cigna trans., 1995).

62. The Bill of Rights was ratified in 1791 and it comprises the first ten Amendments of the American Constitution. Other Amendments were approved later: the last Amendment in particular (XXVII)—concerning retribution for the members of Congress—was approved in 1992. For further details on the history of the American Constitution, refer to WILLIAM BURNHAM, *INTRODUCTION TO THE LAW AND THE LEGAL SYSTEM OF THE UNITED STATES* ch. 7 (3rd ed, West Group 2002). In this regards, we remind you that originally the Bill of Rights was formulated as being applicable only to the Federal authorities. In the 1960', the Supreme Court began issuing a series of decisions, which ruled that the applicability of guarantees contained in the Fourteenth Amendment, issued in 1868, should be extended to include the activities of the individual States. *Id.*

63. According to the provisions of the Fifth Amendment a person shall not “be deprived of life, liberty, or property, without *due process* of law”. Common agreement on this subject is that the Amendment includes two distinct notions of *due process*: the first—named *procedural due process*—would consist of the guarantee directly derived from text of the Amendment, the second—called *substantive due process*—would postulate the existence of specific personal rights, comprised in the notion of “*liberty*.” This is when, among others in the shadow of the right to freedom law, the existence of an actual right to privacy was acknowledged, its existence was vigorously sustained in two *leading cases* on the topic of birth control and abortion. In *Griswold v. Connecticut*, 381 U.S. 479 (1969) the Federal Supreme Court ruled that a State law prohibiting the use of all means of birth control was unconstitutional, based in fact on the right to privacy of individuals, which—the *majority of opinion* argued—was to be intended to be in “the shadow” of the guarantees expressly recognized by the Bill of Rights. This right therefore gave married couples the freedom to use means of birth control. Subsequently, in *Roe v. Wade*, 410 U.S. 113 (1973)—a case that directly involved the issue of abortion, the same Court's *majority opinion*, instead of referring to the *Bill of Rights uti universus*, substantiated the ruling by anchoring the foundations of the right to privacy to the *substantive due process clause* of the Fifth Amendment. In synthesis, the Court deemed that said right was also inclusive of the right to abortion; at the same time however, it recognized the existence of two conflicting interests equally worth protecting: the matter of the mother's health and the fostering of potential human life. In view of this, the gestation period was divided into three trimesters, each of them characterized by the prevalence of one of the above mentioned interests. The

Although the genesis of the right to privacy in the American legal system may lie, as noted, in the Fifth Amendment, at a constitutional level the source of the protection afforded under the right to privacy, as well as its applicable limitations, nonetheless lies in the *search and seizure clause* of the Fourth Amendment.<sup>64</sup> In fact, recent jurisprudence strengthened the connection between the right to privacy and the above Amendment to the point that it is now regarded as being the *core value* of this last.<sup>65</sup>

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right to privacy was also invoked to protect some of the aspects of family and marital life. Hence a zoning regulation was deemed to be unconstitutional, on the basis that it violated the right to privacy of the family, because it specified that housing in a certain area was to be used exclusively by families composed of parents and children, which implied that families whose composition extended to include other relatives such as grandparents, could not inhabit it. *Moore v. City of East Cleveland, Ohio*, 431 U.S. 494 (1977). In contrast, it was ruled that the right to privacy does not extend to include acts of consensual sodomy performed by a homosexual couple within the privacy of their own home. *Bowers v. Hardwick*, 478 U.S. 186 (1986): at this junction, the subject to be examined by a Court was a law from the State of Georgia that prohibited the performance of those acts. That law was subsequently declared to be unconstitutional by the Supreme Court of that State, because it was deemed to be contrary to the dispositions of the State constitution. *Powell v. State*, 510 S.E. 2d 18 (Ga. 1999). Finally, in the case of *Cruzan v. Director, Missouri Dept. Of Health* 497 U.S. 261 (1990), it was argued that the right to privacy encompassed also a “right to die:” Nancy Cruzan was an irreversible coma patient. Her parents sought to remove of the tube that provided her with artificial nutrition, so that she may be allowed to die a natural death. The Supreme Court ruled that artificial nutrition is a medical treatment method, and as such can be discontinued to satisfy an person’s wish to die with dignity. In this case, however, the law of the State of Missouri—that imposed a very high probationary standard on the interruption of medical treatment—was not deemed to be unconstitutional in recognition of the fact that it ensued from the State's strong intent to preserve human life. In 1997 the question of “the right to die” was revisited, and this time said right morphed into the “right to assisted death.” *Washington v. Glucksberg*, 521 U.S. 702 (1997).

64. The Fourth Amendment of the US Constitution prescribes:

. . . the right of the people to be secure in their persons, house, papers, and effects, against unreasonable search and seizure, shall not be violated, and no Warrants shall be issued, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

65. For illustrative examples of these movements see Scott E. Sundby, “*Everyman’s Fourth Amendment: Privacy or Mutual Trust Between Government and Citizen?*,” 94 COLUM. L. REV. 1751, 1756 (1994).

The Fourth Amendment guarantees pertaining to the inviolability of a person, dwellings and personal property is not, however, absolute. Instead, as clearly enunciated in the written content of the clause,<sup>66</sup> it may be subjected to limitations, upon condition that these last are reasonable and within the scope of the formal requirements established therein. Therefore, for example, a house can only be searched after obtaining a warrant *ad hoc* from the appropriate authorities, etc.<sup>67</sup>

Besides reasons that meet the formal and substantive requirements to restrict the rights granted by the said Amendment, another factor that nullifies the inviolability of that right is the subject's consent. Obviously, consent must be freely given, and as such not granted under any form of coercion, or at least not given as a result of false statements made by public officials.<sup>68</sup>

Another element worth considering is the important question of what exactly is intended by the word *search*. In fact, whenever the actions undertaken do not constitute a "search" in the technical sense, the rights accorded by the Fourth Amendment cannot be enforced. Originally, the opinion was that matters of this kind

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66. *See supra* note 64.

67. Additionally, it was ruled that it is legal to conduct a search without a warrant, if extraordinary circumstances arise (for example, for an emergency situation of such nature that it was objectively impossible for the authorities to obtain a warrant in advance). *See Illinois v. Mc Arthur*, 531 U.S. 326 (2001). Another ruling exception that was peacefully accepted was the legitimate arrest of a citizen: in this junction, the public officials that perform the arrest have not only the right but the duty to conduct a search (for example, to verify that the subject is unarmed or to prevent him from destroying evidence, i.e. bags of drugs in the case of a drug dealer's arrest). *See Chimel v. California*, 395 U.S. 752 (1969). This right encompasses not only searching the arrested person, but also his/her house, car, etc.; *United States v. Robinson*, 414 U.S. 218 (1973); *Maryland v. Buie*, 494 U.S. 325 (1990).

68. In *Bumper v. North Carolina*, 391 U.S. 543 (1968) the officers in charge of the search told the homeowner—untruthfully—that they possessed a legal search warrant. The woman then gave them permission to come in. During the Court proceedings, when the defense lawyer objected to the lack of a warrant, and argued that the search was therefore illegal, the public prosecutor replied that the search was rendered legal by the explicit consent of the subject thereto. The US Supreme Court ruled that said consent was invalid because it was obtained under coercion, specifically "*by acquiescence to a claim of a lawful authority.*" In any case, it should be mentioned that public officials are not required to inform the subjects of their right to withhold consent. *See Schneckloth v. Bustamonte*, 412 U.S. 543 (1968).

could be settled only under the hypothesis of *physical intrusion into a constitutionally protected area*.<sup>69</sup> For example, in 1928 the US Supreme Court ruled that using a phone tap device to record a subject's incriminating phone conversations did not fall under the criteria of *search*; since a conversation *per se* can not be intended as being a tangible object, it could not be said that an actual form of physical *intrusion* onto a constitutionally protected area<sup>70</sup> had taken place.

The court abandoned this "tangible" criterion only in 1967, with the leading case *Katz v. United States*,<sup>71</sup> which also pertained to the issue of phone taps, and elaborated the criteria of *reasonable expectation of privacy*. Specifically, the ruling established that the act of placing an electronic device on an external wall of a public phone booth, for the purpose of intercepting telephone conversations, constituted an actual *search* and is subject to the mandates of the Fourth Amendment. The fact that it occurred in a public place was deemed to be irrelevant, based upon the fact that the provisions contained in the Fourth Amendment were formulated to protect the rights of individuals, and not of locations. What the provisions were meant to protect as "private" should have been respected whether the scene of the *intrusion* was considered public or not. Since Mr. Katz had a *reasonable expectation* that his phone conversations would remain private, the interception constituted an actual *search*, and, in order to perform said search, the investigators should have obtained an *ad hoc* warrant in advance.

As can be noted, the ruling marked the shift from an approach based on substance to a personalistic one. *A contrario*, meaning what individuals willingly disclose to the public, even while in their homes or in their offices, falls outside of the circle of protections granted by the Fourth Amendment.<sup>72</sup>

In spite of the revaluations caused by the *Katz* case, the court, in a subsequent case, pronounced a ruling based on the tangible *physical intrusion* criteria, reintroducing the *open fields doctrine*,

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69. *Boyd v. United States*, 116 U.S. 616 (1886).

70. *Olmstead v. United States*, 277 U.S. 438 (1928).

71. *Katz v. United States*, 389 U.S. 347 (1967).

72. *Id.*

which had been seemingly overruled.<sup>73</sup> The expression *open field* is intended to describe the stretch of terrain that is on the outside of the *curtilage* of a dwelling. Specifically, this includes the plot of land on top of which a dwelling was built, and it includes all the facilities it may contain (such as garages, verandas, access paths, lawns, flower beds, etc.).<sup>74</sup> The principle affirmed by the court was that the *open field* could not guarantee the privacy of those activities that the Fourth Amendment meant to protect from interference and surveillance conducted by public authorities.<sup>75</sup>

The *rational parameters* of said movement were for the most part founded on the consideration that, although in theory the legitimacy of those intrusions is questionable, in reality the associated entities generally tend to make allowances in these areas. One last hypothesis deserves to be considered: that of trash. According to the court, trash is not protected by the Fourth Amendment, because “plastic bags of refuse, left on or along public roads, can be easily accessed by animals, children, refuse collectors, the curious and anyone else.” Because of this, “the owners cannot claim to hold a subjective *expectation of privacy*, that society can accept as being objectively reasonable,”<sup>76</sup> with this recalling the arguments *a contrario* deducible by the *Katz*<sup>77</sup> case.

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73. *Oliver v. United States*, 466 U.S. 170 (1984). The so called “*open field doctrine*” was mentioned for the first time in *Hester v. United States*, 265 U.S. 57 (1924).

74. In the case of a country home, *curtilage* indicates the area of ground that surrounds a dwelling, but it does not pertain to the whole parcel of land. See MERRIAM WEBSTER’S: VOCABULARY OF ENGLISH (last ed.).

75. Therefore the actions of the police, which consisted of walking around the lot and discovering the existence of marijuana plants via a gap in the fence at the back of the property, did not constitute a search, and as such did not require a warrant, regardless of the fact that said plants were not visible from the road in front of the house. Along the same parameters, *United States v. Dunn*, 480 U.S. 294 (1987).

76. *California v. Greenwood*, 486 U.S. 35 (1988): in the case *de quo*, the police, who suspected the homeowner was selling narcotics, checked the garbage left just outside of the *curtilage* of a dwelling. The Court ruled this action did not constitute a search in the technical sense, and as such did not necessitate a warrant. The accent was posed particularly on the fact that the rubbish was left in a public area for the deliberate purpose of consigning it to a third party—in charge of the collection—who would have been able to go through the garbage himself, or allow someone else to do so i.e. the police.

77. *Katz v. United States*, 389 U.S. 347 (1967) and the corresponding text.

The court's decision constitutes a specific application of the *open fields doctrine*. The motive for the verdict, however, postulates the recall of a distinct juridical institution: property rights.<sup>78</sup> In synthesis, according to the court, abandoning goods outside of one's own sphere of jurisdiction (limited to the area that can be qualified as being *curtilage*) suggests that someone is willingly renouncing their rights thereto, and *a fortiori*, the right to exercise any form of control over these goods which, therefore, acquire the status of *res derelictae*.<sup>79</sup>

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78. On this subject, we must keep in mind the *caveat* mentioned by A. Gambaro in regards to the ambiguity of the term "property" and the risks that would be encountered while doing a comparative investigation whereas the term "property" was to be translated into the Italian term *proprietà*; this would lead to the suppression of precious juridical situations connected to said term both within the Common law itself and along the lines of the less prominent category of "*diritti reali*" (i.e. rights on a thing) of the Italian legal system. ALBINA CANDIAN, ANTONIO GAMBARO, & BARBARA POZZO, PROPERTY, PROPRIÉTÉ, EIGENTUM, 3 (1992). The same author also highlights the possible connotations of the juridical language, as pertaining to property, also as viewed from within the same legal system (from example, in American Law, the concept of "property" and the reference sources vary between the ones obtained from approaching the issue of rights protection from a Constitutional standpoint against the inhibiting actions of the public authorities or whether the subject is approached in order to discuss the issues concerning the transfer of titled property rights). In view of these considerations, the same author proposes to "refer to the central nucleus of the ownership issue, considering the different disciplines as being the blade-like solutions that originate from an individual key issue, or rather, establish which subject has the most potential to be useful, be enjoyed and is flexible enough to allow for the expansion or disposal of objects in our collection that can directly satisfy life's needs." As a result of this approach, the proprietary discipline would then be "assumed independently of the categories it derived from, meaning the group of regulations that dictate what the subjects that are authorized to act in regards to an item and, on the contrary, determine everything that the other subjects should do, not do or tolerate in regards to that same item." *Id.*, *Proprietà in diritto comparato (Property in Comparative Law)*, in XV DIGESTO DISC. PRIV. 504-506 (1997). For an analysis of the challenges inherent to juridical translation, as well as the various options available to those who wish to study a foreign legal system, refer also to the brilliant suggestions of Rodolfo Sacco, *Traduzione giuridica*, DIGESTO DISC. PRIV., Aggiornamento 722 (2000); and to those of OLIVIER MORÉTEAU, DROIT ANGLAIS DES AFFAIRES (Précis Dalloz 2000), whose analysis focused mainly on the language issues within business relationships. Accordingly, during the present analysis, references made to the property paradigm shall be viewed from the standpoint of the preceding observations.

79. In a previous verdict, the Court's ruling was based upon *bona vacantia*, deeming that the conduct of police officers, who looked through the trash of a

Although it may appear to have been initially neglected, the paradigm of ownership started to resurface with all of its might in the debate pertaining to the fundamental rights of the individual and their limits of applicability. What we wish to highlight is the fact that, although rights such as privacy and ownership are connected, they are addressed autonomously and separately, with different regulatory legislation. Having concluded the detailed examination of *privacy doctrine's* jurisprudential evolution, we can now address the constitutional implications that pertain to the collection and storage of DNA samples. Specifically, we will try to verify if applying the regulations of the privacy protection laws to the delicate matter of genetic information is the best and most efficient option by which to direct them, or if, as the doctrine already proffered, it may be preferable to grant each individual ownership rights over this information, rights that would be constitutionally guaranteed and protected with *ad hoc* measures.

We must premise the discussion of this subject with an important distinction. As previously stated, whenever a sample of DNA belonging to an individual that has been convicted of a crime is collected or stored, these activities appear to be constitutionally legitimate, since they are conducted in accordance with the formal and procedural guarantees prescribed by the Fourth Amendment (noting that the constitutional legitimacy of State regulations has never been questioned). As far as what pertains more specifically to the *dragnets* phenomena, the constitutional legitimacy of that practice is guaranteed by the subject's consent, who voluntarily decides to authorize collection of a sample of their DNA under conditions, of course, that do not involve any form of coercion or false statements on the investigative authorities' part.<sup>80</sup> In this regard, it seems appropriate to recall that in the context of the practice of *dragnets*, the consensual element tends to lose its efficacy due to the fact that if when confronted with the rightful refusal of the subject, the appropriate authorities can be petitioned to issue an order that effectively coerces that person into agreeing

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hotel room to verify if the suspect was indeed using narcotics, did not constitute a "search," but in fact, the trash was an example of *bona vacantia*.

80. On the topic *see supra* the opinions listed in *supra* note 34, and the corresponding text.

to the DNA sample<sup>81</sup> collection. In both instances—voluntary and coerced consent—the limitations imposed by the Fourth Amendment are inapplicable, and as a consequence, the privacy rights are nullified.<sup>82</sup> Consequently, the genetic material acquired by means of *dragnets* is no longer covered by the constitutional privacy right.<sup>83</sup> The above conclusion is vulnerable to critique when it fails to consider that the issue being examined, as previously indicated, involves two distinct events: the collection of genetic material, and, once the investigative needs are exhausted, its subsequent storage. There is no doubt that both voluntary and mandated consent, in the instance of biological material collection (and the processing needed to extract a DNA profile),<sup>84</sup> result in the invalidation of the subject's privacy rights. Conversely, it is highly debatable that the effects of the consent or injunction can also be considered an implicit authorization for the final—ulterior and distinct—purpose of storing the genetic material for an indefinite amount of time, and, for example, consent to its being potentially used in an investigation connected to a different crime. The consent to the subsequent storage of the sample could be documented, meaning it could be specifically addressed within the above named official mandates. In that case however, the validity of the consent may become an issue. It seems unlikely that the subjects consenting to the indefinite storage of their DNA sample can be considered as having done so while duly informed, since future scientific advances could render DNA samples able to fulfill purposes that were inconceivable at the time said consent was given. On the other hand, as far as the court injunction is concerned, the constitutional legitimacy of the provision could be

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81. See *supra* note 50, and the corresponding text.

82. According to the teachings of Warren & Brandeis, *supra* note 24, at 218, “the right to privacy is extinguished by the effects of divulging the information pertaining to the individual, or by the consent of this last.”

83. About this see the concerns mentioned by Iraola, *supra* note 47.

84. We must also consider the fact that, while a DNA profile is rendered by a sequence of numbers, only apt to serve as identification for investigative means, genetic information obtainable through biologic materials is highly sensitive by nature and can be used for a multitude of purposes. In this regard, see the n. 18-23 and their corresponding text and, in particular, Michael J. Malinowski & Radhika Rao, *Legal Limitations of Genetic Research and the Commercialization of Its Results*, 54 AM. J. COMP. LAW 45 (2006) (analyzing the economic and financial implications of the developments occurred within the biopharmaceutical and biotechnological field).

contested on the basis of the alleged public *reasonableness* thereof, as referenced in the Fourth Amendment.<sup>85</sup>

Aside from the above observations, we must keep in mind that these legal situations are totally independent and distinct from the initial collection and the analysis of genetic data. This necessitates conducting two separate assessments of the factors that nullify the constitutional provisions of the Fourth Amendment. Waiving the privacy rights concerning the collection of the DNA sample does not involve, *ipso iure*, the willingness to forego privacy rights concerning the subsequent storage thereof.<sup>86</sup>

This specific issue, for example, has been expressly addressed in The Netherlands, where there has been a debate concerning the legal status of the human biological material as a consequence of the fact that, due to recent developments in genetics, the preservation of DNA samples in specific data banks has become customary. In this regard, in spite of the fact that the issue seems to have been addressed from the privacy right perspective, the property and privacy paradigms appear to be strictly intertwined. In particular, the debate focused on the status of human biological material stored in those data banks is unclear and implies the risk of violating the donor's rights. Accordingly, the enactment of regulations has been strongly recommended to clarify the purpose of the cell bank, the time period for which the material may be kept, and the possible uses of the material.<sup>87</sup> In this regard, it has been suggested to strengthen the consent argument by imposing upon keepers of DNA samples the duty to require *ad hoc* and time by time informed consent from the owners of such material, not only for present applications but also for future ones. In addition, the individual to whom the DNA sample pertains to should be entitled to request full information about the use and the status of his/her DNA sample and even to exercise the right to have that sample destroyed.<sup>88</sup> Those last remarks show how the property paradigm plays an important role in spite of an approach which at

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85. Ref. Ken M. Gatter, *Genetic Information and the Importance of Context: Implications for the Social Meaning of Genetic Information and Individual Identity*, 47 S. LOUIS U. L.J. 423, 445-446 (2003).

86. On the topic see Harlan, *supra* note 40, at 192.

87. See in particular Joke I. De Witte & Jos V.M. Welie, *The status of genetic material and genetic information in The Netherlands*, 45 SOC. SCI. MED. 1 (1997).

88. *Id.* at 47.

first sight is oriented in favor of the privacy doctrine. In fact, it has been held by part of the doctrine that keepers of the DNA data banks should be deemed as being in the same position as that of the owner of a storage facility, who, after all, does not own what is stored. On the contrary, the individual to whom the DNA sample belongs would retain the ownership of that sample.<sup>89</sup>

In view of the observations made so far, we could deduce that, as long as great care is taken to respect the sensitivity of the subject matter, the right to privacy laws could be employed to adequately protect the genetic information of an individual. As premised, this is the direction taken by the currently prevailing doctrine,<sup>90</sup> and has seemingly been endorsed by the legislative bodies as well.<sup>91</sup>

This being said, other scholars consider this legislative approach to be totally inadequate due to the intrinsic limits of privacy protection laws, and in view of the unique traits of genetic information itself. Specifically, arguments proffered by the supporters of said orientation (which is certainly not a minority trend) are founded on the following observations:

(i) The obsolete nature of the *reasonable expectation of privacy* criteria. According to the prevailing judicial interpretation of this formula, in order to maintain said *expectation*, an individual should not sign checks (since they are legal instruments destined to be circulated), nor should that person conduct telephone conversations or walk around his neighborhood. Further, once home, this individual should take care to shutter all windows, to eliminate each and every fissure, and speak softly while conversing;<sup>92</sup>

(ii) The tendency to accord public opinion an important role in the judgment of the bearing of opposite interests, with the

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89. *Id.* at 46-48.

90. Compare with n. 1 and 2 and the corresponding text.

91. These anchor the protection of genetic information to the *privacy doctrine*, for example: the *Health Insurance Portability and Accountability Act (HIPAA)* of 1996 (Pub. L. no. 104-191, 110 Stat. 1936, 42 & 29 U.S.C.); and the *Standards for Privacy of Individual Identifiable Health Information*, issued by the U.S. *Department of Health and Human Services* in 2000 (65 Fed. Reg. 82, 461; 45 C.F.R., pts. 160 & 164).

92. Specifically, Sundby, *supra* note 65, at 1789-1790.

subsequent, progressive weakening of the inviolable nature of the right being examined.<sup>93</sup>

Specifically in regards to genetic information, the inadequacy of the prevailing privacy protection laws are fully revealed once the information is “unveiled.” For example, we may think about an instance where a doctor analyses a DNA sample to determine if the patient is predisposed to develop a certain ailment. In the American legal system, the doctor-patient relationship is among those classified as being *confidential relationships*, meaning a type of legal relationship whose connotations have a very strong fiduciary element, and is intrinsically *intuitu personae* by nature.<sup>94</sup> This dictates that the doctor, as recipient of the patient's trust, is bound to abide to a series of specific obligations in addition to those traditionally attributed to a standard contractual relationship. Chief among said obligations—at least for the purposes of this work—is to maintain the confidentiality of any information acquired.<sup>95</sup>

What is most dreaded by the *privacy doctrine* critics is the risk that DNA samples taken for medical reasons, and their pertaining genetic information, may be subsequently passed on to official authorities and then be used for investigative purposes. The protection offered by the prescription that prevents disclosure of that information is not, in fact, absolute. The acts of acquiring and using highly confidential information do not constitute, according to a US Supreme Court ruling, a violation of the constitutional rights granted to an individual. This was observed in a 1976 ruling that stated:

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93. *Id.*

94. A *confidential relationship* involves parties in different contractual positions: from within said special relationship. The individual that assumes a so called *dependent* role must be identified; this would be the person who legally confides in the counterpart, who is defined in turn as being the dominant party, and consequently trusts in the judgment of this last, believing that this individual will act in the best interest of the first party. J.D. CALAMARI & J.M. PERILLO, *CONTRACTS* 353 § 9-10 (Thomson-West ed., 5th ed. 2003); W. PAGE KEETON ET AL., *PROSSER AND KEATON ON THE LAW OF TORTS* 738 § 106 (5th ed, 1984).

95. For a specific application of the discipline being examined in regards to genetic information, see the latest work by Susan M. Denbo, *What Your Genes Know Affects Them: Should Patient Confidentiality Prevent Disclosure of Genetic Test Results to a Patient's Biological Relatives?*, 43 AM. BUS. L.J. 561 (2006).

This Court has held repeatedly that the Fourth Amendment does not prohibit the obtaining of information revealed to a third party and conveyed by him to Government authorities, even if the information is revealed on the assumption that it will be used only for a limited purpose and the confidence placed in the third party will not be betrayed<sup>96</sup>

In this regard, it should be noted that the appointed courts applied this principle specifically to the collection of biologic material samples, deeming that the actions of health institutions, who forwarded samples of genetic material—collected for medical reasons, with the legal consent of the subject—to investigative authorities, did not constitute a violation of the constitutionally protected *expectation of privacy*.<sup>97</sup>

Lastly, there is another argument that exposes the inadequacy of using privacy rights legislation as an instrument by which to protect genetic information. As briefly suggested previously,<sup>98</sup> DNA resides in many types of human tissue, easily acquired even in public places (let's consider the examples of hair or saliva left on a cup at a coffee shop). The “public” nature of DNA effectively weakens the expectation of an individual who believes he/she is the only one that has access to, or can determine the use of, said information. Therefore, the peculiar nature of DNA effectively lowers the level of what can be perceived as a *reasonable expectation of privacy*. The complexities pertaining to the issue at hand become truly evident when applied to the case of “abandoned DNA,” the principal topic of discussion in the section that follows.

Due to the asserted inadequacy of the regulating genetic information by means of the *privacy doctrine*, a new direction, previously outlined, has appeared on the horizon of American

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96. *United States v. Miller*, 425 U.S. 435 (1976).

97. For example, *People v. Perlos*, 462 N.W. 2d 310, 324 (Mich. 1990). These trends seem to infringe upon the validity of the theory sustained by the doctrine, according to which, in order to guarantee the efficacious protection of the individual genetic privacy, we must emphasize the confidential nature of that information and the importance of the element of trust in the relationship between the owner of the information and the recipient thereof, instead of resorting to a property right based paradigm. Suter, *supra* note 35, fully agrees with this opinion.

98. *See supra* note 42.

legislation. This favors endowing an individual with actual property rights over his genetic information. This option, it is said, would be more effective in protecting the individual from illicit intrusions upon his sphere of intimate genetic information and, on the other hand, would also serve to duly recognize the peculiar nature of this information, and the values that pertain thereto (i.e., the identity of individuals, protection of the dignity of individuals, etc.)<sup>99</sup> The option in favor of the proprietary paradigm would therefore be better because it would:

(i) Guarantee an *ad hoc* process for all of the possible juridical scenarios that may arise in regards to this subject. Different from the right to privacy, which seems to have been modeled along rigid criteria and are reconducible to the double binomials of “confidentiality of information-privacy” and “disclosure of information-decrease of privacy,” the paradigm of property rights—especially as denoted by Hohfeld's definition on the merit of which is it has been greeted—seems to hold greater flexibility and malleability.<sup>100</sup> The right in question is composed of a number of authorities and powers, which can be restricted or limited without abrogating the right itself. A specific application of such a theory is, in fact, the so called “resilience of property rights,” which imports that the scope of a right can be restricted,

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99. See the observations made in Section 3, which follows.

100. Wesley Newcomb Hohfeld was the author of two influential articles published in the *Yale Law Journal*, in which he identified and divided the fundamental concepts used to describe legal relationships among parties, taking care to also express the pertaining concepts in precise and rigorous terms (Wesley N. Hohfeld, *Some Fundamental Legal Conceptions as Applied in Legal Reasoning (I)*, 23 *YALE L.J.* 16 (1913); and *Id.*, *Fundamental Legal Conceptions as Applied in Legal Reasoning (II)*, 26 *YALE L.J.* 710 (1916)). The American Law Institute adopted the orientation of Hohfeld as paradigm upon which to structure the establishment of the Restatement of Property. The fulcrum of that structure is truly the adoption of a concept of property as understood in comparative terms regarding relationships, among which the notions of “right,” “privilege,” “power” and “indemnification” are weighed against just as many opposite concepts. The eventual limitations imposed upon one or more of these relationships would not invalidate the object right. Recently within the doctrine it was stated that “it is truly the metaphor of property as a range of rights constitutes a more appropriate description of the way by which the majority of these new acknowledged forms of property operate.” See Recent Cases, *infra* note 134. For further elaborations on this point, see Barrad, *supra* note 40, at 1054; and Patty Gerstenblith, *Identity and Cultural Property: The Protection of Cultural Property in the United States*, 75 *B.U. L. REV.* 559 (1995).

then extended back to its original form without impediments (as well as it happens in the Italian legal system about the so called *elasticità del dominio* principle, according to which the right of property significantly restricted by the concurrence on the same *res* of another right, as for example the right of usufruct, can be nevertheless expanded again when the latter has expired);<sup>101</sup>

(ii) Give the person who owns the rights instruments of authority more efficient than those offered by privacy protection laws. In this case for example, it would allow the titled owner of the biological material, and genetic information, the right to regain possession of the sample after the investigative needs have been met. Conversely, the protection offered by the right to privacy legislation only extends to prescribing compensatory damages for violations, and as such is inadequate to effectively protect the individual after that right has been violated;<sup>102</sup>

(iii) Offer constitutional guarantees for this right, and specifically those granted by the Fifth Amendment. As previously stated, the subject's consent, the actions of the pertaining authorities, or the inability to adjust the threshold of a *reasonable expectation of privacy*, cause the diminishment—if not the obliteration—of the individual right to privacy. As a result, the Fourth amendment provisions would not apply. Vice versa, granting property rights over the “assets” in question would ensure the ability to enforce the provisions contained in the Fifth Amendment. Said Amendment provides that citizens cannot be deprived of their property rights without *due process of law*, and it also mandates that property cannot be seized for public use without duly indemnifying the owner. For DNA *dragnets*, the principles of *due process of law* and public use could be applied, while the requisite of due indemnification would not be satisfied, as it would be constitutionally illegal for the authorities to store DNA.<sup>103</sup>

The question, as previously outlined, is in any case controversial, and there is no lack of arguments supporting the opposite theory.<sup>104</sup> These last can be summarized by a single

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101. *Id.*

102. Harlan, *supra* note 40, at 215.

103. *Id.*

104. In this regard, see notes 34-35 and the corresponding text.

theme: the fear of commercializing the human body,<sup>105</sup> which is founded on the notions of alienability and the freedom to dispose of goods, intrinsic to property laws.<sup>106</sup> This worry may be calmed by the jurisprudential precedent established by the ruling in *Moore v. Regents of the University of California*<sup>107</sup> case. The Supreme Court of California rejected *inter alia* the plaintiff's suit. The claimant was a patient whose cells had been processed in order to obtain "cell line" that could be patented and become object of numerous lucrative commercial agreements. The plaintiff sought restitution of the cells, or at least recognition of his ownership and therefore his entitlement to reap the financial benefits derived from the commercialization of said "asset." The court, specifically, based its decision on the lack of jurisprudential precedents to legitimize that an individual holds a *property interest* right over parts or materials that have been detached from his body.<sup>108</sup> In the

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105. On the latest, for example, see Radhika Rao, *A Veil of Genetic Ignorance? Protecting Genetic Privacy to Ensure Equality*, 51 VILL. L. REV. 827 (2006), that presents a stimulating proposal: to wrap the "veil of genetic ignorance" around every individual, to insure that people are equally treated, and by this prevent any possible form of discrimination.

106. Within the Italian doctrine, the theme of adequacy of the proprietary paradigm, in regards to the body and its parts, has been specifically addressed by Antonio Gambaro, who offered a critical assessment of the traditional arguments sustaining the intangibility of the human body. Antonio Gambaro, *Tessuti biologici e parti del corpo*, in LA PROPRIETÀ, TRATTATO DI DIRITTO PRIVATO 39 (Giovanni Iudica & Paolo Zatti dir., 1990).

107. 249 Cal. Reporter. 494 (CA. COA 1988); *aff'd in part, rev. in part*, 793 P.2d 479 (Cal. 1990); *cert. denied*, 111 S. Ct. 1388 (1991). The Italian translation of the California Court of Appeals sentence is available in *Foro it.*, 1989, IV, 417, with notes by M. Paganelli, *Alla volta di Frankenstein: biotecnologie e proprietà (di parti) del corpo umano*, as well as the RIVISTA CRITICA DEL DIRITTO PRIVATO 443 (1989), with notes by B. Edelman, *Discussendo il caso Moore*, *ivi*, 469.

108. Truthfully, there was a precedent: the case *Venner v. State*, 354 A.2d 483 (Md. Ct. Spec. App. 1976), judged in Maryland, in which the actual question of whether a subject can retain *property rights* over biological material detached from the body was addressed. It was concluded that an instance wherein an individual claims ownership and authority rights over property such as bodily secretions, nails, hair, blood, excrements, organs or other parts of the body was not unheard of. The California Court of Appeals in fact referenced that same case to support its opinion which states that the relationship between and individual and his bodily parts should be included in the category of *property rights* (although in the Moore case said right was not deemed sustainable). The *Venner* case was used as a *distinguishing* by the Supreme

opinion of the court, this right had been precluded by a number of factors that sustained the opposite theory.<sup>109</sup> To this effect, it should be noted that American jurisprudence cannot be said to be unified in its support of this decision. The same majority opinion has been countered by vigorous dissenting opinions in favor of acknowledging *property interest* rights for materials detached from someone's body.<sup>110</sup>

In view of the observations made so far, in synthesis, it becomes noticeable that the primary question posed by the genetic information debate concerns the new era of genetic analysis and the morphed concept of identity. How should we interpret the relationships that exist between ourselves, our bodies, and our identity, now that just about every “particle” of our body can fully reveal our genetic information? The true magnitude of this question was revealed by “abandoned DNA.”

### C. *The Controversial Case of “Abandoned DNA”*

First of all, we must define abandoned DNA. This type of DNA is defined as being any human tissue sample from which genetic information can be extracted; material that has become separated from a body for reasons other than the conscious consent

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Court of California when it was called to render a verdict in the final instance of the Moore proceedings. Specifically the Court ruled that, since the *Venner* case involved a penal procedural issue and not a civil controversy aimed to establish “which party was entitled to reap a financial benefit derived from the ownership of an asset,” as in the proceeding *de quo*, that same would not have been applicable to the situation at hand (793 P.2d 489, note 28).

109. The California Supreme Court decision seems to have been drawn on concerns on political and social nature rather than actual juridical technicalities: in fact, one of the most important reasons for the denial of the plaintiff's claim of *property right* over materials detached from his body, was the concern that if the right was acknowledged (and the compensation granted) it could potentially inhibit scientific research and experimental activities, with great consequences for the community. *Moore v. Regents of the University of California*, 793 P.2d 489.

110. *Id.* Those who support applying the property right paradigm to genetic information do not view said instance as an insurmountable obstacle for their solution and propose that the *distinguishing* criteria should also be applied to the case at hand. From the latest by Harlan, *supra* note 40, at 202-207.

of the subject, or subsequent to an official authority's injunction order.<sup>111</sup>

As previously noted,<sup>112</sup> since DNA resides in many types of human tissue, the fact that a person may leave traces of genetically relevant material in his/her path is an ordinary event. Routine examples of this phenomenon are the traces of saliva left on coffee cups, cigarette filters, drops of blood from an accidental cut, hair, and even nail trimmings. In this regard, we must remember that even a very small part of human tissue can be enough for testing purposes, since this type of analysis does not require significant amounts of material. On the other hand, as previously noted,<sup>113</sup> thanks to scientific advances, the ability to collect and examine genetically relevant material from the scene of a crime has proven to be an extremely useful and effective investigative tool.

Notwithstanding the undisputable usefulness of these activities, the major cause of concern in the American environment (and others) is the now widespread police practice of collecting and analyzing samples of abandoned DNA, which are used not only to investigate a current case, but also may be used in future or potential investigations.<sup>114</sup>

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111. Imwinkelried & Kaye, *supra* note 48.

112. See *supra* note 42, and the corresponding text.

113. In this regard, see the contents of Section 1.

114. The collection of abandoned DNA is a very useful method of investigation since the samples of human tissue are readily accessible and, since they can be taken without the subject's knowledge, this same cannot raise any question or objection in regards to it. In this regard, the American culture denotes the existence of multiple collection techniques. The most frequently used is the one by which the investigators limit themselves to taking a DNA sample from the traces of biologic material left by the individual (since it can be found, for examples, on items used daily). In other instances, this is accomplished by more ingenious methods. Seattle Police, for example, suspected an individual of killing a young lady, but did not have enough evidence to request a warrant. In order to obtain a sample from him, and compare it with one taken from the crime scene, they resorted to a ploy: they mailed a letter written on a non-existing attorney's office letterhead that encouraged individuals to join in a *class action* lawsuit against municipal authorities for the purpose of obtaining funds allegedly overpaid to them; in order to join, the individual had to fill out a form, put it in a pre-addressed enclosed envelope and mail it back to the sender. Thanks to the saliva left the envelope flap, the police got the DNA sample they needed, and after the two samples were compared, the suspect was convicted of second degree murder.

This topic currently poses serious constitutional problems, especially since the Federal and State criminal justice regulations are silent on this point. If, as already ascertained, the acquisition and storage of an individual's DNA samples—within the mentioned limits—is to be disciplined by a set of rules of different rankings that prescribe specific attributes of form and substance, then abandoned DNA does not seem to belong to any of the currently established constitutional and legislative categories.<sup>115</sup>

In this respect, it was noted that this phenomenon was partially due to a terminological error. Juridical implications and terminological concerns are intrinsically connected since the applicable legislative regime varies with the denomination attributed to the matter. As a result, it was argued that abandoned DNA could be freely collected and stored because it did not fall under the provisions of the Fourth Amendment. Its collection, in fact, did not constitute a *search* in the technical sense. That theory is supported by two ruling cases.

In first place, the asset could not be covered by the constitutional protections of the Fourth Amendment because the contrary criteria applied by the US Supreme Court in *Katz*,<sup>116</sup> could be applied. According to this ruling, anything that individuals willingly choose to make public, even from within their homes or offices, falls outside the scope of protection.<sup>117</sup>

The applicability of this form of protection would also be invalidated by the status legally awarded to DNA after it is discarded among refuse. In this case the same principle expressed by the court in the *California v. Greenwood*<sup>118</sup> ruling would become applicable. According to the ruling, there can be no *reasonable expectation of privacy* in regards to goods that can be readily accessed by anyone due to the fact that they have been placed in a public place, with the intent to dispose of them. As can be recalled, a direct consequence of the court's reasoning was that

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On this point, Elizabeth E. Joh, *Reclaiming "Abandoned" DNA: The Fourth Amendment and Genetic Privacy*, 100 NW. U.L. REV. 857 (2006).

115. Curley & Caperna, *supra* note 35, according to which this type of material raises new questions in regards to the protection of privacy rights.

116. *Katz v. United States*, 389 U.S. 347 (1967).

117. *See supra* note 72, and the corresponding text.

118. *See supra*, note 76, and the corresponding text.

trash could be classified as being *res derelicta*, and as such be claimed by third parties.

In both cases, therefore, abandoned DNA would fail to pass the *reasonable expectation of privacy* test. Both theories have been criticized. In first place, it was emphasized that renouncement of the Fourth Amendment rights, according to the ruling rendered by the court in *Katz*, presupposed that the goods were “consciously” exposed to the public. In the instance of abandoned DNA, this phenomenon would be totally involuntary and unavoidable. Further, as far as the general circumstances are concerned, it could be said that this is also an “unconscious” phenomenon. Although it is common knowledge that hair is shed or that saliva traces can be left on flatware and glasses, the same cannot be said of the awareness that DNA samples can be extracted from it nor, *a fortiori*, does it seem reasonable to presume that the massive amounts of information that can be extracted from this material, or that the extent of its possible uses,<sup>119</sup> are matters of common knowledge.

Closely tied to the first objection is the argument that supports the second. Without the element of conscious choice, the equivalency between abandoned DNA and trash is deprived of any logical or juridical basis. In fact, while in the case of trash the *animus derelinquendi* can be implicitly deduced by the act of abandoning it in a place where it is likely to be collected by third parties (and therefore this would result in a loss of rights thereto), the same cannot be said in regards to biologic material that an individual inadvertently drops along his path.<sup>120</sup>

The question of the intent required for a good to be deemed *res derelicta* has been analyzed and elaborated upon by Italian doctrine as well. Specifically, besides some differences of opinion concerning elements of secondary importance, it was more or less unanimously agreed that, in order for an item to be considered abandoned—with the consequent loss of inherent rights—it must be

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119. Imwinkelried & Kaye, *supra* note 48, at 438.

120. In *United States v. Thomas*, 864 F.2d 843, 846 (D.C. Cir. 1989), the Court ruled that “in order to determine if an instance of “abandonment” is relevant in accordance with the IV Amendment, the Court must focus on the intent of the individual who is said to have abandoned said object.”

accompanied by the conscious decision to do so on an individual's part.<sup>121</sup>

It also seems that another consideration may be added. Saying that a person may appropriate someone else's biological material (for example a Marilyn Monroe fan that picked up a piece of the diva's hair from the path she trod and kept it as a relic) is one thing, but it is vastly different from a situation that involves actually analyzing said material in order to extract from it the juridically distinct "asset" represented by the genetic inheritance contained therein.<sup>122</sup> A great part of the debate unleashed by this event, as we were saying, focused on the exact qualification and denomination to be attributed to "abandoned DNA," in view of the inappropriate and ambiguous nature of that expression.

In this regard, several suggestions were made. One proposal suggests considering this type of DNA as being the equivalent to fingerprints, and applying to the first the same legislative rules that regulate the second.<sup>123</sup> This option does not however appear to be

121. Worthy of reference: 1 G. Branca, ENC. DEL DIR. 3 (1958), v. *Abbandono (derelictio)* ("Abandonment always has two aspects: the material and the spiritual", this last specifically defines the *animus derelinquendi*); G. Deiana, v. *Abbandono (Private Law)*, *id.* at 5 ("abandonment is commonly perceived as being the action of an owner who discards something with the intent to renounce his dominion over it "); 5 S. Romano, NOVISS. DIG. IT. 546 (1960), v. *Derelictio*,

This material detachment from something, this total discontinuation of any relationships with it, will then constitute *derelictio* as it represented the actuation of the will to lose dominion over it. Chronologically, therefore, this will is a *prius*, but it does not become effective until after it translates into an actual act of abandonment.

Lastly, *a contrario*, 29 A. Trabucchi, ENC. DEL DIR. 618-621 (1979), v. *Occupazione (Private Law)* ("the two elements that render the activity an actual establishment of ownership are the initial possession and the *animus occupandi*;" said affirmation correlates with the preceding declaration of the Amendment, as far as the type of goods that would qualify as relevant matter "another category expressly referenced by the code as meeting the applicability requirements is the *res derelictae*. And, since it repeats the traditional doctrine in the matter, these things do not qualify unless the action of *derelictio* was accompanied by the intention of abandoning the rights on the subject matter (*animus derelinquendi*);" finally "the existence of *animus derelinquendi* must be presumed in order to qualify the object as having been subjected to this action" and "the *animus derelinquendi* must be intended as being a specific orientation towards the renouncement of the rights held over the object").

122. In this regard, see the considerations expressed in Section 1.

123. Imwinkelried & Kaye, *supra* note 48.

satisfactory since, although it is true that a fingerprint can be traced back to an individual, it is also true that this does not contain a set of genetic information that pertains directly to the core traits of a human being's identity. After the investigative purposes are exhausted, the potential usefulness of a fingerprint tends to decrease.<sup>124</sup>

Another proposal suggests considering DNA equivalent to the body and its parts, giving the owner property rights over these "assets."<sup>125</sup> The topic, as is noted in the previous paragraph, is highly debatable because it poses challenges of philosophical, moral, and religious relevance. Also, this option seems to be hindered by the regulations concerning the matter of organ transplants, since generally the individual is acknowledged as having a *quasi-property right* on these body parts.<sup>126</sup>

The extremely controversial nature of the issue has left some people with the belief that the relationship between the individual, his body and body parts has been dropped in a sort of "judicial limbo."<sup>127</sup> In consideration of this, part of the doctrine brought forth the proposal to qualify the DNA of an individual as a separate juridical item, altogether distinguished from any other item and as such subject to a juridical *ad hoc* discipline, which would allow courts to take into consideration the totally peculiar nature of it (as proposed by the *genetic exceptionalism doctrine*).<sup>128</sup> This option also makes the distinction between human tissue and the genetic information therein contained, and properly accounts for the complex implications that accompany that type of information.<sup>129</sup> However, it must be warned that nowadays the *genetic exceptionalism* approach seems to have lost some ground within the American debate, in the light of the strong limits to the development of scientific research which would result from it.

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124. After reaching its future potential, the fingerprint will be able to reveal if a subject has a criminal record or not.

125. See for example Michael J. Lin, *Conferring a Federal Property Right in Genetic Material: Stepping into the Future with the Genetic Privacy Act*, 22 AM. J. L. AND MED. 109 (1996).

126. Radhika Rao, *Property, Privacy, and the Human Body*, 80 B.U. L. REV. 359 (2000).

127. *Id.* at 375.

128. For further considerations on the matter, see McLochlin, *supra* note 34.

129. Harlan, *supra* note 40, at 194.

The attempt to correctly qualify abandoned DNA also took place from a terminological standpoint. The question was confronted directly in Australia, more specifically by the State of Victoria. The residents of which demanded legislation to prevent investigative authorities from conducting *covert DNA sampling*, due to the authorities' tendency to avail themselves of objects used on a daily basis in order to obtain from them DNA samples for their investigative purposes. In this case, expressions such as “abandoned DNA” were deliberately avoided in consideration of the juridical implications associated with the term “abandonment.”<sup>130</sup>

In view of the above determination, in the US, it was then proposed to name abandoned DNA *covert involuntary DNA sampling*, to emphasize the absence of any voluntary characteristic in the subject matter.<sup>131</sup>

#### *D. The Issue of the “Biological Group”*

The doctrine that postulates to use legislative measures based on the recognition of *property rights* in the matter of genetic information, denounces the inadequacy of the *privacy doctrine*. This is also due to a peculiar characteristic of that type of data: the set of genetic information is common to multiple individuals, by virtue of a close blood tie.

The scope of genetic information then involves not only just a single individual, but a plurality of subjects, whom, due to sharing that tie, form a “biological group.” For example, members of that group would include ancestors and descendents but not spouses, due to the absence of a common blood tie with these last. The biological group, therefore, does not exactly align with the family nucleus.<sup>132</sup>

The magnitude of the issue manifested itself within the American juridical system thanks to some comparative<sup>133</sup> research that mentioned a decision rendered by the Supreme Court of

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130. The information is reported in Joh, *supra* note 114, at 882.

131. *Id.*

132. On the “biological group,” see Denbo, *supra* note 95, at 564.

133. Recently, Hrobjartur Jonatansson, *Iceland's Health Sector Database: A significant Head Start in the Search for the Biological Grail or an Irreversible Error?*, 26 AM. J. LAW AND MED. 31 (2000).

Iceland.<sup>134</sup> In 1998, the Parliament of Iceland enacted a law authorizing the creation of a centralized, non-identity specific database. This would be used for collecting and archiving medical data, in order to promote new (or perfect currently existing) methods of diagnosis, prevention and treatment of multiple illnesses.<sup>135</sup> More specifically, in order to facilitate early prevention and diagnosis, it was deemed proper to include in the database encoded versions of the medical history of all of the citizens of Iceland (both living and deceased), that had not expressly exercised their right to prevent their personal records from being included in said database (called the *opt-out clause*). It was also decided that the data could be connected to that of other databases that contained genealogic and genetic information.<sup>136</sup>

Two years after the law was instituted, the guardian of a fifteen year old girl whose father had passed away, in accordance with the lawful right to prevent the collection and archiving of personal information, asked the authorities to omit the records of the deceased father from the database. The request was denied on the basis that the law did not expressly allow for an individual to use the *opt-out clause* in regards to the genetic information of a deceased parent. The event became a legal controversy. The plaintiff maintained that she held a juridically relevant interest over the subject matter. If her parent's genetic information was not omitted from the database, her own current and future state of health could be gleaned from that data; this information could potentially cause future discrimination against her. The verdict rejected the argument on the basis of the encoded and non-identity specific nature of the data.

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134. *Guomundsdottir v. Iceland*, No. 151/2003, November 27<sup>th</sup>, 2003 (Ice.), reported in *Recent Cases, Icelandic Supreme Court Holds That Inclusion of an Individual's Genetic Information in a National Database Infringes on the Privacy Interests of His Child*, 118 HARV. L. REV. 810 (2004).

135. *Act on a Health Sector Database*, No. 139/1998 (Ice), the English text version available at <http://eng.heilbrigdisraduneyti.is/laws-and-regulations/nr/659> (last visited November 6, 2008).

136. *Id.* at sect. IV, art. 10. But also look at the critical observations expressed by on the matter by Jonatansson, *supra* note 133, at 31, which underline how, as a result of said practice, Iceland became the only Country in the world that has authorized a private company to collect and store the genetic legacy of an entire population, with *inter alia* of the right to use said genetic patrimony as object of commercialization.

The Supreme Court of Iceland however revised the decision, affirming that: (i) the plaintiff did have a juridically relevant interest in the matter; (ii) said request seemed to be in accordance with the dispositions of the Icelandic Constitution; (iii) the original court had failed to recognize that the natural traits of the subject matter made the personal privacy right applicable to more than a single individual; and (iv) the encoded nature of the data was not sufficient to guarantee adequate protection of the rights of the individuals involved. The most personal and intimate data of an individual could in fact be deduced from the contents of the associated genealogic and genetic databases.<sup>137</sup>

The focal point of the verdict is that, for the first time, an individual was acknowledged legal rights over the genetic information of another person. Along those lines, part of the American<sup>138</sup> doctrine asserts that the current configuration of American privacy law provisions, which are structured over a strictly individualistic concept of private information, and the fact that the nature of genetic information is common to a group and not merely to a single individual, property laws may better serve as a paradigm to ensure that a greater level of protection is provided for information that belongs to all of the individuals involved.<sup>139</sup>

Once more, the malleability and flexibility of the concept of property would allow confronting the issues derived from the state of co-division of said sensitive data among individuals. Particularly it is sustained that, as far as the characteristics of the subject matter are concerned, the regulations pertaining to the theme of joint ownership (*joint tenancy, co-ownership*) could be applied. These norms in fact would allow disciplining potential conflicts among individuals that hold the same right, as well as

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137. Recent Cases, *supra* note 134, at 811-812.

138. From the latest, Paul M. Schwartz, *Property, Privacy, and Personal Data*, 117 HARV. L. REV. 2055 (2004).

139. *Contra. see* Denbo, *supra* note 95, who favors applying the *confidential relationship* criteria, by which doctors should reveal confidential information to the family members of the patient only with the express consent of this last, while they should abstain from revealing the information if it ascertains the presence of a terminal illness: this would be justified by the fact that the right to privacy of each biological group member also implies the right of remaining uninformed. The same, however, admits that it would be difficult to actuate this distinction without first establishing a criterion by which to define in which cases information could be disclosed, or not.

exert control over cases pertaining to the ownership of genetically shared material.<sup>140</sup>

With reference to such an issue, for example, the Italian Civil Code provides criterion in order to manage the relationships among co-owners with regard to the owned good; it requires different types of majorities according to the effect which the decision that has to be taken will have on the good. In particular, it might require a simple majority, a qualified one, or even a unanimous decision depending upon how such a decision will affect the good and the relevant ownership right. For example, the unanimity of vote is required for the destruction of the good.<sup>141</sup> But, if these rules on one side could provide for such relationships, on the other side they do not appear to be a so efficient tool because of the objective difficulty to apply them in a real situation involving DNA samples stored in a databank. In addition, the application of the property paradigm to the phenomenon of the biological group appears to be problematic with regard to a further issue: the potential conflicts among members of the same group. The risk that a member of such group might not be interested in being aware of his/her genetic characteristics and genetic future because such an awareness would affect in a negative way his/her life without procuring any benefit at all, especially with reference to the “mono-factorial” diseases (i.e. the diseases due to one single element which can be deemed a sort of “defect” in the genetic heritage of an individual, and whose development cannot be avoided or slowed down by adopting, for example, a healthier style of life). On the contrary, another member of the same group might be very interested in being aware about the same genetic data, for example for procreation purposes. About such not-so uncommon scenarios, a solution could be that of recognizing the equal value of both interests and therefore to grant the power and the task to ensure the respect of both interests to a competent authority (for example, a National Health System Authority) which should ensure and enforce the right of the first person not to be informed but, at the same time, the right of the latter to receive full information. In addition, that competent authority should adopt all the measures in order to avoid the dissemination of such data. As it appears at first sight, such a proposal would be very difficult to

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140. Recent Cases, *supra* note 134, at 816-817.

141. Italian Civil Code, arts. 1105 & 1108.

manage and, on the other side, it would evoke the risk of a sort of Leviathan, a super-entity entitled to control and manage all data pertaining to the whole society, and to individuals on their own.<sup>142</sup>

#### CONCLUSION

As can be noted from the previously discussed characteristics of the subject matter, the protection of genetic information is yet to be defined. In this regard, the major source of concern appears to be the need to reassess the traditionally assigned juridical categories to ensure that the genetic patrimony of individuals is protected by thorough and effective legislative measures. The initial tendency appears to point towards regulating genetic information with measures that may be adjusted according to the specifics of the context, with the option to choose, as needed, which of the two *doctrines* may better serve to effectively protect this type of information. But, again, the above mentioned appears to be only one of the possible options to properly address such an issue which, for the strict interdependency of moral and economic reasons, in our opinion deserves to be analyzed and discussed in-depth, in order to try to find a balance between distinct, and sometimes conflicting, interests.

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142. For further remarks about such an issue, see Carlo Augusto Viano, *La transizione genetica*, RIVISTA BIMESTRALE DI CULTURA E POLITICA 1014-1022 (2000).