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« ETHICAL REFLECTION ON PLAGIARISM IN SCIENTIFIC RESEARCH »

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"[...] en droit romain, au sens propre du mot, le plagiaire, c'était l'homme oblique qui détournait les enfants d'autrui, qui débauchait et volait les esclaves. Au figuré, c'était un larron de pensées. Nos pères tenaient, en ce second sens, le plagiat pour abominable. Aussi y regardaient-ils à deux fois avant de l'imputer à un homme de bien."

*Anatole France, Apologie pour le plagiat,
Le Temps, 4 and 11 January 1891, reprint by Les Editions du Sonneur, 2013, p. 14*



SUMMARY

This COMETS Opinion offers an analysis of the different forms that plagiarism can take in the higher education and research sectors. Plagiarism is multi-faceted, its numerous variants all being condemned to a greater or lesser degree according to the field. However, each constitutes a breach of ethics; some are obviously more serious than others, but all are fraudulent. In the case of publications, plagiarism may range from a more or less crude copy without suitable credits to an identical or paraphrased version. There are limits to the exposure of plagiarism by the homology-detection software widely used by publishers of major science journals or universities wishing to check theses before their defence. Plagiarism also includes the misappropriation of somebody else's results, clearly a theft of intellectual production often leading to authorship conflicts, and the reuse of ideas put forward in research projects that the plagiarist has had the opportunity of evaluating. The concept of "self-plagiarism" is also complex, and may be assessed differently according to the circumstances. Authors who reuse their past research while claiming that it is new, falsify their implicit moral commitment to the reader and violate the profession's good practices. Self-plagiarism may be evaluated differently according to the situation, and is not always considered an objectionable practice. Repeating parts already published in successive articles may be justified, for example in a review of the state of the art, as long as reference is made to the original article. By publishing small 'slices' of the same study in partially-overlapping articles (a practice known as 'salami slicing'), the researcher can achieve a higher ranking much faster, but this practice must not be used for the sole purpose of inflating the author's list of publications. The case of self-plagiarism for scientific popularisation is the subject of specific deliberations. This Opinion also discusses cases of counterfeiting in the research sector that resemble plagiarism in a number of human and social science disciplines. The reasons behind the development of plagiarism are mentioned, along with the harm it does to research and to society's opinion of scientists. When plagiarism infringes the intellectual property rights conferred upon intellectual works, the author may then initiate legal proceedings for counterfeiting against the plagiarist, 'counterfeiting' being thus interpreted in the legal sense of the term. A number of examples of sanctions from case law are described. The Opinion concludes with recommendations for researchers to help them avoid both plagiarising and being plagiarised.

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I. AUTO-SAISINE SELF-REFERRAL

Plagiarism in scientific research mainly consists in misappropriating somebody else's texts or results. International legislation considers plagiarism as fraudulent, just as it does the fabrication or falsification of results and data. While the latter hinder the progressive construction of the foundations upon which science is built, plagiarism causes most harm to the researchers whose writings or works are reused without explicit reference to the source. Its seriousness is perceived differently within diverse cultures and disciplines, which are nonetheless all affected. Plagiarism is a serious infringement of scientific integrity¹ and affects the relationship of trust both within the scientific community and between scientists and citizens. It has become a global concern, and the focus of heightened monitoring.

It is within this context that COMETS has taken a closer look at the different forms of plagiarism encountered within the scientific community. We analyse the causes of its development, including the impact of digital technologies—which paradoxically also facilitate its detection—and the fierce global competition that incites certain members to breach the rules of professional conduct and intellectual integrity. Alongside our deliberations on the plagiarism of published writings and the misappropriation of somebody else's research results—which may be considered plagiarism because it amounts to dispossessing researchers of the fruits of their work—we also considered up to what point the stealing of ideas, information or even data contained in documents submitted for expert review may be considered plagiarism. We also list the different practices coming under the general term of 'self-plagiarism,' perceived differently depending on the discipline and on whether it concerns research or its dissemination.

We then consider the relationship between plagiarism and counterfeiting. We look in closer detail at the case of certain cultural productions studied in the human and social sciences that simultaneously resemble plagiarism, falsification and data fabrication. Finally, we clarify the legal aspects of the relationship between plagiarism and counterfeiting as defined by the law, because in France this relationship is currently the only means of describing plagiarism and initiating legal sanctions.

This Opinion highlights the diversity and complexity of the concept of scientific plagiarism while refining its usual classification as fraud. Intended for all research players—but particularly PhD students—the Opinion provides guidelines to avoid being accused of plagiarism or being plagiarised. It is also intended for publishers—plagiarism being one of the main reasons for the retraction of articles—and research institutions, which are tasked with combating plagiarism; training their personnel to prevent it or to act should it occur.

¹ For a definition of scientific integrity and the principles that govern it, please refer to the *"European Code of Conduct for Research Integrity"* updated in March 2017

II. ANALYSIS

A. Introduction: plagiarism in scientific research

1. Definition. An escalating problem?

Plagiarism is found in each and every field of human activity, but especially in creative disciplines such as art, music or literature. In the area of science and technology, it concerns research results, industrial processes and ideas. We shall focus our analysis on plagiarism in academic research. The guide published by CNRS and universities—“Integrity and responsibility in research practices”—defines plagiarism as “the appropriation of an idea or content (text, images, tables, graphics etc.) in full or in part without the author’s permission or without appropriately referencing the source.”² In the field of research, plagiarism is above all a matter of deceiving colleagues and the public: *“plagiarism is an usurpation of the researcher’s role, and reveals a deception. It is not falsification, but confiscation of the very substance of the creative idea from the person who had it; neither is it distortion, but the capture of the innovative thought of the person having put it forward.”*³

Plagiarism is exposed increasingly frequently⁴, but we cannot categorically state that the practice is becoming more widespread. This multiplication of cases may be linked, among other factors, to the increase in scientific output. It also goes hand in hand with the refining of anti-plagiarism tools. The frequency of plagiarism is also related to the proliferation of second-rate open-access journals and permissive publishing practices⁵. The media and social networks play an important role in revealing and stigmatising plagiarism, and indeed scientific fraud in general⁶. Whistleblowing no doubt damages the image that society has of science, but it also keeps us alert as to misconduct, and is an asset when publically defending the integrity of scientific approaches⁷.

2. A breach of ethics defined as fraud

Copying has always existed, but people’s attitude towards it has varied according to the era and culture. It was widespread among the Greeks, and not considered wrong⁸. Roman authors rarely cited their sources, as they were considered to be known by the scholarly public reading them. The cultural traditions of Asian countries did not stigmatise copying; on the contrary, it was a common practice among great men of letters. In the Middle Ages, the reproduction of texts by monks was considered an act of Christian charity, and played a crucial role in the conservation and dissemination of manuscripts. Until the appearance of the printing press, numerous texts were not signed and plagiarism mainly concerned literary works. It was only in the 18th century that the notion of plagiarism first appeared in science, although well-known controversies arose

² The guide published by CNRS and CPU “Integrity and responsibility in research practices: *a guide*”, 2016

³ Guglielmi G. J. and Koubi G., “Plagiarism in scientific research”, *a collective work*, 2012, Librairie Générale de Droit et de Jurisprudence

⁴ Bergadaa M. “Le plagiat académique, comprendre pour agir” [Understanding and acting upon academic plagiarism] Editions L’Harmattan, 2015

⁵ Springer and BioMedCentral have recently retracted 58 publications, for *plagiarism* among other reasons

⁶ Note the propensity of media to copy each other when an act of plagiarism is denounced by one of them...

⁷ See the COMETS Opinion: “Discussion and moderation of scientific publications on social networks and in the media: ethical issues”.

⁸ An example from Antiquity: In his geocentric model of the movement of celestial bodies, Ptolemy claimed measurements taken 300 years previously by Hipparchus on the island of Rhodes as his own

before then concerning the ‘borrowing’ of research results⁹. Since the 19th century, the concept of plagiarism has become more refined in Europe, and known cases have proliferated¹⁰.

Nowadays, plagiarism (P) is considered fraudulent by the European Code of Conduct for Research Integrity¹¹ and the research charters of the English-speaking world in the same way as the fabrication (F) and falsification (F) of results and data. The general consensus on the definition of scientific fraud is summed up in the acronym FFP. Not all plagiarism deserves to be considered fraudulent to the same degree, however. The fabrication and falsification of results and scientific data hinder the development of knowledge, because we cannot build comprehension on false or distorted foundations. Furthermore, such practices are likely to have serious consequences in areas that use the research results, especially health and the environment, industry, economics or educational policies¹². On the other hand, plagiarising research by copying what is ‘known’ without referring to sources only harms the plagiarised author and the scientific community thus deceived.

B. Different types of plagiarism in research

Plagiarism in the field of research comes in various forms and can be serious to a greater or lesser degree. Let us remember that, with some exceptions¹³, plagiarism always involves the desire to deceive, and is incompatible with the principles of research integrity.

The most frequent plagiarisms involve an author appropriating somebody else’s text without citing sources, or misappropriating the results or even the ideas of colleagues. Sometimes difficult to detect, such misconduct—which in certain cases is an infringement of intellectual property rights—leads to personal and authorship conflicts. The case of self-plagiarism is even more complex. Self-plagiarism is when authors copy their own works: the examples we give show that the seriousness of such cases may be assessed quite differently. Finally, we shed light on situations of counterfeiting, as the fraudulent reproduction of a work of art or historical legacy is commonly known. In this case, the counterfeiter does not claim the work (whether a text, a document or hardware) as his/her own. This type of explicit plagiarism should be distinguished from implicit plagiarism, which on the other hand tends to ignore the real author. It should be emphasised here that, to avoid confusion, the term “counterfeiting” is the legal term for plagiarism, and it should be distinguished from counterfeiting as it is commonly understood. We shall come back to this point in the last part of the Opinion on legal aspects.

⁹ In the 17th century, Isaac Newton was accused by Robert Hooke of having copied his own earlier use of the inverse square law

¹⁰ As to the plagiarism of Louis Pasteur, see: https://fr.wikipedia.org/wiki/Antoine_B%C3%A9champ

¹¹ See reference 1

¹² The fraud committed by Cyril Burt is an example of this: see ‘Jean Gaudreau, L’affaire Cyril Burt et ses implications pour la recherche en sciences de l’éducation’ [The Cyril Burt case and its implications in educational science research], *Revue des Sciences de l’Education*, 1980, 6, 313-324 <http://id.erudit.org/iderudit/900286ar>

¹³ In some cases, plagiarism can be caused by neglecting or not properly knowing citation rules (see the section entitled “Understanding how plagiarism occurs”), which does not exclude the possibility of harm.

3. Plagiarism of published texts: the limits of detection

Let us remember that in France, intellectual property is governed by the French Intellectual Property Code,¹⁴ which grants people a right of ownership for intellectual works. Scientific publications fall within the legal framework for literary and artistic property. Researchers own all the moral and economic rights of their written work, despite being public employees. Plagiarising publications is an infringement of intellectual property rights¹⁵.

Plagiarism of texts ranges from a more or less crude copy without suitable references to published scientific research, to an identical or paraphrased version of parts of a text published by somebody else, or copied from a website without a specific reference to the source. Various guides are dedicated to the plagiarism of texts and ways of avoiding such practices, particularly the guide written and recently revised in the United States by Miguel Roig¹⁶.

Since the 19th century, typographic conventions have been used to indicate when a text belongs to somebody else. Publishers now use a codified system of speech marks, italics, indentation and a reference to the cited author. Copying a cited text, whether the reference is in a footnote, at the end of a chapter or the end of the publication can sometimes appear so obscure or vague that it can lead to accusations of being tantamount to plagiarism and authorship conflicts. Articles full of very long citations are often criticised, but cannot be accused of plagiarism if the citations are correctly identified with a reference to the original publications. Note that in human sciences, some citations from classical texts known to all are considered obvious, and the reader is assumed to have spotted the direct copy. This 'erudite plagiarism' must under no circumstance be used as a pretext for misappropriating citations.

Plagiarism detection software can be used to detect copy-and-paste extracts. Numerous increasingly refined software tools are available to search a growing number of written records. These tools may be dissuasive, but they only detect literal copies. Plagiarism involving the replacement of certain words by others may remain undetected¹⁷. Paraphrasing cannot be picked up. Researchers themselves are recommended to use plagiarism detection software to ensure the originality of their own work and to correctly cite their references (note, however, that this use could have the opposite effect by helping plagiarists hide their misconduct¹⁸). Some plagiarists can be identified by the practice of placing preprints on open-access archives. When this is possible, the paper can then be read and criticised by colleagues, who can react if they consider that they have been incorrectly cited.

Scientific publishers are increasingly careful to avoid allegations of plagiarism, which lead to the retraction of articles. Some major life science journals have created a shared database of original manuscripts submitted for publication that *ad hoc* software explores to identify potential plagiarism. To avoid endorsing plagiarism, some publishers may be tempted to delay the publication of review articles which, by their very nature, inevitably include many citations of published text¹⁹. This trend may turn out to be counterproductive. It should be remembered that the advantage of review articles—which are educational presentations of research already published and validated by peers—is that they allow the reader to quickly get right to the heart of a subject thanks to the selection of first-hand articles. Frequently detected by anti-plagiarism software, the

¹⁴ For an exhaustive study, see: http://www.cnrs.fr/dire/termes_cles/propriete-intellectuelle.htm

¹⁵ See the discussion in the guide on integrity and responsibility in research practices

¹⁶ Roig M. "Avoiding plagiarism, self-plagiarism and other questionable writing practices, *a guide to ethical writing*"

¹⁷ Plagiarism detection software is sometimes deceived by the somewhat imperfect automatic translation methods in which identical portions of text memorised by the translation software may be found in different texts not resulting from plagiarism.

¹⁸ "Using Internet based paraphrasing tools: original work, patch-writing or facilitates plagiarism" in *International Journal for educational integrity*; A. M. Rogerson and G. McCarthy; 2017, 13:2

¹⁹ This tendency has been detected, for example, for chemistry review articles submitted to Elsevier (private communication by a member of the editorial board)

reproduction of texts in a review article should not hinder its publication as long as the cited works are correctly referenced²⁰, and that it is clear that it is a review.

Finally, we need to highlight the frequency of cases of plagiarism relating to the translation of scientific texts from a foreign language without mentioning the original. These cases of plagiarism have doubtless always existed. It is difficult to measure their impact today, especially as they often remain undetected by ordinary methods²¹. Plagiarism by English-speaking authors of texts initially published in French appears to be a real problem in the human and social sciences. Translation must not be systematically denounced, however, because it expands access to a broader community. It must nonetheless be clearly stated that the article has been translated. Finally, it should be noted that, due to the globalisation of research, the use of English has tended to become generalised in most disciplines: while this has made it easier to detect plagiarism, distortion may be introduced by researchers not fluent in English and who draw upon published writings or copy whole sentences to shape their publication²². Such plagiarism is certainly open to criticism, but it is not part of a deliberate scheme to deceive the reader.

4. The misappropriation of results and ideas: when theft and plagiarism meet

Plagiarism includes the appropriation of research results known to the plagiarist before the researcher has published them. This is theft, because the plagiarist is *stealing intellectual production*, which often leads to *authorship conflicts*.

Intellectual output is often stolen by publishing articles based on the results of a thesis once its defence is over and its author has left the establishment, while omitting the PhD student's name from the list of authors. Similar cases occur with interns during their master's degree or with post-doctoral graduates once they have left the host laboratory. In the first case, partnership agreements may give some protection.

The appropriation of ideas stolen from the projects of colleagues is also considered plagiarism even though it does not exactly fit the accepted definition. It may involve information contained in documents that the plagiarist has assessed for research funding agencies. The plagiarist may then submit in his/her own name a project very similar to the one that was assessed but in a form that avoids it being picked up by anti-plagiarism software. Both the European Research Council and ANR—the French National Research Agency—have recorded cases of project plagiarism. Similarly, the peer review of articles submitted for publication offers multiple opportunities for stealing ideas and, in extreme cases, delaying the review may allow a plagiarist to publish the work before his/her unfortunate competitor. These situations entailing intellectual dishonesty are completely unacceptable. The appropriation of ideas stolen during conferences, debates, seminars, meetings or even discussions in the corridor or via e-mail is more difficult to prove. It may be more or less conscious because research is based on the absorption of ideas, creativity being fostered through discussions and often collective construction expanding on what is already known. The conscious theft of ideas is nonetheless ethically unacceptable. It is unfortunately difficult to prove, as the stealing of ideas is not regarded as fraudulent as long as the theft does not concern the form in which the ideas are expressed (see below). Only ideas expressed during minuted discussions can be protected, for example by the bodies responsible for evaluations. The publication of preliminary research drafts, particularly on open-access archives, may be a protection against the stealing of ideas, but it may also be risky in the face of competition. Generally speaking, although disseminating ideas leads to them becoming general knowledge, it paradoxically also offers them better protection from being stolen.

²⁰ Note that some authors tend to write many review articles in order to artificially inflate their number of publications

²¹ However, there are bibliography-based techniques to detect plagiarism, which can identify literal translations of articles or scientific work. See: <https://rslnmag.fr/quand-les-logiciels-anti-plagiat-setendent-aux-documents-traduits/>

²² See also note 16

Finally, some researchers may be tempted to reveal to the media or general public not only their own personal research results, but to misappropriate similar or previous results obtained by colleagues without mentioning them. Such an attitude is also considered plagiarism.

5. The multiple facets of self-plagiarism

Self-plagiarism applies to authors who reuse the content of their own work without citing it, as if the results were new. The work may already have been revealed publicly (through publication of an article or book, for example), yet the authors try to mislead readers into thinking the results are new by not informing them about the previous publication. In this case, the implicit contract between the author and reader is fraudulent, because the reader has not been informed of the previous publication. Obviously, self-plagiarism does not amount to stealing from oneself. However, it is misconduct because the author knowingly infringes the profession's good practices, and especially his/her undertaking with regard to the publisher to announce new results. Elizabeth Wagner has clearly revealed the negative effects of such a duplication of publications. Not only does it waste the time and energy of peer reviewers, but it compromises academic review processes by artificially inflating an author's list of publications, and can finally skew the results of meta-analyses, which combine the results of publications using statistical methods²³. For all these reasons, considering that the author has deliberately chosen to deceive, the recently-updated European guide to good practice in academic research²⁴ still considers self-plagiarism as fraud. Self-plagiarism is also a major concern of the publishers of scientific journals. To avoid greatly overlapping publications, some publishers (particularly in the life sciences) ask authors submitting a manuscript to provide their previous articles on the same subject.

However, the concept of self-plagiarism may be assessed differently according to the circumstances, and is frequently not considered a case of misconduct. This is because researchers in all fields constantly reuse their own work, often incrementing it by a succession of new results. It is therefore logical for new results to be replaced in the context of previously-published work. This is the case, for example, in anthropology, where published results concerning a society are reused to compare and complement them with the results obtained for other populations or other periods. Indeed, whatever the discipline, there are researchers who have basically developed the same concept throughout their career. The reuse of extracts from previously-published articles in the introduction of successive articles on the same subject is therefore justified when it is crucial to the understanding of the state of the art. The scientific community considers it legitimate to copy particularly well-written introductory texts without adding speech marks or citations. In such cases, allegations of self-plagiarism go too far and are contrary to common sense.

Publishing small 'slices' of the same study in partially-overlapping articles (referred to above as 'salami slicing') is a common variant of the duplication practices described above. The author successively publishes a research idea, a letter concerning the initial results, a detailed article covering the whole study and a review article bringing together other publications. This is not acceptable behaviour if the goal is simply to increase the author's list of publications. However, salami slicing can be justified from a scientific viewpoint, as the researcher can achieve a higher ranking more rapidly on a competitive subject so as to avoid being 'overtaken' or simply plagiarised before publication (see above). There is a current trend, strongly encouraged in certain disciplines (as seen above), to exhibit work in progress or an unfinished paper on open-access archives before its final publication. Again, this kind of practice cannot be considered as self-plagiarism.

²³ Elizabeth Wagner, "Why is redundant publication a problem?" 2015, *The international Journal of Occupational and Environmental Medicine*, vol. 6

²⁴ See reference 1

6. The ambiguities of self-plagiarism

Self-plagiarism also raises unsolved questions about the same author's publication of similar results at different times and in different contexts. Usage varies greatly according to the discipline involved. In information technology, new results are generally first communicated during a conference, and any successive articles may then be considered as self-plagiarism. In physics and chemistry, on the other hand, it is the article that acts as the benchmark. In physics and information technology, the publication of a researcher's thesis, along with articles on the same subject, does not pose any problem either before or after the thesis has been defended. In life sciences, on the other hand, the student must publish one or more papers—generally in English—before his/her thesis defence. The manuscript (in French) can therefore overlap these publications and thus be considered as self-plagiarism²⁵. Self-plagiarism can be even more complex to distinguish: does a co-author, for example, have the right to use excerpts from a previous collective paper for his/her own publications without quotation marks as long as it is mentioned in the bibliography? In human sciences, the publication of results in different forms is not generally considered as self-plagiarism. In sociology, demography or economics, the publication of the same results in French and then English in academic journals is tolerated insofar as the readership is not the same. Often, English-speaking publishers do not even take publication in French into account.

Finally, it should be noted that allegations of self-plagiarism should be qualified in the case of a researcher trying to disseminate the outcome of his/her work. Clarifying research results for the general public should obviously not be considered self-plagiarism. Repetition is actually an intrinsic feature of education: "*It may be useful and necessary to partly repeat oneself in order to communicate the same knowledge to different audiences*"²⁶. An improper allegation of self-plagiarism in the case of scientific popularisation could stop something that would have been positive for the intended audience. The content of a research paper may be referred to again in a journal intended for the general public or in a lecture; a conference paper may be 'recycled' as a book, which could itself be the subject of a debate broadcast over the radio, etc. It is important for top-rate scientific popularisation magazines to discuss recognised scientific results in an original format. Their vast audience is cultured, eager to learn, and quick to spot what has already been said elsewhere. Scientific popularisation is therefore sensitive to a form of plagiarism similar to that affecting literary publications.

In brief, the fraudulent nature of self-plagiarism appears to be variable. An obsession with self-plagiarism should not be allowed to adversely affect teaching or the dissemination of knowledge among the general public. Self-plagiarism can thus only be judged on a case-by-case basis. If the deceit is intentional, it should be considered as scientific misconduct, which is contrary to research integrity.

7. Plagiarism as counterfeiting

Counterfeiting is the misappropriation of an object protected by intellectual property laws. It is characterised by the reproduction of essential, characteristic features of a creation, whether a brand name, a design or a model. It aims to make a profit from somebody else's creation by creating confusion in the consumer's mind. It may be a *pastiche* for fun or educational purposes, but it is more often a self-interested and dishonest imitation. Counterfeiting occurs in all sectors of human activity. As far as researchers' work is concerned, counterfeiting may resemble plagiarism, for example when the counterfeiter wishes people to believe that

²⁵ A more shocking case of misconduct through dishonesty is that of a PhD student's manuscript being a literal translation of the publication written in English by the student's thesis supervisor

²⁶ See the contribution of Anne Fagot-Largeaud in the special issue of *Archicube* (no.19, 2015) entitled "*Ethique, intégrité, responsabilité*" [Ethics, integrity, responsibility]

he/she is the creator, which differs from the cases outlined above when the plagiarist wishes the reader to remain unaware of the real author.

Can the concept of plagiarism be extended to the manufacture of an object inspired by historical legacies which are then subject to a pseudo study, such as a fraudulent statue, a pseudo manuscript, or a fake palaeontological object like the notorious Calaveras skull²⁷? This is above all a case of data fabrication, which is a fraud distinct from plagiarism. However, it may be mentioned insofar as inspiration is drawn from or a near copy made of data from the past or the present in what are considered remote regions. Field research in agronomy, archaeology or anthropology may lead to a misappropriation of the objects being researched. This is then a case of counterfeiting and even data theft resulting from practices similar to plagiarism. In archaeology, for example, copying an authentic item from a past civilisation to sell on the art market is considered a counterfeit as it infringes copyright laws. In agronomy, the reproduction of a traditional seed by a multinational which will then impose prohibitive copyrights on its original 'inventors' is considered nothing less than a crime. In anthropology, plagiarism includes copying without paying royalties for poorly-protected productions of native crops being researched, such as indigenous medicine which turns out to be particularly lucrative for the pharmaceutical industry²⁸, or the use of uncopyrighted music in a film²⁹. Such breaches of ethics—not easy to distinguish from blatant theft—are of particular relevance in the case of mythical or magical works whose esoteric nature is essential to the population being studied, who hold its secret. It should be noted that such research-related counterfeiting practices are increasingly governed by international legislation.

C. Understanding how plagiarism occurs

The increasing number of cases of plagiarism in university settings is first of all related to the rapid development of digital technologies. The huge wealth of online documentation is a major source of information for all students and researchers, who may be tempted to appropriate texts and visual documents due to ignorance of intellectual property rights. Plagiarism is rife among higher education establishments, where a number of students start down that path as early as their bachelor's degree when writing theses. This practice may be a matter of convenience but it may also be due to ignorance of the standards applicable when referencing sources. These practices often date back to their school years, when they drew heavily on Internet for information and were tempted to cut and paste despite the vigilance of their teachers. Even when they arrive in a laboratory, some PhD students continue this unethical behaviour. To tackle this scourge, an increasing number of universities committed to preventing plagiarism have invested in homology-detection tools, and clearly inform students of the disciplinary measures that would be taken. Plagiarism in theses remains significant³⁰. It is ever more closely monitored, especially by those professors in universities responsible for giving a green light to the thesis defence following examination of the manuscript using anti-plagiarism tools. Whatever the case, it is up to the thesis supervisor to teach the PhD student not to plagiarise and to be particularly careful about checking sources when reviewing manuscripts, however hard that may be in certain disciplines. All the players involved must be aware of their responsibilities and, in the rare cases of degree fraud, all those having played a role, however minimal, may be considered fraudsters³¹. The ethical rules applicable to theses are even more relevant to the work of researchers throughout their careers.

²⁷ <http://terremysterieuse.doomby.com/pages/archeologie-mysterieuse/le-crane-de-calaveras.html>

²⁸ *The traditional medicines of the Kallawaya tribes in Bolivia have been used by a multinational company that has marketed them (as for the previous reference)*

²⁹ *The music for "Fitzcarraldo", a film by Werner Herzog (1982), is a plagiarised version of native American music. This kind of fraud is not directly linked to research, but may inspire some dishonest researchers.*

³⁰ <http://www.letudiant.fr/educpros/enquetes/plagiat-en-these-5-conseils-pour-eviter-le-copier-coller.html>.

³¹ *M. Bergadaa: analytical report on plagiarism in theses (2012, University of Geneva)*

These rules are of increasing importance considering that open-access systems, which foster the ever broader dissemination of research results, simultaneously facilitate their reproduction. The increasing publication of documents via open-access archives such as HAL, ArXiv or BioarXiv; on scientific information websites such as *Futura*; on scientific social networks such as *Academia*, *Research Gate*, or *Mendeley*; on personal blogs etc., make it easier to copy and paste, and increase the temptation to copy ideas, whether consciously or not. Some second-rate online journals (known as ‘predatory’ or ‘pseudo’ journals³²), with no real editorial control, may help disseminate plagiarised publications. Paradoxically, however, open-access practices also facilitate the detection of plagiarised texts (see above).

Other causes of plagiarism are to be found in the fiercely competitive world of research, which pressures scientists to publish quickly and abundantly (whether via research papers, review articles, conference proceedings or books)³³. The methods used to assess researchers—too often founded on more quantitative than qualitative methods—also exert pressure on them to publish as often as they can. This pressure also applies to the production of research projects, minutes, reports, expert appraisals and so on. Research involves a great deal of writing! Yet, as Lindsay Waters pointed out, “the role of knowledge is assessed in terms of depth and duration, not scope or surface area”³⁴.

More generally speaking, it is likely that plagiarism results from the decreasing integrity that characterises a society founded more on individual interests than collective interests. The widespread nature of plagiarism could therefore testify to the intellectual relativism that is the hallmark of modern society. The notion of truth depends increasingly on the cultural and social background in which it developed, so there is no reason to think that the authenticity of the source of a text should not suffer the same fate. Obviously, these are just hypotheses that need further support before going any further.

D. Resulting harm, sanctions, and the prevention of plagiarism

1. The consequences and seriousness of plagiarism

Plagiarism may have serious consequences. At a collective level, the misappropriation of scientific results may deceive review committees and lead them to recruit incompetent and dishonest people who manage to fool them. They thus take the place of more valuable colleagues, resulting in a loss for the research institution that recruited them. On an individual level, an unresolved authorship conflict may prevent a researcher from being granted due recognition and may affect his/her career path if the work was plagiarised before he/her could publish it. It may be a question of plagiarising data from an ongoing thesis, or a thesis that has already been defended but has not yet been recorded in the open-access archives, or perhaps the dissertation of a post-doctoral researcher who has changed laboratory (see above). This entails a waste of time and financial resources for the researcher whose intellectual output has thus been stolen. Furthermore, even in the case of self-plagiarism—where no researchers are deprived of their rights—the negative consequences of the proven duplication of publications include the unnecessary increase in the workload of peer review rapporteurs and publishers. When the cultural productions studied by some branches of social sciences are

³² *The French Academy of Science, 2016 “Vers un aggiornamento européen de la publication scientifique” [Towards a European aggiornamento of scientific publication]*

³³ *See the COMETS Opinion of 2014 “Problèmes éthiques pour les métiers de la recherche publique en mutation” [Ethical issues for public research careers undergoing change]*

³⁴ *L. Waters, “Enemies of Promise: Publishing, Perishing and the Eclipse of Scholarship”, Chicago University Press, 2004 (our translation)*

copied for commercial purposes, this misconduct dispossesses the populations concerned of the wealth that they themselves would have been able to exploit.

The degree to which plagiarism is considered serious varies greatly. It depends on the harm caused, the extent of the plagiarised production and the media coverage once the plagiarism is revealed to the public. In academia, the mediator (present in most research organisations) may be able to settle allegations of plagiarism between researchers when they are related, for example, to an authorship or personal conflict. In France, all universities and research institutes should appoint integrity advisers³⁵, who may handle a range of fraudulent practices up to complex cases of plagiarism. The case would be examined by one or more independent experts before a decision is made. These institutions and their administrative bodies would then base the disciplinary measures applied from the range available to them on this expert report in relation to the seriousness of the plagiarism³⁶. It is difficult today to handle cases of plagiarism affecting different institutions. Small-scale cases of plagiarism in theses are ever more frequently detected and corrected before the thesis defence. However, at times the content of the thesis is recognised as a case of large-scale plagiarism. Such a breach of integrity is very serious because if undetected, it would open up a career to the PhD graduate as an academic researcher³⁷. Universities are therefore obliged to retract such theses. In a similar vein, the French National Council of Universities (CNU: *Conseil National des Universités*) may punish plagiarism discovered in a thesis by stripping the author of his/her status as a lecturer³⁸. The CNU can also strip a professor found guilty of plagiarism of his/her qualification.

2. Plagiarism legislation

The effects of plagiarism may extend beyond the internal regulations of an institution, because the victim can initiate legal proceedings against the plagiarist. However, French law does not use the term plagiarism but ‘contrefaçon’, translated counterfeiting³⁹. It is therefore important to determine whether, from a legal viewpoint, plagiarism is equivalent to or may constitute counterfeiting.

From a legal viewpoint, a researcher’s papers, theses, dissertations or other intellectual output must be considered as intellectual works. Article L. 111-1, paragraph 1 of the French Intellectual Property Code states that the author of intellectual works shall enjoy an exclusive incorporeal property right to this work by the mere fact of its creation, this right being enforceable against all persons. This right grants the author moral and economic (or ‘proprietary’) prerogatives (paragraph 2 of the same text) that he/she can protect in a court of law. Counterfeiting is defined by Article L. 335-2 of the French Intellectual Property Code, which states that any written edition, musical composition, drawing, painting or any other production, fully or partly printed or engraved in contempt of copyright laws and regulations is a counterfeit. The following article, L. 335-3 furthermore describes counterfeiting as any reproduction, representation or distribution, by any means whatsoever, of intellectual work in violation of copyright, as defined and regulated by the law. Insofar as counterfeiting leads to financial damage related to the violation of the victim’s proprietary or moral rights, the judge assesses this damage and orders the counterfeiter to pay the plagiarised person damages. What is more, as counterfeiting is also a criminal offence, it may be punished by 3 years of prison and a fine of

³⁵ *The integration of an integrity (or ‘ethics’) adviser is one of the national recommendations following publication of a report commissioned by the French State Secretary for Higher Education and presented by Professor Pierre Corvol in 2016 (see [rapport sur l’intégrité scientifique](#) [report on scientific integrity]).*

³⁶ *See the CNRS and CPU guide; reference 2*

³⁷ *It should be noted that theses are part of the public domain, so there is no statute of limitations. A case of plagiarism may therefore come to light many years after the thesis defence.*

³⁸ *Laure Marino, “Repenser le droit du plagiat de la recherche” [Rethinking research integrity legislation], JCP, issue G., 2011, doctr. 1396, no. 8*

³⁹ *Even though French case law sometimes uses the term “plagiarism”—notably CA Douai, 3 July 2012, no. 11/03647, JurisData no. 2012-021835, when talking about counterfeiting a law thesis*

€300,000 should the victim decide to file a complaint and sue for damages. Civil and criminal procedures are not mutually exclusive, so the plagiarist can be sentenced to a fine and/or prison during criminal proceedings as well as having to pay the victim an amount of compensation determined by the judge during civil proceedings. There are numerous cases in which judges have punished the counterfeiting of a research dissertation or doctoral thesis in civil⁴⁰ and/or criminal⁴¹ courts. The plagiarist is also often obliged to pay court fees (Article 700 of the French Civil Procedure Code)⁴².

Theoretically, plagiarism—which is what lawyers call ‘counterfeiting’—consists merely of drawing inspiration from an existing work without the authorisation of its creator⁴³. Consequently, the closer to the original the plagiarised copy is, the better the counterfeiting is established. All cases of counterfeiting are thus also cases of plagiarism, but not all plagiarism is necessarily a question of counterfeiting. The distinction depends on what is being copied. If the plagiarism only concerns the stealing of an idea, there are no legal penalties despite being morally reprehensible. However, if this theft is accompanied by plagiarism of the form (however minimal) expressing the idea—such as a sentence, an image, a diagram or any other item characterising the personality of the author and making his/her work original—without the author’s prior permission and without mentioning his/her name, the plagiarism is treated as counterfeiting. Plagiarism is thus sanctioned if it lies within the framework of counterfeiting. However, the court does not simply check whether the researcher’s work has been reproduced in full or part with the same wording. It also checks whether the plagiarist has tried to conceal the misconduct by reformulating the text, changing the form, reorganising the demonstrations or text, summarising excerpts as required, modifying the presentation, etc. The copies of objects and cultural productions investigated by social and human sciences are rarely denounced by their authors, either because they are no longer alive, or because they are unaware of the profits made out of their work by the counterfeiters⁴⁴.

In brief, the obligation to qualify plagiarism as counterfeiting, whatever the nature of the offence, is a serious challenge for the judge. Furthermore, legal proceedings are not very dissuasive, as by and large researchers are unaware of the few sentences meted out in case law. Common law is far from being geared to handling plagiarism in scientific fields. The responsibility for disciplinary measures lies with research institutions, which are not always equipped for such a task.

3. Prevention

In many ways, preventing plagiarism in research entails protecting literature. Whether an article or a book, the publisher is supposed to protect the author not only from plagiarism of his/her text, but reproduction of any of the content (including figures, etc.), especially if the author has transferred the copyright to the publisher. This practice is common among authors, though it actually warrants careful consideration (it should be remembered that researchers own all the moral and proprietary rights over their written work). The Creative Commons licence (CC) grants the author the right to reuse all or part of the paper or other publication. It should be noted that any intellectual production can bear the acronym CC BY on whatever medium is used (a PowerPoint presentation, a blog, a personal homepage on Internet, a tweet, etc.), which,

⁴⁰ Cass. 1^{re} civ., 15 June 1994, no. 92-19.824, *JurisData* no. 1994-001609; CA Paris, 28 April 2004, no. 2003/00305, *JurisData* no. 2004-243677 (€10,000 in damages); CA Paris, 4 June 2004, no. 2001/21562, *JurisData* no. 2004-243680; CA Douai, 3 July 2012, *prev.*

⁴¹ Cass. crim., 15 June 2010, no. 09-84.034, *JurisData* no. 2010-011258 (suspended sentence of two years in prison in addition to €20,000 in damages)

⁴² CA Paris, 28 April 2004, *prev.* (€4,000 under the terms of the Civil Procedure Code)

⁴³ Carine Bernault, “Droit des auteurs. Contrefaçon et étendue du droit d’auteur (CPI, art. L. 122-4)” [Copyright and its scope], *JurisClasseur Propriété littéraire et artistique*, Fasc. 1267, 2014, no. 2

⁴⁴ Indigenous peoples are submitting an increasing number of claims to museums and cultural institutions. Care must be taken however, because these claims may be subject to manipulation by hidden interests under the pretext of ethical considerations.

although it does not fully protect the output against theft, is nonetheless likely to dissuade plagiarists. Nowadays, it is important to know the rules in force to protect cultural productions originating from research into indigenous populations by international institutions. To prevent others stealing data or ideas, we strongly recommend submitting a manuscript to open-access archives prior to publication, for example.



III. RECOMMENDATIONS

It is crucial to train all research staff to comply with the intellectual property rights of intellectual works and teach them how to avoid plagiarism. This training should be included in university courses from the outset, and continue throughout the staff member's career path. It is primarily the responsibility of thesis supervisors with respect to their PhD students. It forms part of the training on ethics and integrity that higher education and research institutions are beginning to set up within the framework of the French [National Charter for Research Integrity](#).

In the light of the very positive undertakings of universities and research organisations to raise awareness about research integrity and teach students how to avoid plagiarism, COMETS is seeking to foster the harmonisation of disciplinary measures against plagiarism (and indeed other types of fraudulent practices) in academia, and their coordination through the various institutions' integrity advisers.

A. To avoid engaging in plagiarism

Researchers and academics should teach their undergraduate and postgraduate students how to use digital technologies properly and, more generally, to comply with ethical guidelines when handling the sources that they consult. They should explain not only what methods to use to find and assess information, but also how to reuse and quote them in accordance with intellectual property rights, thus avoiding the risk of consciously or unconsciously plagiarising somebody else's work. They can rely on academic librarians to help them fulfil this remit.

Thesis supervisors should take special care to ensure that their PhD students avoid plagiarism and, more generally, to raise their awareness of research integrity. Insofar as possible, university thesis rapporteurs and those validating the thesis defence step should also ensure that the submitted manuscripts are original.

Authors should learn the rules of citation (speech marks, indentations, italics, etc.), in all disciplines. Citations should be placed in the text so as to be easily identified. Citations of known authors should not be avoided by paraphrasing them. It is better to refer, whenever possible, to the original sources rather than summaries or reviews that include them but which do not explicitly cite the authors.

To avoid doubts over self-plagiarism, the author should carefully cite all his/her previous scientific productions on the same subject, and avoid unnecessarily spreading a set of research results over numerous papers purely to inflate his/her list of publications.

Researchers in social and human sciences working on productions originally from indigenous cultures should be very careful about the ethical acceptability of their work. They should in particular agree on a protocol to govern their right to exploit results, and sign and comply with agreements on their right to exploit results with the official representatives of the populations in question.

When communicating with the media, any researcher presenting a general overview on a subject should ensure that the teams whose results he/she is using at the same time as his/her own are given due credit by referring to them properly.



B. To avoid being plagiarised

To protect ideas from being stolen, and faced with the dilemma of whether to disseminate or restrict access to them, it is strongly recommended to disclose them with caution, concomitantly publishing preliminary research drafts. It is recommended to keep minutes validated by participants for collective discussions on ideas.

Partnership agreements governing multi-team work may partially protect members from the theft of results or plagiarism of ideas. It is crucial in all cases to openly discuss prior to publication who best fulfils the conditions required to be the author of a publication or patent.

The use of a Creative Commons licence is strongly advised for all intellectual production media.

Before exploiting the data collected during field surveys, researchers in human and social sciences should familiarise themselves with UNESCO's international regulations protecting authors among indigenous peoples.

If a researcher detects plagiarism of either his/her own work or that of colleagues, it is strongly recommended to report it to the integrity adviser of his/her research institution. The integrity adviser is tasked with handling such unethical conduct, and indeed any other kind of fraudulent behaviour.



IV. QUALIFIED PERSONS CONSULTED

Marc BERGERE	vice-president of the University of Rennes-2
Jean-Michel BESNIER	philosopher, professor at the University of Paris-Sorbonne
Geoffrey BODENHAUSEN	chemist, professor at the Ecole Normale Supérieure, Paris lawyer, CNRS emeritus research director at CESTA
Danièle BOURCIER	lawyer, professor at the University of Evry Val d'Essonne
Frédérique COULEE	biologist, professor at the Collège de France, vice-president of the French Academy of Sciences
Pierre CORVOL	director of biodiversity and biological resources at CIRAD
Philippe FELDMANN	anthropologist and philosopher, CNRS emeritus research director
Claudine HAROCHE	biologist, secretary of the working group on research integrity at Science Europe
Maura HINEY	professor of medical ethics at the University Paris Sud - Paris Saclay
Emmanuel HIRSCH	computer scientist, INRIA research director, adviser to the president of INRIA
Claude KIRCHNER	economist, professor at the University of Bordeaux
Yannick LUNG	astrophysicist, CNRS emeritus research director at the IAP astrophysics institute in Paris
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