

- Rules for citation and plagiarism in the popular literature: do we apply the same norms as in scientific literature? If not, what are the rules?
 - In the pursuit of hypotheses it may be desirable to select data or to 'correct' observations on purpose; it was only through such 'manipulations' that Mendel was able to formulate his genetic laws.
 - It has to be acknowledged that there is a scale of decreasing seriousness in scientific misbehaviour: from 'forgery' through 'selective use' and 'corrections' to 'fudging' and 'malpractice'. And it is not always easy to exactly pin down certain actions on this scale.
3. One has to keep in mind that scientific norms and rules may differ from those of other important reference groups for the researcher. Professional organisations (medical, psychological) may employ different standards with respect to the protection of privacy and accessibility of data than scientific rules would require. Employers' interests (to use data for other purposes, to keep outcomes secret) and scientific norms may be discordant. National security requirements may conflict with scientific requirements (respect for privacy, informed consent, anonymity). The appropriate behaviour will depend on the specific context and employment conditions of the researcher.
 4. Do not forget the 'psychology of the researcher'. From the history of science we are all acquainted with the dedicated, fanatic scientist who keeps trying to find evidence, including selective use or adaptation of the data, for his or her theory, sometimes against all odds and against the peer's joint repudiation. Yet, he or she may finally succeed (and get a Nobel prize). Popper's requirement to search for falsification of one's theory and hypotheses is not quite compatible with the psychology of the dedicated, passionate researcher.

Dealing with allegations of misconduct

In the following I will discuss the responses of European Academies to the question worded in this heading: who is dealing - and how - with allegations of misconduct?

A large majority of the respondents maintained that the primary responsibility for handling cases of misconduct lies within the institute or university where the accused researcher works. Very often these institutions have a standing committee, or establish an ad hoc committee in case a serious allegation is brought forward. In only a few countries the case is handled by a central national body, for example a national ethics committee of the National Academy of Sciences (Estonia, Moldova), or an independent national committee (e.g. in Norway and Sweden, after a recent new legislation). Only

rare cases are brought to the legal court, and then only if clear civil or criminal misdemeanour is involved.

In many European countries there is a national body, either within the National Academy, or within the National Research Council (or in some cases both), of ten composed of members of the Academy and/or the Research Council and with outside experts, that has an advisory role, or functions as a court of appeal. In some countries also the association of universities is a partner in this national body.

As far as the procedure is concerned there is a general consensus on the need for a due and fair process, that is sufficiently rapid, and leads to proper penalties. This is important for both the accused and the accusing person. Furthermore, all agree that protocols, science courts, confidants, ombudsmen and various kinds of sanctions are noteworthy and useful, but what is essential is the development of a mature scientific conscience and a basic sense of responsibility within the researcher. A positive, preventive approach and the development of responsibility through conscience building, education and role modelling is considered more effective in the long run than fear of sanctions or the risk of being caught.

The opinions on the issue of openness or secrecy of cases of misconduct are divided. Some respondents favour public disclosure (after the closure of the case), for its educative or deterrent character, and in accordance with the institute's accountability vis-à-vis society. Others are more reluctant because of the severe consequences for the individual and the institute, and probably for science in general. They would make only serious cases public, or those cases which the media have identified.

Code of Conduct

In the previous sections we have already referred to a Code of Conduct (CoC) as an important standard for both the stimulation of appropriate scientific conduct and the denunciation and prevention of scientific misconduct.

The question regarding the existence and/or the desirability - of a Code of Conduct in different countries leads to diverging answers. In some countries such a code does exist already (Nordic countries, Baltic countries, The Netherlands), mostly resulting from an agreement between the National Academy of Sciences, the National Research Council and the National Association of Universities, and in some countries it is even enforced by law (Norway, Sweden). In most Central or Eastern European countries such a

CoC does not exist. Sometimes it is being developed. In most European countries the picture is: no national CoC, but (obviously varying) codes at the level of institutes or of professional organisations.

On the question of the desirability of a central Code of Conduct the reactions were unanimously affirmative. On the question whether such a Code should be national or international three quarters of the Academies declared: international or at least European. They used as argument the international character of science, and the increasing number of international research projects. A national CoC should, then, be in accordance with such an international CoC. A minority of the Academies indicated that such a CoC should be primarily national; the legal and cultural differences would militate against consensus. It is my interpretation that here the norms for scientific integrity and those for good practice are insufficiently distinguished. The former are based on universal scientific values, and the latter on culturally and legally varying procedures.

On the question of who should develop a national Code of Conduct, most Academies agreed on the desirability of a joint effort of National Academies of Sciences and National Research Councils, in consultation with the (Association of) universities. It was often proposed that the Academy should write the first draft. It was further suggested that a Code of Conduct at the European level be developed by the European Commission, or by the European Council, with ALLEA and/or the ESF in an advisory role (drafting, coordination). For the development of a CoC at the world level, the Academies think of UNESCO or the OECD, with, analogously, IAP and/or ICSU in an advisory function.

International research projects

International scientific collaboration is increasing sharply, not only because of the growth of international funding (*e.g.* through the European Framework Programmes), but also because science itself has developed into a truly collaborative and international activity. Also modern communication technologies have made international collaboration much easier, being another stimulus for research proposals and activities to become increasingly international in nature. At the same time a difficulty presents itself: dealing with integrity and its obverse, misconduct, in an international context is particularly difficult if principles, definitions, procedures and rules differ between the collaborating parties, or if in one or more of the collaborating countries no Code of Conduct exists. Still it is self-evident that common agreement on standards of scientific integrity, and on rules and procedures to

deal with cases of misconduct, is a necessary precondition for a proper and responsible project management.

Therefore, the following is commended:

- (1) An international Code of Conduct should be developed, consisting of two levels;
 - Universal Principles, both emphasising positive scientific values, and defining unacceptable misconduct (Falsification, Fabrication and Plagiarism).
 - Rules of Procedure and good practice, with options recognising legitimate differences between national systems.

This Code of Conduct should be developed by an authoritative international governmental body (OECD, UNESCO), advised by international associations of Academies of Sciences (IAP, ALLEA) and international associations of research councils (ICSU, IUA)

- (2) For the time being, and as long as such an international Code is not yet available, collaborating researchers should comply with the following rules:
 1. Partners in collaborative international research projects should commit themselves to an agreement to conduct research according to standards of research integrity, and to deal properly with any suspected deviation from these standards.⁶
 2. In sponsored research, norms for scientific integrity and rules and procedures for dealing with misconduct, as employed by the main sponsor, should be observed. Such a sponsor could be international (e.g. European Commission, United Nations, European Science Foundation) or national (e.g. a National Research Council). The sponsor should be requested to formulate and to provide such norms and rules. These standards should be made known to and be discussed among the collaborating partners.

⁶ At the time of writing, we are awaiting with great interest a boilerplate text for such international agreements, as well as a series of principles and guidelines and procedures for conducting international research misconduct investigations which are prepared by a co-ordinating committee for facilitating international research misconduct investigations, and will be submitted to the Global Science Forum of the OECD by the end of 2008.

3. In cases of no external funding, or of separate funding of national (teams of) researchers, standards, rules and procedures should be formulated, and be discussed and agreed upon by the partners on beforehand. They should be laid down in bi- or multilateral Memoranda of Understanding, and should function as strict guidelines for the duration of the project.

**Papers Presented to the Workshop
on Current Issues in the Ethics of Science**

Working out some ethical aspects of scientific advice and advocacy

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Abstract

The essay focuses on scientific and scholarly advice, looking at advocacy as its particular application. Advice must be based on scientific research, insights and arguments only, free from any partiality. Scientists and scholars ought to accept an advisory mandate only after thorough ethical examination of what is at stake. Serving truth must be their only interest. In the case of advocacy, scientists' engagement is based on a moral, maybe a political ground. This has to be made transparent. Yet whenever referring to their professional competence, truth and integrity must remain the scientists' exclusive guides. – The TÜBA 'Declaration of August 2006' (an English translation of the document issued by the Turkish Academy of Sciences in the annex to this article) provides a clear distinction between advice and advocacy. Science must give its own specific ethical hallmarks, whereas the appeal to apply science 'exclusively for peaceful ends' is an advocatory summons, depending on an advisory foundation. – The general public often considers scientific arguments the voice of truth. The ethos of advice entails calling attention to the historicity of scientific results and to their openness to change. Scientific advice holds only as far as the actual state of knowledge permits. Mandators must be informed accordingly. Scientists are not competent to decide whether their advice as to an action should be respected or not. Decisions are the privilege of those formally authorized. Scientific support may add to the rationality of such decisions, provided that scientific integrity is not impaired in any way. – The essay finally recalls the features of critical rationality. It stresses that scientists and scholars should always scrupulously discriminate knowledge from personal interests and wishful thinking. They ought to disclose the result of that discrimination to the general public as well as to their mandators.

Introduction

With the increasingly rapid development of sciences and technology; with their rising success, yet also growing ambiguity and dangers; with their

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greater and greater penetration of our everyday life, living in a society of knowledge has become a major, if not the prominent trait of our conception of culture and of ourselves. With a view to current, globally pressing problems and dilemmas that need to be dealt with by science, scholarship, technology and engineering, we may say that this conception has been globally received. It is giving cultural life a new shape, the aspect of a common culture within humanity, notwithstanding that this trait might be of different importance in varying cultural settings.

In the formula 'knowledge society', knowledge is understood as a good gained and provided by science or, more correctly, by human beings working as scientists, scholars and engineers. Their advice has become indispensable in a growing number of domains that are of existential significance, politics being but one of those spheres, albeit a privileged one.

Advice by scientists depends on various conditions, and it is influenced by different factors; and yet it is generally considered as being exclusively driven by scientific and scholarly interests. We have experienced that this is not necessarily the case. Safeguarding scientific integrity, for instance, has become a major concern within the academic community itself; defining and analyzing the scientific ethos, exploring ways to acquire and secure it, have become the predominant objective of ethics in science and technology, which is a particularly important chapter of applied ethics.

Within that chapter, ethical aspects of scientific advice – and of advocacy by scientists and scholars – make up a particularly delicate paragraph which I intend to explore a bit. Let me clarify that intention by five preliminary remarks:

1. It would be too daring to aim at exhaustiveness in the complex and difficult matter I propose to touch upon. Modesty is fitting. Thus my reflections are just raw material for further discussion.
2. From now on, whenever I use the terms 'science', 'scientific', and 'scientists', I mean to include 'scholarship', 'scholarly', and 'scholars', in short any kind of academic endeavour. I do not see any meaningful fundamental difference in the ethical challenge between natural sciences, social sciences, engineering sciences or humanities when they are asked for advice or engage themselves in advocacy.
3. I shall mainly consider advice, as a process and as a result, since I hold that scientists will never be relieved from their professional ethical challenge and obligations when they act by referring to their status and competence as scientists. In this perspective, advocacy may be considered as a particular form of advice.
4. I shall tackle advice and advocacy in general, and not try to discuss particular kinds of advice. This was done years ago by Pieter J. D. Drenth

when he made a point of advice as "possibly the most challenging, but at the same time most controversial role of an Academy". He discussed four kinds of advice, advice based upon quality assessment; advice regarding science policy; advice on political decisions, based on scientific research; and advice on ethical and social questions related to or generated by scientific research.¹ I shall not focus on Academies alone, as was his purpose; I wish to leave space for other kinds of advice that scientists may be requested to deliver. However, I certainly share the most important characteristic Pie ter Drenth highlights: that all scientific advice must be strictly based on scientific research, arguments, and insights, and keep itself free from any personal interest.

5. Neither shall I consider differences that may exist between a permanent and a single advisory activity either of individual councillors or of groups of experts (commissions, committees, advisory councils and the like). I simply wish to produce some solid bricks for a general normative theory of scientific advice, resuming a few ethical challenges which are equally relevant in the case of single and permanent advice, and for individual experts or advisory groups. This approach is defensible, since as a matter of fact, the fundamental normative elements referred to in studies concerned with specific types of scientific advice are cast in a universal form. This is certainly the case for the independence of the advisor(s), their distance from the mandator(s) and from interest groups; plurality of aspects and methods; self-criticism; impartiality; transparency and publicity.²

Clarifying the meaning of 'scientific advice' and 'scientific advocacy'

Scientific advice

When we speak of scientific advice, we refer to expert counselling to those who need advice in order to satisfy a specific function, e.g. authorities, politicians, firms, at different levels of their institutions. They request *scientific* advice because they are looking for that particular sort of competence and expertise. Scientists who are offered a respective mandate

¹ Drenth, P. J. D. (2002). The Role of an Academy of Sciences and Humanities. In: ALLEA All European Academies, Annual Report 2001. Amsterdam, 23–3, here 30 f. – see also his essay of 2005: Die Rolle einer Akademie der Wissenschaften. Veränderung und Kontinuität. In: Id. (2006), Walks in the Garden of Science. Amsterdam: ALLEA 2006, 205 – 217, here 212 f.

² Cf. e.g. Weingart, P. (2008). Zur Aktualität von Leitlinien für 'gute Praxis' wissenschaftlicher Politikberatung. In: Berlin-Brandenburgische Akademie der Wissenschaften (2008), Leitlinien Politikberatung. Berlin, 11-17, 14. – Download: <http://www.bbaw.de/bbaw/Aktuell>. For a short presentation cf. <http://idw-online.de/pages/de/news255732>.

should not accept it before they have come to a positive conclusion in their ethical examination of possibly all aspects of what they are solicited to undertake. But once they have given their consent, they must exclusively engage their professional competence. No further consideration ought to be introduced and offered to the mandator, with ethical reflection as an exception (*cf.* below). This demands renouncing a ny perspective a part from the scientific one, and therefore any interest which might impair the optimal fulfilment of their contract or business. This needs self-control and discretion, it rules out any role being played by considerations of social functions, personal relations and the like.

This is what is usually understood by the term 'scientific advice'. Such an advice is more than what the Concise Oxford Dictionary presents as a simple "opinion given or offered as to action"³, it is, as we have seen, a thoroughly and purely scientifically based opinion supposed to be controlled by truthfulness and guided by the firm intention of serving truth - truth understood as a process open to change. For scientific insights and results are valid just until further notice, they may be modified, limited in their extension, corrected or even overthrown.

Scientists' advocacy

The term 'advocacy' stands for the activity or the office of a lawyer. *Defending* someone or something, *pleading for* someone or something, *recommending* a decision or an activity in favour of someone or something: this is the essence of advocacy. It does not aim at a neutral position, but exercises partiality. In the best case, it is guided by a sincere examination of one's conscience. This holds irrespective of whether the advocate shares or not his or her client's attitudes or convictions; her or his concern is the client's success or optimal outcome in a lawsuit.

This semantic kernel of the term 'advocacy' is not altered when we transfer the term into another domain of action, *e.g.* an engagement in favour of endangered scientific institutions, oppressed or ill-treated scientists, and motivated by the ideal of humaneness, *i.e.* by the principle of justice and all the values and legal conditions indispensable also to academic activities. The scientists' decision is a moral and probably a political one, in any case not a scientific one. But when they engage themselves using scientific arguments or referring to their status and functions as scientists, they are at once bound by the values and obligations mentioned in the above clarification of the term 'scientific advice'. This explains why I said that scientists' advocacy may be looked at as a particular case of scientific advice. The scientists' decisions to engage in advocacy may and most probably will be moral ones and therefore

³ The Concise Oxford Dictionary (1959). Ed. by H. W. Fowler and F. G. Fowler. Fourth edition, revised by E. McIntosh. Oxford: At the Clarendon Press, 20.

find legitimation apart from scientific concerns. But again, as soon as they bring their scientific competence to bear, they are bound also by the norms of scientific integrity.

TÜBA's 'Declaration of August 2006' as an example

Considering the result of our short clarification of terms, and consulting the Turkish Academy of Sciences' (TÜBA) Declaration of August 2006, we may come to a first conclusion: committing oneself to what TÜBA calls the 'humanist tradition' is not a scientific or scholarly activity, but an ethico-political commitment. Yet scientists might know best how their findings, which of ten enough remain ambiguous, may be misused - with the term 'misused' interpreted in the light of the humanist ethos. Should they decide to live up to that ethos - which again is not a scientific, but a moral and political (and hopefully ethically reflected) decision, then what the TÜBA Declaration 2006 expects them to do is quite to the point: namely that they accept the moral and political obligation to oppose themselves, though without violence, "to the alienation of science from" what is considered its humane use; for humaneness is the highest value also for our practice in science and scholarship. Since human relations to non-human living entities ought to be guided by the ideal of humaneness as well, TÜBA rightly mentions the right to life in the first place, and before pleading for the respect of human dignity. However, with this ethico-logical priority TÜBA in no way reduces the value and the existential priority of human dignity; as I understand it, TÜBA simply stresses the obligation for humans to include non-human beings, in fact their entire natural environment into what in ethics we call the moral community.⁴ In this way, TÜBA's Declaration turns into a piece of advocacy that is deeply rooted in the particular scientific competence of all those belonging to the academic community.

In its final paragraph, TÜBA helpfully makes a clear distinction between the scientific ethos and the political devotion of scientists. That ethos obliges scientists to "maintaining a critical independence from dogmas, objectivity in the face of facts, the duty to avoid deliberate infliction of pain ... [which] are the hallmarks of science". In our context, we may say that these hallmarks establish essential presuppositions of honest *scientific* advice. Then TÜBA addresses itself to all scientists appealing to them to resolve "all conflicts by peaceful means" and to promote "the applications of science exclusively for peaceful ends". To my mind, this is clearly an act of advocacy in favour of peace. Issued by a scientific institution, a highly meaningful and urgent political act, not primarily performed in the interest of science, but of

⁴ Cf. Turkish Academy of Sciences (TÜBA 2007). Science Ethics Council, Working Principles, Preamble.

humankind in general, addressed to scientists in particular. It is an advocacy summons which obviously springs from a truly advisory foundation.

Advice and advocacy may be analytically distinguished; in practice, we often find them interrelated. Nevertheless honesty in disputes and strictness in ethical arguments – both preconditions for tackling dilemmas in a scientific manner – require that they be clearly discriminated so as to establish transparency and the possibility of open and effective discourse.

Advice must be separated from decision

Although competition and controversy may be driving factors in the search for scientific truth, the scientist's most noble and final task does not consist in successfully *defending* his or her particular persuasion. It consists in working for a complete set of elements and factors that will ideally make it possible to find in a discursive way and with the co-operation of all the stakeholders, a well argued *common* position that remains a tentative viewpoint until new discoveries have been made and new knowledge has been gained.

From the very beginning of their career scientists have to learn to carefully distinguish between their being a scientist and a citizen. As a citizen, they may defend a political stance and a political action; but in doing so they must not use their scientific authority as an argument.

Two reasons support that requirement: Firstly and to a large extent, the citizens of our political communities have become used to considering scientific knowledge – in any case the knowledge provided by natural scientists – the best assured knowledge you can get, and this in general, *i.e.* irrespective of any concrete practical interest. However, they are usually not aware of the history, the roots, the complex conditions of the rise and the development of such knowledge. These genetic conditions of knowledge may lead to new and well argued insights which then relativize or even contradict previous convictions. Scientific insight is always a part of, a moment in a process; in principle any new knowledge remains, as I already mentioned, open to change, abandonment or overthrow. Although this is a standing truism for active and critical scientists, it is at times blurred and neglected even by scientists who are driven by a particular interest; but most of their fellow-citizens simply ignore it. In consequence, it would be wrong and insincere to refer to one's scientific status when acting in a political context where there is no focus on scientifically relevant facts or competence.

My second reason follows from the first. The idea of truthfulness and the principle of not harming one's fellows obliges scientists to consider the somewhat precarious character of their knowledge and to admit relevant

practical conclusions: the history and philosophy of science teach them that they have good reasons to adopt Socrates' maxim of giving priority to questions over contentions, and of living according to the wisdom that the best knowledge consists in conceding that they do not know anything for sure and definitely. They ought to enlighten their fellow-citizens on that morally and politically important point.

If this is valid – and I assume it is –, then it also applies to scientific engagement in counselling activities. Advice holds only in so far as the actual state and conditions of knowledge permit. It remains tied to uncertainty. Scientific truthfulness requires that this situation be never hidden from the mandators to whom advice is given.⁵ Scientists will never be in a position to reach a level of knowledge that would be placed above their factual working conditions. They always ought to formulate their insights and recommendations, as indeed their forecasts and prognoses, so as to respect the limits of their best knowledge and what their clear conscience admits. From this follows that when they deliver their advice as to an action, they are not competent to decide whether that action should be taken and, if so, whether it should be realized exactly in the ways they would consider most appropriate. Taking the decision to act is the privilege and duty of those who have been given the authority to do so⁶ who must not take refuge in leaving the decision to their counsellors, whereas the advisors must not arrogate to themselves any competence to decide on behalf of their mandators. Insofar as they wish to remain true scientists, they must refuse any such unreasonable request. For expertise alone neither creates nor legitimates any executive and in particular political empowerment. They also have to renounce the temptation of getting rich, socially influential and politically powerful by intention. If they transgress that barrier, they betray their role as scientific and scholarly counsellors, and act against their scientific ethos.

Advice ought to be complete and ethically reflected

Since scientific competence, and therefore the extension and depth of scientific advice, remain limited, advice (and advocacy) is truly scientific only if it is as complete as possible. This implies the examination and – if materially and ethically legitimate – the use of different methods as well as the intensive search for pertinent facts, factors and processes, including those that

⁵ When consulted by social actors in need of advice, scientists ought to inform them about the limitations to their providing the requested advice – and if it is the case, of their inability to deliver it. Cf. Stock, G. (2008). Preface. In: Berlin-Brandenburgische Akademie der Wissenschaften (2008), Leitlinien Politikberatung. Berlin, 7.

⁶ Cf. Weingart, P. (2008), 12 (cf. note 2); Stock (2008), 8 (cf. note 5).

might be in contradiction to the mandator's objectives, expectations, and interests. It also implies that advisors do not simply consider immediate needs and interests, but that they take account of the dimension of time, extending their investigation to possible middle- and long-term consequences, whether those be desirable or objectionable.

Any scientific advice as to action – and even more any scientifically based advocacy act – being inherently limited yet entailing factual consequences, has an irrefutable corollary: It is generating results which can be judged morally good or bad.⁷ Abstracting from this fact would be bad faith. It follows that in many – if not in all – cases, scientific advice (and advocacy respectively) may only be considered well founded and sufficient if accompanied by ethical reflection. I am aware that this may appear to be a harsh requirement; and from my experience of working in ethics committees evaluating research projects and *e.g.* protocols in the domain of medical and pharmaceutical sciences, I am familiar with the fact that such an obligation is quite often either simply ignored or considered too exacting a demand bordering on the impertinent. But that does not change its being logically and ethically correct. I find a strong support for my argument looking at the recently published Guidelines for Political Advice edited by the Bavarian and Brandenburgian Academy of Sciences. The Academy declares unequivocally that the *quality of scientific advice* depends, among others factors, on an examination of the ethical acceptability of the advice, particularly when it is advice as to action.⁸ In order to avoid any misunderstanding, I wish to emphasise that the scientist's ethical evaluation is still part of the advice, therefore not binding for the mandator who has to make up his mind and answer for his ensuing decision in full autonomy. Yet the advisor's ethical reflection remains a condition sine qua non of the full value of his or her scientific performance.

Concerning the distinction between scientific support and scientific advice

In order to avoid yet another misunderstanding that might rise in connection with an important field of scientific activity, I wish to take up the distinction between advice and support. Of course, scientific advice should add to the rationality of non-academic decisions, and from this an angle it should always support the process that leads to reasonable actions. However, the meaning of

⁷ It seems to be an 'anthropological constant' that when acting (or designing actions) we cannot avoid judging the acts and their consequences as morally good or bad.

⁸ Berlin-Brandenburgische Akademie der Wissenschaften, ed. (2008). Leitlinien Politikberatung. Berlin., 37 (Section D: "Die Arbeitsweise beratender Gremien", No. 9.

the word 'support' is not equal to that of 'advice', neither in its extension nor in its intention. By insisting on scientific integrity in any situation of scientific advice we do not oppose ourselves to using scientific competence in support of, say, economic undertakings or political movements. But of course there remains an unconditional 'must', viz. that scientific integrity be not impaired either by the aim of the supporting mission or in the course of its realization. Let us recollect a few examples:

1. Developing and using scientific knowledge with a view to helping and supporting those in danger or need is not just a possibility but an ethical obligation for those who are in a position to provide it, or who have access to it. The universally respected principle that applies here requires benevolence, in consequence helping those who are in need. This universal principle may also apply in cases where scientific support is in opposition to the non-existential interests of others. A recent example is the publication of findings disclosing that some filters against ultra-violet radiation in sun cream, or finishing agents in clothes are causing hormonal disorder and infertility in male humans.⁹ Or the recent findings at the University of Caen showing that Monsanto is wrong when maintaining that the use of Glyphosate in its herbi- and pesticide 'Roundup Ready' is harmless for humans: Glyphosate combined with some carrier substances is extremely poisonous, and the rural population, particularly small farmers in Paraguay, suffer remarkably from its use in the widespread cultivation of genetically modified Soya beans.¹⁰
2. Another example is the production and diffusion of unbiased and extensive historical knowledge again with a view to supporting those defending their existential rights against oppressors and exploiters, against opponents who defend as currently lawful what they are doing out of self-interest, while not considering that laws are always a product of socio-cultural development and might simply be a construction serving those in power.
3. My third example has to do with the experience or evidence of lacking knowledge. When this occurs in a process of scientific advice, then scientists who stick to their professional ethos will introduce and try to enforce the precautionary principle. They will endeavour to have those responsible for plans and actions respect and apply that principle, even if this is not in accordance with their primary intentions.

⁹ For repercussions in the Swiss press, see: Von Burg, Christian (2008), Gift in kleinsten Mengen, in: *Der Bund*, Montag, 5. Mai 2008, 5. For a more elaborate report on the same subject cf. von Burg's interview with the Swiss toxicologist Walter Lichtensteiger under "Behörden machen viel zu wenig" in *Der Bund*, Freitag, 27. Juni 2008, 7.

¹⁰ For repercussions in the press, see: Weiss, S. (2008). «Stirbt ein Armer, interessiert das nicht». In: *Der Bund*, Freitag, 16. Mai 2008, 5.

In short, we may say that scientists who are in a position of giving existentially important advice and support to their fellows are never placed in a neutral position. Within their limits, they are ethically obliged to relieve and assist those who, caught in serious need, may profit from their scientific competence. They will remain bound by their scientific ethos when they elaborate and deliver their support, but the decision to do so and the realization of that decision both arise from an ethical and a political motivation reaching far beyond the ethical obligations inherent in purely scientific activities.

Individual advisers and groups of experts

Scientific advice is delivered either by individual experts or by groups of experts. The basic ethical challenge and the respective principles are the same in both cases: Advice is given by an authority which knows that its knowledge is limited and historical, dependent on socio-cultural circumstances, including various and not infrequently conflicting interests; that its essential task consists in asking questions, in reasonably subverting ossified certainties, and in relativizing conventional convictions; that its conclusions and recommendations must not be presented as definitely correct. Individuals and groups are therefore likewise compelled to search for a maximum of perspectives, including unexpected and unusual ones, which might reasonably be taken into account. For groups, an interdisciplinary way of striving after a well reasoned result is compulsory. From the beginning, care must be taken that different methods are respected and that contrasting, even contradictory opinions are heard. Again the reason is simple: We know that our hypotheses and methods depend on the ways we perceive, grasp and *prima facie* evaluate the objects of our investigation. Therefore, groups have to be composed so as to include phenomenological and hermeneutical competence assured by members of the group, not just by hearings. At the very beginning of the work in common, all members of the group should lay bare their fundamental and morally relevant attitudes, scientific preferences and various interests, so as to permit a clear and open field for discussion and controversy.

Individual experts ought to satisfy the same requirement, in an analogous way. This may be done by making explicit, already in the preparatory phase of the advisory process, and then again in their written reports, the normative background (*e.g.* attitudes and personal preferences) by which their reflections and recommendations will be influenced.

Experts, whether individuals or groups, ought to admit open-heartedly that their existing opinions and convictions do not necessarily provide the firmest ground available for their analyses, conclusions, and recommendations. This refers particularly to their moral background, for that will probably shape, as I

have just said, the outcome of their investigation and advice in one way or another. They should have learned to live up to the insight that ethics is a common path towards what might become good and commonly accepted in a given situation; that ethics is a means and as such a shared process of trying to bring about the Good Life for all of us; also that it is misunderstood and misused when applied as a technique meant to enforce personal predilections.

Recalling some essential characteristics of 'Critical Rationality' - and a Conclusion

Before ending, I should like to recall some essential factors of what we might term 'Critical Rationality'.¹¹ For these factors ought to be at the base of each undertaking intended to end in ethically satisfactory advice or in a corresponding advocacy act. Since I suppose that we all are familiar with them, I content myself with a brief enumeration: the use of clear and correct language comes first, for it is the prerequisite for any effort at mutual understanding; then follow analytical precision, coherence and consistency. Intersubjective communication is a pillar of Critical Rationality; it depends on a non-repressive, non-violent frame and process of discourse. Each participant's openness for theoretical verification or empirical checkup is as necessary as systematic self-criticism. *Prima facie*, theoretical findings and achievements as well as practical rules¹² are valid; they ought to be respected as long as they are not surpassed by better and deeper reaching knowledge and insight. It is not results that are fixed once and for all that should be striven for, but maintaining a never-ending process towards elucidation, insight, and wisdom.

As a conclusion, let us remember what scientists in general and particularly those engaged in scientific advice and advocacy ought to remind themselves constantly of: that they have to take pains to distinguish sincerely what they know from what they hope, guess and wish and, most importantly, from their personal interests – and to act accordingly.

¹¹ The term 'critical rationality' was used, more than thirty years ago, by Hans Albert, cf. his *Plädoyer für kritischen Rationalismus* (1971). München: R. Piper & Co Verlag. Cf. also *Traktat über kritische Vernunft* (1968). Tübingen: J. C. B. Mohr (Paul Siebeck). Of course, using the same term does not imply sharing all the reflections, arguments and conclusions.

¹² Cf. René Descartes' concept of a provisional moral ("moral par provision") in his *Discours de la méthode*, Troisième Partie. 1st ed. Leyden, 1637; recent edition: Descartes, R. (1960). *Discours de la Méthode / Von der Methode*, translated and edited by Lüder Gäbe, in French and in German, Hamburg: Felix Meiner, 37–50.

Annex - TÜBA Declaration, August 2006

Science is a product of both intellectual and ethical human endeavor, emanating from and shaped by the humanist tradition. Academies, as one of the proponents of this tradition [which is] continually enriched by the experience of many centuries, can neither remain spectators to the alienation of science from such basic values as the right to life, human dignity, respect for human beings and their environment, in order to create yet more deadly and more effective weapons, nor the unscrupulous and illegal deployment of these weapons against civilians.

In our present world, where the great majority of scientists find employment in industry, the duty and the responsibility for upholding ethical concerns fall largely to the Academies.

The rule of violence threatens to eradicate such fine distinctions as maintaining a critical independence from dogmas, objectivity in the face of facts, the duty to avoid deliberate infliction of pain, all of which are the hallmarks of science. The Turkish Academy of Sciences calls upon all scientists to do their utmost for the resolution of all conflicts by peaceful means and for promoting the application of science exclusively for peaceful ends.

Putting Climate Change and Global Ethics on the Scientific Agenda

Ida Nicolaisen*

Abstract

This essay addresses issues which are tackled by the field of global ethics – an expanding area of scholarly attention covering topics such as: distributive justice, poverty, rules of international order, just war doctrines, issues of terrorism and humanitarian interventions, women’s rights in developing countries, human trafficking, refugee questions, global media, corruption, rights of indigenous peoples and environmental issues including climate change. The latter affects us all. It will increasingly impact on our lives economically, socially and culturally. A recent resolution by the UN Human Rights Council declared climate change a human rights issue. The latter and the ethical dimensions of climate change tie in with the finite nature of the planet, spurred by the immense social consequences and distributional problems of coping with impacts on the habitat and of keeping social pressure on this within manageable limits. The human rights problems and ethical implications of these impacts are in need of serious attention by the scientific community. They relate to research strategies, programs and projects and cannot be set aside as a specific academic field. I find it timely that ALLEA puts these pressing issues and the responsibilities of the scientific community on the agenda.

Introduction

“Climate change” has loomed large on the international agenda for the past two decades. It has spurred disagreements between states and between scientists, reflected in political and scholarly debates, the reports of the Intergovernmental Panel on Climate Change (IPCC) established in 1998 by the World Meteorological Association and the UN Environmental Programme – and, not the least the massive media coverage. According to the latest assessment report by IPCC there is unequivocal evidence that the Earth is warming and that human activities are part of the problem, as they increase the emission of “greenhouse gases”. The panel predicts that the Earth’s

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temperature will increase by 2.0 to 4.5 degrees by the end of the century, resulting in a sea level rise of at least 18 to 58 centimetres.¹

Climatic changes are as old as the world itself, of course. They have occurred regularly, at times rapidly with dramatic environmental consequences. This has been documented, for instance, by glaciological studies of the Greenlandic Icecap which have demonstrated that temperatures may increase by several degrees centigrade within a decade. It was colder in 1875 than in the previous 10,000 years and there have been extended periods of warmer weather than what we are experiencing now. Rapidly increasing temperatures have always been followed by an increase in the Carbon dioxide content of the atmosphere, moreover. That is no novelty either. What is new, however, is the increase in this principal “greenhouse gas” in the atmosphere, preceding the climatic change. Carbon dioxide has increased by 35 % since the industrial revolution, largely due to anthropogenic emissions, and this does without doubt contribute to the overall warming of the Earth. Albeit a holistic understanding of the complex set of factors, which currently impact on the climate, and their long-term environmental effects on oceans and lands, is far from complete, there is international consensus that these emissions must be curbed. There is no such agreement on measures, speed and on how the economic burden should be shared on the other hand.

Global warming increasingly affects living conditions all over the world, posing a particular threat to people in the developing nations, who already fight hard to sustain themselves. This raises ethical issues of an unprecedented magnitude with respect to the global social consequences of the way of life enjoyed by the more privileged, the distribution of economic burdens among the haves and the have-nots, cultural rights and ultimately with respect to the rights to life.

Yet, the very assessment of the impact of global warming, agreement on appropriate political measures to curb the effects, and consensus regarding the sharing of the economic burdens to cope with the environmental and social consequences have divided the international community. Disagreements have spread between the developed and developing countries as well as within nation states. Divides on these issues have loomed prominently in US politics. Global warming was negated as a serious issue by U.S. President George W. Bush during his first term in office, while the 2004 democratic candidate for the U.S. Presidency, Al Gore, has proven a tireless advocate for rapid and major interventions and achieved considerable acclaim for his film ‘An

¹ Fourth Assessment Report, Climate Change 2007: Synthesis Report Summary for Policymakers, 2007.

Inconvenient Truth.’ In 2007 he was awarded the Nobel Peace Prize, jointly with Intergovernmental Panel on Climate Change (IPCC), for his efforts to alert the world to the impact of global warming and its destabilizing potentials.

Some steps have been taken to reach global agreement on the cutting of emissions: the Kyoto Protocol to the UN Framework Convention on Climate Change in 1998, the Bali agreement on 15 December 2007 and the meetings in Bonn and Poznan which run up to the World Conference on Climate Change (COP 15) in Copenhagen in December 2009. Hopefully, this will bring the process of addressing the problems an important step forward. Recognizing that climate change and the serious obstacles it poses for economic growth are partly due to the failure of global development policies, the World Bank is also working on the formulation of a ‘Strategic Framework on Climate Change’ to guide the Bank’s policies, programs and operations. As key players in the creation of the innovations, knowledge and models which fuel the engine of transformation of the globe, the scientific community needs to reflect on its role, research agendas and priorities, and to address the implications of climate change in an ethically responsible way and with due respect for human rights.

The ethics of climate change - a challenge for the scientific community

Apart from meteorologists, glaciologists and certain branches of the humanities interested in the interfacing of climatic and human conditions, climate change has primarily occupied environmentalists and development economists of various kinds. According to a survey article in *Ethics* (issue April 2004)², very few moral philosophers have so far written on climate change, for example. This is puzzling, for several reasons, as the author, Stephen M. Gardiner observes.

1. Firstly, many politicians and policy makers claim that climate change is not only the most serious environmental problem currently facing the world, but also one of the most important international problems *per se*. Such claims are made by both “liberals” (such as former US President Bill Clinton and Britain’s former Minister for the Environment, Michael Meacher) and conservatives (US Senator Chuck Hagel and the first EPA director under the administration of George W. Bush, Christine Todd Whitman).

² Stephen M. Gardiner: Ethics and Global Climate Change. *Ethics*, 114, 555-600.

2. Secondly, many of those working in other disciplines describe climate change as fundamentally an ethical issue.
3. Thirdly, the problem is challenging in terms of theory, both in itself and in virtue of the wider issues it raises. Indeed, some have claimed that successfully addressing climate change will require a fundamental paradigm shift in ethics. For these reasons, moral philosophers should be taking climate change seriously, and the reason they have not done so to a larger extent is probably, Gardiner argues, because such studies necessarily require interdisciplinary approaches, the crossing of boundaries between science, economics, law, and international relations.

Gardiner's observations regarding moral philosophy are valid for many fields within the humanities and social sciences as well as within medicine and a range of natural sciences, in my view. There is bound to be a surge in scholarly interest in climate change and its impact on human conditions in the near future also within these academic fields.

With this in mind, ALLEA should pursue debates on: a) how the organization can promote an understanding of the ethical aspects of climate change within the academic community; b) how the organization can promote interdisciplinary research that address the issue of climate change in a holistic and ethically responsible manner; c) and how to reflect the pressing ethical problems posed by climate change in the general strategy for the work of ALLEA and its member academies.

Climate change as a human rights issue

Closely related to the ethical dimensions of climate change are the human rights implications. On 28 March 2008, the United Nations Human Rights Council passed resolution A/HRC/7/.21/Rev.1 recognizing climate change as a human rights issue and the world's poor as particularly vulnerable. The resolution was submitted by the Maldives, an island state among the world's most exposed to global warming, at risk of being submerged by rising sea levels.

The resolution underscores the need to address climate change not only as an environmental and economic issue but as a rights based one - because the very 'right to life' is at stake for a range of communities. Recalling that the Universal Declaration of Human Rights, Article 3 states that: "everyone has the right to life, liberty and security of person," the resolution of the Human Rights Council cites those most vulnerable to the effects of climate change:

low-lying and small island states; countries with low-lying coastal, arid and semi-arid areas or areas prone to floods, drought, and desertification; and developing countries with fragile mountainous ecosystems. The Declaration on the Rights of Indigenous Peoples adopted by the UN General Assembly on 13 September 2008 has similar provisions.

Many states are already faced with serious environmental and social effects of global warming, as previously mentioned. Peoples of small islands, of the Arctic, of high altitude environments or otherwise vulnerable, and at the front line of rapid climate change, are alerting the international community to the fact that the problems are of an unprecedented scale and seriously threatening their existence.³ The average Arctic temperature has risen twice as much as the average global temperature in the past few decades, for example.⁴ In summer 2007, the polar ice cap shrank to the smallest size ever seen in satellite images, opening previously ice-jammed waterways such as the Northeast Passage for navigation.⁵ The process continued in 2008. World leaders have flocked to Greenland to see how the glaciers have retreated at record speed, one more than 80 km in less than 20 years. The warmer weather has a dramatic effect on the livelihoods of peoples living here. Thinning sea ice makes traditional hunting difficult or impossible, changing permafrost conditions alter spring run-off patterns and transportation possibilities. In northern Siberia, the period of frozen soil has diminished from seven to four and a half months. Species crucial to the subsistence of local communities are becoming scarce. It can be mentioned in a parenthesis that the polar bear was declared a threatened species by the US in May 2008. Stephen Schneider, a leading climatologist from the Nobel Prize-winning IPCC, recently stated that

³ The range of problems created by the process was vividly reported in a study to the UN Permanent Forum's Seventh Session, 21 April – 2 May 2008: Victoria Tauli-Corpus and Aqqaluq Lynge: *Impact of Climate Change Mitigation Measures on Indigenous Peoples and on their Territories and Lands*. Study presented at the Permanent Forum on Indigenous Issues 2008. E/COCOC, E/C.19/2008/10. In response, UNESCO launched an internet forum on the 'Frontlines of Climate Change' on 12 June 2008 in partnership with the Secretariat of the Convention on Biological Diversity (SCBD), the Secretariat of the UN Permanent Forum on Indigenous Issues (SPFII) and the Office of the High Commissioner on Human Rights (OHCHR), which among other themes calls for international attention to the knowledge and experience of indigenous communities and peoples living in small islands, the Arctic and other sensitive ecological zones.

⁴ ACIA, *Impacts of a Warming Arctic 2007, Overview*.

⁵ Jamey Keaton: 'Arctic Ice Melt Opens Northwest Passage.' Associated Press, 16 September 2007.

the peoples of the North are bearing the brunt of the onslaught of climate change, even though they are not the ones to blame for causing it.⁶

This leads to the key issue. Civil groups and indigenous peoples living in the periphery of the growth centres of the world have long argued that their human rights are being violated by the anthropogenic emissions of greenhouse gases by industrialized hotspots. Their “carbon footprints are small”, it is pointed out, yet they suffer disproportionately from the energy spending, forest- and agro-policies and consumption patterns of the industrialized and industrializing countries. The issue is ripe with potential political conflict and violence. Already, so-called disputes caused by climate change are played out in widely different scenarios largely in the developing world. This situation raises ethical and human rights problems of significance to the scientific community, as these relate to research agendas and benefit sharing.

It must be recalled that international mitigating strategies to cope with climate change and environmental strain pose additional threats to developing nations and the communities most vulnerable to climatic change. The debates focus on emission rights for the rich world, without defining rights or obligations for the developing world, for instance, as pointed out by Michael Grubb already 10 years ago.⁷ The wide political support for extractive industries operating in developing countries to replace fossil fuels with bio-fuel has major environmental and social consequences. Large scale monocrop plantations for so-called green fuel are replacing primary and secondary rainforest at an alarming pace in South-East Asia and Latin-America, causing considerable loss of bio-diversity, health problems due to excessive use of chemicals and increasing poverty in local communities. The impact is tremendous. Bio-fuel plantations have major implications not only for the use, protection and management of wildlife, fisheries, and forests but for the very existence of some peoples. In some regions where I have conducted fieldwork, the impact amounts to cultural genocide. As the EU has decided to base its energy consumption on 20% bio-fuel, a further rush to create these fuel plantations in the developing countries can be expected, underscoring the urgent need to address the human rights implications of the decision. The changing environmental conditions are already causing serious conflicts within and between nations. It has moreover given rise to a series of court cases between civil groups and the nation states in which they live, as well as

⁶ Stephen Schneider: 'Global Warming: Do We Know Enough to Manage the Risks?' Presentation at the Institute of Arctic Studies, Dartmouth College, 22 January 2006.

⁷ Michael Grubb: 'Seeking Fair Weather: Ethics and the International Debate on Climate Change.' *International Affairs*, Vol.71, No. 3, July 1995, 463-496.

to cases across national borders. To a large extent, but not exclusively, these cases are brought by indigenous peoples. An indigenous group of Canada has taken the US to court for its environmental policies in Alaska, for example, arguing that US policy will radically change the habitat and hence threaten their inalienable rights to their traditional lands and natural resources. The case is still pending. It is likely that we will see many more cases.

Environmental refugees

Global warming is threatening a growing number of societies, whose habitat is being destroyed or changed so radically that they are forced to give up their livelihood and in consequence in many cases their traditional culture. A number of communities face no alternative but to leave home and seek refuge elsewhere. The international community is paying increasing attention to this exodus of people, the so-called *environmental refugees*. Not only small island states like the Maldives, but also countries like Australia are experiencing these problems and take them very seriously. Parts of the country have faced six straight years of drought, for example, resulting in an all but total collapse of its rice production (reduced by 98%) and a subsequent relocation of scarce water resources – to change the production toward crops like grapes and livestock. Incidentally, scientists fear that this transformation will threaten poor countries that import rice as a dietary staple. At the same time the Australian government is debating how best to address the future of the Torres Strait aboriginals living in the north, whose traditional islands are on the brink of submersion due to the rising sea-level. Apart from the human suffering and loss of livelihood and cultural identity, the situation of these islanders poses difficult legal questions in respect to their current and future rights.

Climatic changes are creating a ripple effect of social misery in other parts of the world as well. In Bangladesh, for example, the delta of the Brahmaputra is increasingly flooded. This is partly due to changing climate conditions, which force people who traditionally live here to relocate. Some of these people move up into the lower reaches of the Himalayas, more specifically into the Chittagong Hill Tracts traditionally inhabited by various indigenous peoples. Immigration is a serious further strain on the fragile environment; clashes between newcomers and traditional inhabitants occur, the frequency of murders increases as do legal and military battles.

Conclusion

Climate change and the ways in which the international community, nation

states and trans-national industries deal with its consequences pose serious ethical and human rights problems, as indicated. The scientific community cannot avoid addressing these issues. It must define the ethical space of its endeavours and live up to its commitment to human rights, balancing scientific independence and the autonomy of science vis-à-vis its social responsibility when dealing with the topic and impacts of global warming. The rapidly evolving pressure to address environmental, economic, social and cultural consequences of climate change will put the ethical standing and practices of academia to the test, as it will be reflected, for better or worse, in research agendas, strategies and project designs.

The Contribution of Memory Research to the Ethics of Memory

Johannes JF Schroots*

Abstract

This paper explores the relation between ethics and memory. Ethics refers to prescriptions and the regulation of behaviour, while memory relates to what people will remember or forget. Memory research has yielded two behavioural principles, (i) 'forgetting' follows generally a power curve with most memories originating from the recent past, and (ii) the forgetting curve of middle-aged and older people shows, particularly, a disproportionate concentration of memories between 10 and 30 years, i.e., the 'bump' period. The ethical behaviour of people is grounded in these two memory principles. Their implications are discussed from the perspective of both intergenerational relations and people's historical past.

In 2002, Avishai Margalit, professor of philosophy at the Hebrew University of Jerusalem, published the book, *The Ethics of Memory*. The term 'ethics' should be understood both as microethics, i.e. the ethics of individuals, and as macroethics, i.e. the ethics of collectives. The main question of the book is: "Are we obligated to remember people and events from the past?" The counter-question might be: "Are there things that we ought to forget?"

Remembering and forgetting are two key concepts in human memory research. The surprising link with ethics results from the terms 'obligated' and 'ought'. Surprising, because there is no 'obligation' in the world of empirical science. Memory research is concerned with natural laws and principles, which represent a totally different set of norms and values. It is interesting, therefore, to explore the way Margalit connects human memory with ethics and/or morality, and then, starting from that connection, answers the question: what can memory research contribute to the ethics of memory?

Ethics vs. morality

Margalit, who is liberally quoted in this paper, goes to great lengths to distinguish between ethics and morality. Generally, these two disciplines refer

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to different types of human relations, ‘thick’ and ‘thin’ ones. Ethics is concerned with *thick* relations, which are grounded in attributes such as parent, friend, lover and/or fellow man. Thick relations are anchored in a shared past or shared memory. Morality deals also with aspects of being human, such as being a woman or being sick, but these relations are called *thin* relations.

According to Margalit, thick relations are generally our relations with the near and dear, while thin relations are generally our relations with the stranger and the remote. Ethics tells us how we should regulate our thick relations; morality tells us how we should regulate our thin relations. For example, *morality* is largely concerned with *respect and humiliation*; these are attitudes that manifest themselves between those who have thin relations. *Ethics*, on the other hand, is largely concerned with *loyalty and betrayal*, manifested between those who have thick relations.

Collective memory

The central metaphor in Margalit’s discourse is *memory as the cement* that holds thick relations together. Communities of memory are the obvious habitat for thick relations and, thus, for ethics. Generally speaking, ethics refers to *autobiographical* memory, which is an individual attribute. In case of communities, however, ethics is also concerned with collective memory, i.e. the shared memories and personal experiences of groups of people – national, religious, political, cultural or otherwise – who share positive or negative events from their past.

With its implicit notion of shared humanity, morality is also concerned with collective memory, but not in terms of shared personal experiences. Morality relates primarily to general, *episodic* experiences or events regarding human dignity and respect for our fellow man. In other words, morality is concerned with collective memory from a norms and values perspective. Such norms and values vary from culture to culture but are essentially grounded in the very notion of shared humanity as formalized in human rights, among others. Genocide is a glaring example of what morality requires us to remember.

From the above, it can be concluded that the distinction between the ethics and morality of collective memory is negligible, and of the same order as the distinction between autobiographical and episodic memory; that is, autobiographical memory as personally experienced life-events and episodic memory as experienced events in general. In view of these subtle differences only the generic terms ethics and memory are used in the following.

Memory research

If memory plays such an important role in the regulation of ethical behaviour, then the question is: What can memory research teach us about the obligation to remember or to forget people and events from the past?

Autobiographical memory

At the end of the nineteenth century, the experimental psychologist Ebbinghaus constructed the so-called 'forgetting curve'. According to this curve, human memory obeys classic remembering and forgetting principles. The frequency distribution of memories thus follows a power function, with most memories originating from the recent past (recency effect) and only a few originating from early childhood (childhood amnesia phenomenon). Although the forgetting curve is still generally valid, Rubin and colleagues discovered the reminiscence or autobiographical memory *bump* in people over 40 in 1985.

In figure 1, the forgetting curve with recency effect, the bump, and the childhood amnesia phenomenon is presented for a group of 50-year-olds.

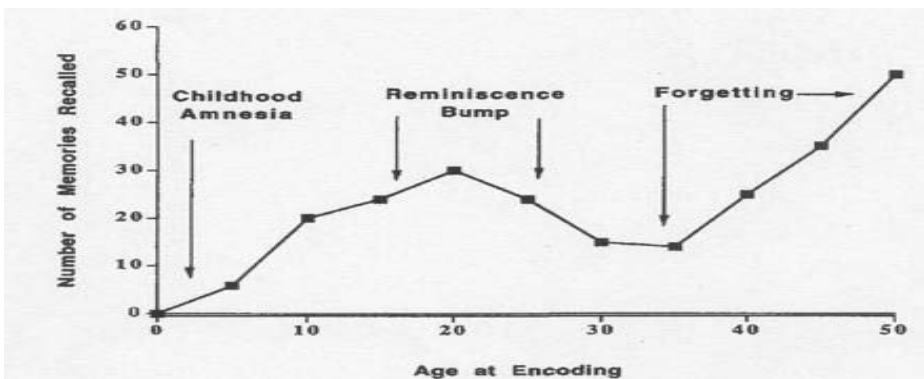


Figure 1. Life-span distribution of memories (from: Conway & Pleydell-Pearce, 2000).

The Y-axis of figure 1 represents the frequency of recalled memories, and the X-axis the chronological age at encoding; that is, the age period in which the memory of a life event was stored and encoded in the brain. The figure shows the typical forgetting curve from age 50 to c.a. 30 or 35, an unexpected

increase in memories from around 30 to 20 years, after which the curve decreases until age 10, and finally disappears in childhood amnesia. In brief, the lifespan distribution of memories shows a ‘bump’ in the age period 10 to 30. The generally accepted explanation for the bump pattern is that neurobiological encoding strength reaches its peak between 10 and 30. The bump is a universal phenomenon. Cross-cultural memory research has consistently shown that the life stories of middle-aged and older people contain a disproportionate concentration of memories from between 10 and 30 years.

Significance of the bump

Memory research has also shown that most memories from the bump period are related to positive experiences. Results from the Amsterdam Longitudinal Study of Autobiographical Memory confirm this overall picture. In the bump period of their life, people start dating, have their first relationships, are educated, look for their first job, feel physically strongest, become politically aware, go to the best movies of their life, read the most memorable books, listen to their best-loved music, and experience their most intensive learning. In brief, the bump period is the cognitive-affective frame of reference from which middle-aged and older people view life in general, and relationships, work, health, education in particular. The significance of the memory bump can be demonstrated by way of a very simple formula:

$$P_w = C + (20 \pm 10)$$

in which: P = Period (yrs)

w = world-view

C = Cohort (birth)

This formula states that the individual’s world-view or frame of reference (P_w) was formed in the period between the ages of 10 and 30. For example, in the year 2008, the world-view of a 65-year-old academic was formed between 1953 and 1973. It is the task of cultural historians and sociologists to characterize that period, but one may safely say that the majority of today’s 65-year-old scientists and scholars experienced or witnessed the student revolution at the end of the sixties, while they were students.

Preliminary conclusions

First, the basis of middle-aged and older people’s ethical behaviour (i.e. how we should conduct our relations) is grounded in the cognitive-affective memories and experiences from the bump period (10-30 yrs), the formative period of life.

Second, cognitive-affective memories from the bump period primarily contain positive experiences; negative memories are not restricted to the bump period, but are distributed more or less at random over the individual's entire lifespan. In other words, negative memories don't follow the forgetting curve. However, if negative memories of relationships (e.g., betrayal and humiliation) are encoded and stored in the brain during the bump period, then it may be assumed – on the basis of the maximum encoding strength and storage in that period – that the impact of these negative memories will have a negative effect on the individual's ethical behaviour in later life. Memories of betrayal and humiliation from the formative period will not be easily forgotten.

Intergenerational relations

The bump pattern may also be studied from the perspective of intergenerational relations. The generation concept denotes successive groups in time. Generations occur within but are not necessarily limited to lineages or descent lines. For example, the individual and his/her parents and children comprise three distinct (biological) generations.

From a biological perspective, the temporal distance between two generations will generally represent a time frame of between 20 and 30 years. An average family of three generations will therefore cover a period of about 75 years of shared intergenerational relations. If we take the bump of the third (youngest) generation as a starting point, we may safely assume that the world view of the third generation extends over a period of ca. 100 years; that is, the distance in years between the bump period of the first generation minus the bump period of the third generation equals 100 years.

History and memory

The Dutch language researcher Thijs Pollmann collected empirical evidence that the historical past, as referred to by journalists, follows a forgetting curve. He analyzed the content of international newspapers, plotted the frequencies of historical references (in years) as mentioned in a particular newspaper within a 70-year period, and came up with an exponential curve which is similar to the individual forgetting curve (Figure 2).

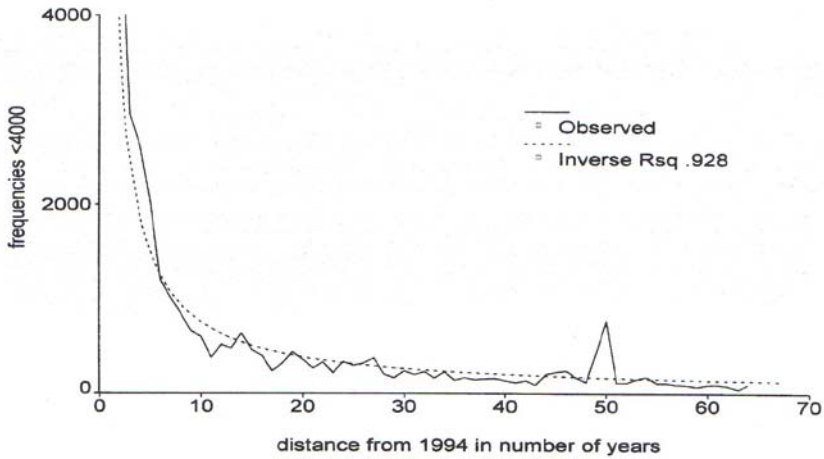


Figure 2. *International Herald Tribune 1994*: time series 1993-1930 (from: Pollmann, 1998).

Figure 2 shows the forgetting curve of the *International Herald Tribune* within the 70 years prior to 1994. The solid line represents the empirical findings, while the dotted line is the fitted curve. The peaks in the solid curve represent important historical events. For example, the peak at time 50, which indicates the years between 1994 and 1944, refers to the frequency with which references were made to the year 1944 at the end of the Second World War. It is interesting to note that a similar curve emerges if the time series has a much broader range, *i.e.* from 1993 to the year 1200 (Figure 3). The huge peak at the beginning of the forgetting curve refers – as expected – to the Second World War.

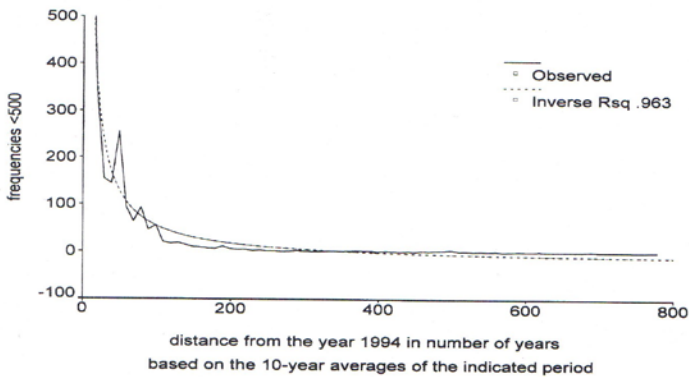


Figure 3. *International Herald Tribune 1994*: time series 1993-1200 (from: Pollmann, 1998).

Pollmann also studied national newspapers, i.e., the *Times*, the *Sunday Times*, *El Mundo*, *Frankfurter Allgemeine Zeitung*, *Le Monde*, and the Dutch newspaper *NRC Handelsblad*. As expected, all these newspapers demonstrate the forgetting curve, but with this distinction that the curves are characterized by different high and low profiles. Unfortunately, Pollmann did not undertake a content analysis in terms of historical events within a specific period. Nevertheless, the interpretation of the national profiles, as based on the general forgetting curve, should not be too difficult and would probably show the nation in question's collective memory of the historical past, as laid down in history textbooks (canon). After all, journalists of national newspapers, who received instruction during their bump period from such textbooks, can be regarded as representatives of the nation's collective memory.

Summary and conclusion

Ethics refers to prescriptions and the regulation of behaviour, while science deals with observation, description, and explanation. Memory research shows what people will remember or forget from the autobiographical and historical past. Discrepancies between the ideal world of ethics and the real world of human memory may cause conflicts, which can be avoided, or at least understood, if the results of memory studies are taken into account.

In view of the relatively fixed, neurobiological nature of human memory, it can be concluded that any ethics of memory should be based on the principles of remembering and forgetting. The question remains, however: Should we sometimes forget for the sake of forgiving?

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Methodology in the Basic and Social Sciences as an Ethical Question

Gürol Irzik*

Abstract

There is consensus in the scientific community over the kind of method physical sciences use. It is often called 'the hypothetico-deductive method'. No such consensus exists over the question of methodology regarding social sciences. Some argue that in essence all sciences employ the same method. Others disagree and claim that social sciences require a different kind of methodology such as "the interpretive method". The question of method in the social and human sciences, however, goes beyond this divide and also incorporates the question of the proper mode of explanation: are social phenomena to be explained in terms of the motives, intentions, goals and actions of the individuals or the other way around? This is known as the methodological individualism / methodological holism debate in the literature. In my talk, I discuss these various facets of the question of methodology in the social sciences and focus on the individualism-holism debate as it appears in the context of economic theory. I show how a seemingly neutral question of methodology at the same time takes on an ethical dimension.

There is consensus in the scientific community over the kind of method physical sciences use. It is often called 'the hypothetico-deductive method'. Simplifying to the extreme, it can be summarized as follows: we construct a hypothesis or a model to solve a problem or explain a phenomenon, and then test it by drawing from it an observational consequence, often in the form of a prediction. If the prediction holds, we hold on to our hypothesis or model tentatively and apply it to new situations, that is we test it again; if the prediction fails, we go back to the drawing board in order to figure out where we went wrong. This conception of the method was a product of the Scientific Revolution in the 17th century and worked extremely well in the physical sciences¹.

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¹ For details, see Nola, R. & Irzik, G. (2005). *Philosophy, Science, Education and Culture*. Dordrecht: Springer, ch. 8

By contrast, no such consensus exists over the question of methodology regarding social sciences. Some, who are called positivists, argue that in essence all sciences employ the same method, that is, the hypothetico-deductive method. No doubt, the hypothetico-deductive method does work in some cases, but its success has been rather limited. Social scientists have great difficulty in coming up with novel predictions, and even when they do succeed, their predictions often fail miserably. For this reason most social scientists are content with *ex post facto* explanations. Here too it is not all sunshine. It is often said that if a student can not produce several different explanations for the same social phenomenon, (s)he'd better forget about being a social scientist.

There is of course a crucial difference between natural and social phenomena. While the former exist independently of human beings and are devoid of any meaning in themselves (the physical world just is, being a collection of 'cold' facts), the latter, that is social phenomena, are constituted by the sum of countless human actions, intentions and goals. People attribute a meaning, a value to what they do, so social phenomena are value-laden through and through. In social science jargon they have symbolic meaning. It is this feature of social phenomena that led many social scientists to argue that social sciences require the employment of a different kind of methodology, namely "the interpretive method"². For if social phenomena have symbolic meaning, they are in need of an interpretive understanding. Moreover, as our value orientation toward a social event changes, so does our interpretation, and indeed, the very symbolic meaning of the social event in question.

This is nowhere clearer than in our categorizations. Consider, for example, homosexuality. Once it was categorized as a psychological illness that requires treatment, but it is no longer seen this way. Now, the question I would like to pose is this: was the interpretation of homosexuality as a psychological illness an honest factual-methodological mistake or an ethical blunder? Can we always make a sharp, principled distinction between the two when we are trying to understand human actions?

Let me now turn to a different issue. The issue of method in the social sciences goes beyond the divide between positivists and interpretivists and also incorporates the question of the proper mode of explanation: are social phenomena, especially social institutions, to be explained in terms of the

² See Keat, R. & Urry, J. (1982). *Social Theory as Science*. 2nd edition. London: Routledge and Kegan Paul, ch. 7; see also Dallmayr, F. R. & McCarthy, T. A. (Eds)(1977). *Understanding and Social Inquiry*. Notre Dame: Notre Dame University Press.

actions, attitudes, intentions, beliefs and goals of the individuals or the other way around? Those who answer this question in the affirmative are known as methodological individualists. Those who answer it in the negative are called methodological holists, and the discussion that ensues between the two camps is known as the methodological individualism-methodological holism debate.

Methodological individualists claim that

“Every complex social situation, institution or event is the result of a particular configuration of individuals, their dispositions, situations, beliefs, and physical resources and environment. There may be unfinished or half-way explanations of large-scale social phenomena (say: inflation) in terms of other large-scale phenomena (say: full employment); but we shall not have arrived at rock-bottom explanations of such large-scale phenomena until we have deduced an account of them from statements about the dispositions, beliefs, resources and inter-relations of individuals.”³

By contrast, methodological holists claim that

“On this view, the social behaviour of individuals should be explained in terms of the positions or functions of these individuals and of the laws that govern the system. These laws must be regarded as *sui generis*, applying to the whole as such and not derivable from individualistic principles.”⁴

The difference between these two modes of explanation can be metaphorically couched in terms of the whole-part relationship. Whereas the methodological individualist argues that explanation is a bottom-up affair where the whole should be explained in terms of the parts that constitute the whole, the holist argues that the explanation is a top-down affair; here, the whole has explanatory priority over its parts in that the parts can be best understood in terms of their place and functions within the whole. The same point can be expressed in terms of the notion of reduction: whereas the methodological individualist claims that the properties of the whole are reducible to the properties of its parts, the methodological holist denies this.

Now, if we turn to the physical and biological sciences for a moment, we see that the bottom-up approach of explaining the whole in terms of its parts

³ Watkins, J. (1959). Historical Explanation in the Social Sciences. In P. Gardiner (Ed.), *Theories of History*. New York: Free Press, 505

⁴ Watkins, J. (1955). Methodological Individualism: A Reply, *Philosophy of Science*, 22, 58-62, 58-59.

has been very successful in such disciplines as physics and chemistry. For example, we were able to reduce and therefore explain the ideal gas law in terms of the kinetic theory of gases, which is in turn explained in terms of quantum mechanics which refers to subatomic particles, forces and fields. The explanation of macroscopic phenomena in terms of microscopic phenomena was clearly one of the most spectacular successes in physics and chemistry.

But does this method work equally well in explaining social phenomena? More importantly for the purpose of this paper, is the debate between the individualist and the holist merely a methodological one or is it at the same time an ethical matter?

I would like to take up this question by focusing on the nature of explanation of economic activity in the field of mainstream microeconomics. According to mainstream microeconomics, all economic phenomena can and should be explained solely in terms of the facts regarding the instrumentally rational, self-interested behaviour of individuals divorced from all social relationships and institutions. Postulation of a rational agent who always tries to maximize his or her utility function as the central explanatory principle is the cornerstone of most mainstream microeconomic theorizing⁵. Clearly, mainstream microeconomics adopts the individualist, bottom-up methodology. It assumes that economic factors that affect human behaviour operate independently of non-economic factors and institutions whose effects can pretty much be neglected.

Methodological holists deny this. As my paradigmatic example, I will consider Karl Polanyi's views here. Polanyi was a 20th century Hungarian historian of economic thought and the brother of Michael Polanyi, the author of *Personal Knowledge*. His most important works *The Great Transformation* which was published in 1944. In that book Polanyi showed how the self-regulating free market economy that was instituted in Europe in the nineteenth century led to disastrous consequences. The method Polanyi employed in his book was a form of methodological holism. He formulated it as follows:

“Man's economy, as a rule, is submerged in his social relationships. He does not act so as to safeguard his individual interest in the possession of material goods; he acts so as to safeguard his social standing, his social claims, his social assets. He values material goods only in so far as they serve this end. Neither the process of production nor that of distribution is linked to

⁵ Hausman, D. (1992). *The Inexact and Separate Science of Economics*. Cambridge: Cambridge University Press.

specific interests attached to the possession of goods; but every single step in that process is geared to a number of social interests which eventually ensure that the required step be taken.”⁶

Thus Polanyi adopted a top-down methodology that aims to explain a person's actions in terms of his social status rather than the other way around as methodological individualists claim.

Now, how do we choose between these two rival approaches? Is the choice merely a methodological one or does it involve an ethical dimension as well? I claim that the answer is both. This is because the two approaches in question presuppose different conceptions of human nature and of human societies.

The correlative of the individualist methodology of mainstream microeconomics is what might be called 'the formal conception of the economy'. According to this, the economy is concerned with the allocation of scarce resources to satisfy the unlimited wants of individuals. Thus, the formal meaning implies a choice between different means of want-satisfaction, a choice that arises from the insufficiency of resources in view of unlimited wants (the postulate of scarcity) and has the logic of a means-ends rationality (the postulate of rationality). This conception presupposes an instrumentally rational individual, a *homo oeconomicus*, who is faced with certain choices in conditions of scarcity.

The formal conception emphasizes exchange as the dominant mode of economic behaviour, the aim of which is the maximization of utility. It is often assumed that this mode of behaviour has a supra-historical status that defines the very nature of a human being. Adam Smith, for example, wrote in *The Wealth of Nations* that human beings by nature have a propensity to barter, truck and exchange, and placed this conception of the human being at the centre of his theory which has informed all mainstream economic analysis.

We thus see that a seemingly neutral methodology is based on a certain conception of economic activity and a certain understanding of human nature. Historians of economic thought, such as Karl Polanyi, however, show us that this understanding of the economy and its correlative conception of human nature is both an ideological construct and a historical oddity that took root in the nineteenth century market societies based on the commodification of labour, land and money.

A market society is a society in which all economic relationships are dominated by one principle of behaviour, namely, that of exchange, and

⁶ Polanyi, K. (1957). *The Great Transformation*. Boston: Beacon Press, 46

governed by a self-regulating market economy where the supply and demand, prices and wages are determined solely by the logic of the market without any outside intervention.

It is important to note that from a historical perspective whereas market societies are exceptions rather than the rule, markets have always existed in all societies as places where people get together for the purpose of exchange of goods.⁷ But interventions that dictate which goods are to be produced, at what level they are to be produced and at which prices they are to be sold prevented markets from dominating the entire economic activity. Especially since basic means of productions such as land and labour, not being commodities, limited the role of markets⁸.

Let me now turn to Polanyi's holistic methodology. That methodology is based on what might be called 'the substantive meaning of the economy'. According to this, economy is a system of production, distribution and consumption established to meet the material needs of the people. Here there is no assumption of *homo oeconomicus* who is faced with making a choice under scarcity. Polanyi shows on the basis of historical and anthropological research that in all societies except in market societies, the activity of production, distribution and consumption was governed by three fundamental principles of behaviour: exchange, reciprocity and redistribution. To these corresponded three institutional arrangements: market, symmetry, and centrality. The principle of exchange pertains to the exchange of goods and services between people in the market. Here the exchange takes place between equal and anonymous buyers and sellers, independently of their social status, who they are, etc. for the purpose of individual gain. The principle of reciprocity governs relationships among 'symmetric' groups whose members bear certain responsibilities toward one another, as in families or among friends. The principle of redistribution pertains to collection of goods and services in one centre and their reallocation through a central organ such as the state. What governs tax collecting and state expenditure is this principle.

According to Polanyi, we find all three principles of behaviour operative in all societies throughout history except in market societies, where the principle of exchange dominates at the expense of others. Polanyi observes that the principle of exchange differs from the other two principles in an important way. Neither the reciprocity relation nor the redistribution relation creates an

⁷ Polanyi, K., Arensberg, M. & Pearson, H. W. (eds) (1971). *Trade and Market in Early Empires*. Chicago: Gateway.

⁸ Buğra, A. (1995). *İktisatçılar ve İnsanlar* [Economists and People]. İstanbul: İletişim, 49.

institution designed specifically for one function only. Kinship and friendship groups exist prior to their economic function and serve other purposes as well. The same is true of the state. But the exchange relation creates an institution, namely the market, that has no function other than economic. Thus, when it dominates at the expense of other two principles, then “the running of the society [becomes] an adjunct to the market. Instead of the economy being embedded in social relations, social relations [become] embedded in the economic system.”⁹. In other words, the economy becomes disembodied from the society.

By contrast, in all non-market societies the system of production, distribution and consumption is embedded in the society; that is, such a system must adjust itself to forms of behaviour such as reciprocity and redistribution other than exchange. It is only in market societies that the economy emerges as an autonomous and separate domain that is supposedly governed by its own laws, that is, disembodied from other forms of social relationships and behaviour¹⁰.

I hope I was able to show that holist and individualist methodologies in explaining economic activity are based on radically different conceptions of human nature and society.

It might appear that the choice between the two methodologies can be made without taking any evaluative attitude toward their corresponding conceptions of human nature and society. It might be argued that the choice can be made on a neutral basis as follows: if the economic action for which an explanation is sought has been carried out in a non-market society where the economy is embedded, then methodological individualism will fail badly, since it will be blind to the fact that people act so as to safeguard their social standing, social claims and assets, and to the fact that they value material goods only in so far as the latter serve this end. If, on the other hand, the explanation is sought in a market society where the economy is disembodied, then methodological individualism would work better.

But this shotgun answer will not do for several reasons. First, from a historical perspective market societies are an exception rather than the rule. They emerged very late in human history, only about two hundred years or so. Second, their emergence did not occur spontaneously, but was brought about

⁹ Polanyi, K. (1957), 57

¹⁰ Buğra, A. (1995), 50; see also Buğra, A. & Ağartan, K. (Eds)(2007). *Reading Polanyi for the Twenty-First Century*. New York: Palgrave, for the relevance of Polanyi's insights for today's societies.

by a political will that was informed by a positive value-orientation to the idea (if you like, the ideology) of a self-regulating market economy. In the nineteenth century the British parliament, for example, passed dozens of laws to turn this idea into a reality. To this end, land, labour and money needed to be commodified. This required the dismantling of all the social and cultural institutions that protected people in times of hardship.

Finally, the society shaped by the vision of a self-regulating economy eventually led to its own destruction. Polanyi's book *The Great Transformation* is a striking story of this dissolution, epitomized by its very first sentence: "The nineteenth-century civilization has collapsed."¹¹ Polanyi's book showed in detail how the process of disembedding the economy from the rest of society via the commodification of land, labour and money led to the demise of society. He wrote:

"For the alleged commodity 'labor power' cannot be shoved about, used indiscriminately, or even left unused, without affecting also the human individual who happens to be the bearer of this particular commodity. In disposing of a man's labor power the system would, incidentally, dispose of the physical, psychological, and moral entity 'man' attached to that tag. Robbed of the protective covering of cultural institutions, human beings would perish from the effects of social exposure; they would die as victims of acute social dislocation through vice, perversion, crime, and starvation. Nature would be reduced to its elements, neighborhoods and landscapes defiled, rivers polluted, military safety jeopardized, the power to produce food and raw materials destroyed."¹²

If this is right, then the individualism-holism debate cannot be evaluated merely as a neutral, value-independent controversy about methodology. It cannot be divorced from questions like "what kind of society do we want to live in? What is the best form of society conducive to human flourishing?" To the extent to which different methodologies presuppose different conceptions of society, the choice between the former is not merely a methodological one, but at the same time an ethical one.

Knowing that the market economy was brought about by political will shaped by the belief that a self-regulating market is the solution to all our problems, the social scientist cannot remain indifferent to the conceptions of society implied by her methodological stance. (S)he cannot remain neutral to the political possibility of re-embedding the economy back into society by

¹¹ Polanyi, K. (1957), 3.

¹² Polanyi, K. (1957), p. 73.

regulating it. Indeed, that is the whole point of the social welfare state that emerged in Europe after two devastating world wars. The social scientist cannot escape from the responsibility of evaluating the radically different social implications of her methodology. The choice is hers, so are the virtues and vices that come with it.

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The Ethics of Authorship: Rights and Responsibilities

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Abstract

Scientific misconduct is an important issue and there are well-known and widely studied cases in the literature on the ethics of science. Most of the research education programmes consist of research ethics courses. On the contrary, the ethics of authorship is relatively less mentioned and studied. Scientists rarely receive proper education about this subject. They have little knowledge about their rights and responsibilities as authors. Besides the increasing incidence of ethical violations in the domain of authorship, the lack of education leads the scientists to problems in exercising their rights as authors.

In this presentation I will focus on the issues surrounding the right to authorship, the rights of an author such as copyright, and the responsibilities of the authors towards their partners and their fellow scientists.

Introduction

In this presentation I will not cover all the issues of scientific integrity, not even the ethical issues about research. What I will focus on are the issues surrounding the right to authorship, the rights of an author such as copyright, and the responsibilities of the authors towards their partners and their fellow scientists. For this presentation I will only take into consideration scientific articles in the basic sciences and medicine, although I do not define medicine as a basic science, but a scientific discipline. There are many other areas in scientific publishing like social sciences; and many other means of scientific communication such as books, e-letters and Open Access.

Robert A. Day (1997) defines a basic scientific article as

“a publication, which (1) consists of the results of an original research, (2) in a format that enables other scientists to repeat the tests conducted and to

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assess the results and (3) published in a periodical or in another scientific medium that is easily accessible for the scientific community”.

A scientific publication is the last step of every scientific study. It is subject to definite rules and a certain structure. Besides informing the scientific community about the results, the purpose of these rules is to enable the scientific community to verify, use and reproduce the knowledge.¹ A 'good' scientific article should have two fundamental characteristics: correct information and appropriate presentation. It is intended to skip the 'correct information' part completely, but it is important to emphasize that it is the author's responsibility to assure the reliability of the content of his/her article. Issues such as plagiarism and fraud, which are grave ethical and legal issues, are directly connected to correct information and appropriate presentation, which are also intertwined amongst themselves. An appropriate title, an informative abstract, a detailed explanation of methods, an ethically sound and clearly defined procedure for the recruitment of research subjects, where applicable, and a meticulously prepared list of references are the main items of a proper presentation. While most articles on the ethics of scientific publishing deal with the issues regarding the 'correct information' aspect, such as plagiarism and fraud, relatively less attention is paid to the ethical issues surrounding authorship.

Ethics of Authorship

One becomes an author when s(he) writes an article, so ethics of authorship is a subset of valid concerns for the appropriate presentation of research results. First of all we have to ask ourselves who an author is, in other words, what makes an author?

On this subject, there are many different opinions, a few traditions, but almost no ethical reflection and justification. Traditions mostly depend on either the area where the article comes from or the institution; they also have cultural determinants. The Committee of Medical Journal Editors' criteria for authorship reads as follows;

“Authorship should be based only on a substantial contribution to: (i) Conception and design or analysis and interpretation of data and (ii) Drafting the article or revising it critically for important intellectual

¹ Day, RA. (1997). *Bilimsel Makale Nasıl Yazılır ve Yayınlanır?* [How to write and publish a scientific paper]. 2nd edition. Ankara: TUBITAK Publishing.

content and (iii) Final approval of the version to be published. Conditions (i), (ii), and (iii) must all be met.”²

These criteria are not largely supported or used by researchers as research shows.³ Publishers have almost no say on this subject; but what they prefer is that the first names should be the corresponding author and assume responsibility for the entire study.

An ethical assessment on this subject should take the main features of scientific endeavour into consideration. What is the most important characteristic of science? Undoubtedly the answer lies in the definition of science, which may be formulated as “understanding and explaining natural phenomena.” So the major task of the scientist is to identify the natural phenomenon to be understood and explained. Therefore the most important issue in science and where the greatest creativity lies is in posing the question. The insight which goes into identifying the problem is intimately connected with the aspect of 'understanding' which appears in the definition of science. The major role and honour in science should go to whoever has identified the phenomenon to be investigated and s/he must take the first rank in the ordering of the list of authors.

The aspect of 'explanation' in the above definition of science calls for the formulation of a working hypothesis. Once the problem is defined, many explanations may emerge, but it is almost an art to write down a sound and powerful hypothesis which will also point the way to the design of the experiment. Usually the one who defines the problem, also structures the hypothesis. In contemporary science it is very difficult to establish the experimental method without receiving aid from various disciplines. In this respect there should be prior consensus amongst participants before the research is launched, but I will reflect on this later.

The final task that deserves authorship in a research project is literally writing the article. All the names declared as authors are responsible for the appropriateness and ethical value of the article.⁴ A scientific article calls for many other kinds of contributions which so metimes are not rewarded with authorship. In some disciplines, such as medicine, routine laboratory work, statistical analysis, mentorship, reviewing the literature, are some of those

² Day, R. (1997), Bhopal, R. et al.(1997). The vexed question of authorship: Views of researchers in a British medical faculty. *British Medical Journal*, 314, 1009-1012.

³ Bhopal, R. et al. (1997).

⁴ Kassirer, JP. & Angell, M. (1991). On authorship and acknowledgements. *The New England Journal of Medicine*, 325(21), 1510-1512.

valuable contributions which do not imply authorship. On the other hand, if a laboratory technician suggests a modification to the experimental method which changes it fundamentally; or a statistician creates a special algorithm to manage otherwise unmanageable data, her/his work must be granted authorship. In some disciplines, the list of authors and their contributions to the article must be discussed and arrived at in a collective manner at the beginning of the study. The list can be reviewed and modified in the course of the study.

There are a number of unethical authorship practices, which I would like to cite here, such as guest authorship, ghost writers and supportive authorship. All of these constitute violations of the main ideal of scientific endeavour, namely to seek the truth. The ethical universe of science assumes this ideal both as a possibility and as a normative basis for the ethical evaluation of the scientific conduct. Trusting one's colleagues is generally a norm amongst scientists, and scientific scrutiny is never directed at the fellow scientists personally, but at their work. Good intentions are always presumed. The reaction to intended deceit, falsification and other means that obstruct this quest for truth, is therefore extremely strong. The harshness of the reaction depends upon the degree to which the falsification in question has distorted reality. Authorship issues are not considered as the most culpable ethical violations, so they only receive mild reactions. Nevertheless undeserved authorships are not tolerated. Unethical authorship practices can be defined as follows:

1. Guest authorship or gift authorship: An author who is mentioned in the list of authors without contributing substantially to that work is a guest author. This kind of authorship is usually disclosed by the guest authors, when the article has later been found to be fraudulent. The infamous Darsee case is a good example.⁵ Sometimes authors like Yuri S truchkov, who runs a crystallography laboratory in Moscow, receive authorship for letting researchers work in their laboratory and use their instruments.⁶ This kind of authorship can be named as gift authorship.
2. Ghost authorship: These are usually clinical associates in pharmaceutical companies, public relations staff in governmental bodies or other organizations. They are not to be listed as authors. Generally ghosts are hired by pharmaceutical companies to write scholarly sounding reviews

⁵ Rennie, D. & Flanagan, A. (1994). Authorship! Authorship! Guests, ghosts, grafters, and the two-sided coin. *Journal of American Medical Association*, 271(6), 469-471.

⁶ Anderson, C. (1992) Writer's camp. *Nature*, 355, 101; Smith, J. (1994). Gift authorship: A poisoned chalice. *British Medical Journal*, 309, 1456-1457.

about new drugs.⁷ Sometimes very famous names in the scientific milieu have been hired to allow their names to appear on articles created by ghost writers, on behalf of those who are paying for this job.⁸

3. Supportive authorship: For most of the young scientists, it is not easy to get their work published. On the other hand, in order to be a well-known senior scientist, it is necessary to have a number of publications. An effective, though unethical, way of fulfilling this necessity is to put some well-known scientists on the list of authors. Sometimes out of good intentions, sometimes without being aware of the unethical nature of this practice, well-known scientists can allow their names to be used in this way. There are a few incidents where the famous author, whose name is mentioned in the list of authors, is totally unaware that his/her name has been used.

These are the most frequent misconducts regarding authorship in scientific publishing. There are a couple of suggestions to solve this issue. One of them is “limiting the number of papers considered for promotion or funding”.⁹ In Turkey, the tendency is quite to the contrary. The number of papers required is increasing and the claims of misconduct are increasing exponentially.

Rights and responsibilities of an author

I now turn to reflect on the rights and responsibilities of authorship. It is very important to determine ahead of time the precise contributions to be made to the paper by participants in the project, and to grant the appropriate honour to the right person in an ethically sound way. This is an ethical responsibility if we agree to consider justice to be a fundamental value.

Once we have the correct list of authors, as mentioned above, all will be responsible for the article’s ethical value. The corresponding author will additionally be responsible for the coordination of information between authors and third parties; and make sure that all parties’ rights and responsibilities are completely fulfilled. Any survey on the internet with the key word “author’s rights” hits numerous links on copyright issues. Starting from there, “a scientific article belongs to its authors” is a hypothesis which

⁷ Editorial. (1993) Ghost with a chance in publishing undergrowth. *Lancet*, 342, 1498-99.

⁸ Rennie D., and Flanagan A., (1994); Editorial, (1993).

⁹ Angell, M. (1986) Publish or perish: A proposal. *Annals of Internal Medicine*, 104, 261-262.

we have to approach with considerable ethical scrutiny. Financially it can be correct to some extent, but even this has some limits. The author is the copyright holder; unless and until (s)he transfers the copyright to someone else in a signed agreement. Normally, the copyright holder possesses the exclusive rights of reproduction, distribution, public performance, public display, and modification of the original work. An author who has transferred copyright without retaining these rights may not be able to place the work on course websites, copy it for students or colleagues, deposit the work in a public online archive, or reuse portions in a subsequent work (SPARC Addendum for Author Rights) and must ask for permission unless the use is one of the statutory exemptions in copyright law. Decisions concerning use of the work, such as distribution, access, pricing, updates, and any use restrictions belong to the copyright holder. This is a well studied aspect of the issue, because it has practical implications. On the other hand, it is more problematic when we introduce concepts like altruism, humanity, common good etc. to this discussion.

Can an author keep the results of his/hers study unpublished, claiming his/her ownership on it, although it might save thousands of lives? We can say that ethically the rights and responsibilities of an author should be subject to a balanced evaluation.

There are other rights which have received little attention and have rarely been claimed by authors due to the lack of awareness. These rights also deserve serious ethical reflection and justification. For example, as an author, you may have sent your article to a very prestigious journal and you were glad to receive the information that the paper would be going to be published soon. Yet, when you finally hold the journal in your hands, you are surprised and can hardly recognize your own work, due to editorial changes. To many objective evaluators the last version is far better than the previous one. Is there an ethical issue here? The right to withdraw the article due to disagreement is rarely exercised. Another right which is not made an issue, although it is better known, is the right of the author to confidentiality. When author(s) send their work to a journal, both the editor and the referee(s) assume the responsibility of acting according to the principle of confidentiality until it appears in the journal. Also the right to fair assessment by the editor and the referee(s) and the right to objectivity are well known, but less frequently asserted and exercised rights of the authors.

The author has numerous responsibilities, and it is wise to classify them for the sake of time and coherence. The author as a scientist is responsible for ethically sound research and its disclosure. Here I will only mention the ethical misconduct committed through scientific publishing; such as

plagiarism, piracy, slicing, normalization etc. Of course each of them needs a closer look than we could offer here.

An author, as I have mentioned already, is responsible for the appropriateness of the content (data, references, discussion, etc.). Failing to do so can result in many different types of misconduct. They are as follows:

1. Dry Lab: Publishing the results of research that has not been done.
2. Pruning: Manipulating the data by declaring only the results which support the hypothesis.
3. Normalization: Manipulating the data in order to achieve results which appear statistically more accurate.
4. Plagiarism: Publishing someone else's article partially or as a whole.
5. Piracy: Using someone else's results or ideas without referring to him/her.
6. Slicing: Dividing the data into small sections and publishing them separately.

These are well-known and widely studied manifestations of scientific misconduct. There are many examples of them in the literature.

Other responsibilities that pertain to authors include the attitude an author should adopt after a claim of scientific misconduct. There is neither consensus nor even any discussion on the responsibility of an author for taking appropriate action towards commentaries, criticisms and requests from readers. For example, what is an author's appropriate conduct towards the numerous print-out requests for his/her famous article? What if (s)he had transferred his/her copyright to the journal unconditionally? Do we have to take the socio-economical level of the country where the request comes from into consideration? There are cases in which an author can recognize a conflict of interest or misconduct in advance. The immediate disclosure of any issues of scientific and/or ethical misconduct is one of the responsibilities of an author, and delay in doing so can be evidence of intentional wrongdoing or bad faith. But there is no consensus about the steps that should be taken during this disclosure.

Conclusion

In summary, to err in scientific endeavour is neither unusual nor totally unacceptable, but being unethical or immoral is a great dishonour for a scientist. A scientific publication, being the last step of a scientific study, has an important ethical status and the entire scientific community has some kind

of shared responsibility in this issue. All scientists have the responsibility of investigating the ethical basis of a scientific paper, either as a writer, an editor, a reviewer or a reader.

Young researchers are not being educated about these issues. There should be a curriculum integrated in the research education relating to the author's responsibility in conforming to the rules and regulations of scientific publishing.

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Further reflections on the ethics of authorship in reporting results[#]

Pavel Kratochvil*

Abstract

The question of the definition of a 'significant contribution' to a result is raised. The difficulty of answering that question is demonstrated by an example of co-operation between a synthetic chemist and the operator of a unique and extremely expensive apparatus. The problems of responsibility and the proper conduct of mentors in publishing results obtained by their junior colleagues are presented for discussion.

Introduction

In the ALLEA “Memorandum on Scientific Integrity”, Section 3: “Ways in which scientific integrity may be infringed”, one finds among other listed instances of misconduct of scientists:

“presenting oneself as an author or co-author *without having contributed to any significant extent* to the design or performance of the research concerned or the interpretation and writing up of its methods and findings;”¹

and its mirror-image infringement:

“omitting names of co-authors *who have made a significant contribution* to research, or including the names of persons who did not contribute to it or who only did so to an insignificant extent.”²

The bodies charged with the solution of authorship disputes often have to decide whether the contribution by a co-author has been significant or not. The borderline between significant and insignificant contribution is mostly

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¹ ALLEA (2003), “Memorandum on Scientific Integrity”, Section 3: “Ways in which scientific integrity may be infringed”, p.12

² Ibidem.

diffuse and understood diversely by the disputing parties. In what follows a few typical cases are described, based on my long experience as a member of the Commission on Scientific Integrity of the Academy of Sciences of the Czech Republic, retired director of one of its large Institutes, retired editor of an international technical journal, manuscript reviewer, and a member of various national and international evaluation panels.

Some cases deserving ethical debate

The role of expensive equipment

As a chemist, I had many times to take sides in the following model situation: a synthetic chemist may have spent many months or more than a year preparing, through a multi-stage synthesis, a new, potentially important substance. To complete the task, the structure of the substance must be confirmed by sophisticated physico-chemical techniques, *e.g.*, various types of spectroscopy. The indispensable data can only be obtained by using some extremely expensive equipment, often worth several millions dollars. Such equipment cannot be available in every laboratory. There may be just one apparatus of that type in a city or even in a country. The operation of such machines and qualified interpretation of the results require experienced specialists with a strong background in the theory of the method. While the synthesis of the substance was extremely laborious, the measurement on the fully automated machine and the interpretation of the results may be for an expert just routine and a matter of a week, or a day, or even a few hours. Thus the efforts invested by the two researchers in completing the job are not commensurate at all.

The question arises: when does the contribution of the operator of the costly equipment become a significant contribution? Is it already after a few hours' work? Of course, the synthetic chemist is gladly prepared to offer the operator co-authorship of the publication, mainly for two reasons: (i) without the operator's contribution, the results would be inferior and hardly publishable in a respected journal. (ii) not offering co-authorship would probably decrease the operator's readiness for future collaboration.

There is one more point to be mentioned in the present context. In the evaluation of scientists, the number of publications in journals with high impact factors is one of the basic criteria. According to that criterion, the operators of expensive equipment are usually doing very well. Are they really better scientists than the work-horses of chemistry synthesising new materials for medicine or industry?

Sloppy manuscripts

Well-off professors with scores of grants and dozens of students are kept very busy worldwide by writing project proposals and reports, as well as travelling from meeting to meeting. Thus it happens frequently that they cannot find time to read carefully manuscripts prepared by their students before submission. Editors and reviewers are saddled with the drudgery of revising sloppy texts. This is clearly at variance with the elementary rules of ethics in science. But the professors are respected and influential personages with high social standing. Who should let them know, and how, that their conduct is in fact misconduct?

Students first?

In evaluating the efficiency of individual researchers, various scientometric algorithms have been used. Some of them assign significance to the position of a co-author in the headings of publications. In papers the authors of which are a professor and his student or students, the order of co-authors in the heading of a paper involves ethical connotations. Typically, the formulation of the problem and ways to its solution would be the professor's task. Most of the real work, however, would be performed by the students. A responsible teacher definitely contributes to the interpretation of the results. Who should be the senior author of the paper arising from the student's work? Clearly, the order of authors is more relevant for the student than for the mentor. Yet many professors feel the main merit belongs to them and put their names at the head of the group. Does this issue deserve discussion at meetings on science and ethics?

The author of the present reflections would invite ALLEA's Standing Committee for Science and Ethics or other competent bodies to deliberate on the above issues of authorship.

Plagiarism from the Perspective of Copyright Law

Gül Okutan Nilsson*

Abstract

Scientific research and scholarship must be conducted according to certain ethical rules, which serve to maintain the reliability of research results and fairness and honesty in science. However, ethical rules on academic integrity may not always coincide with legal rules surrounding the art of scientific research and writing: what is unethical may not always be illegal and vice versa.

Copyright law protects works of authorship that are original. Only the expressions in the work are protected, but not the ideas presented in it. The author has moral and economic rights protected by law. Economic rights are restricted by the freedom of quotation granted to the public. From a legal perspective, plagiarism is the unpermitted use of the expressions contained in a protectable work, where necessary reference to the source is not given or the extent of permitted quotation is exceeded. Since copyright does not protect ideas, copying of ideas as such, without providing the necessary credit may not constitute a copyright infringement. The element of intent, i.e. whether the action of passing off someone else's work as one's own should be intentional in order to constitute an infringement, is controversial. Once copyright infringement is established, it is possible to have legal recourse to terminate such infringement and to demand compensation for any damage caused. In some legal systems, such as in Turkey, criminal sanctions may also be provided.

Introduction: Ethical vs. legal aspects of authorship

Scientific research and scholarship must be conducted according to certain ethical rules, which serve to maintain the reliability of research and fairness and honesty in science.¹ In order to encourage students and academic staff to respect ethical rules in scientific scholarship, academic institutions issue

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¹ The Center for Academic Integrity defines the fundamental values of academic integrity as honesty, integrity, responsibility, trust/trustworthiness, respect/self-respect, fairness/justice. (http://www.academicintegrity.org/fundamental_values_project/index.php)

statements and codes, explaining the ethical standards and defining what constitutes misconduct in science.

To give a few examples, according to *A joint statement by the Director General of the Research Councils and the Chief Executives of the UK Research Councils*, issued on 18 December 1998,

... scientific misconduct can be recognized to cover two broad categories, the distinction being in terms of the focus of the dishonesty. Thus the first arises where there is fabrication or falsification of the research *results*; the second arises where there is plagiarism, misquoting or other misappropriation of the work of other *researchers*. Colluding in, or concealing, the misconduct of others is, in itself, misconduct. Honest errors do not, of course, constitute scientific misconduct.²

The 'Oxford University Code of Practice and Procedure' regarding academic integrity defines scientific misconduct in a similar way:

Misconduct for the purpose of this code means the fabrication, falsification, plagiarism, or deception in proposing, carrying out, or reporting results of research, and deliberate, dangerous or negligent deviations from accepted practice in carrying out research.³

Ethical rules of academic integrity seem concerned with two main issues: the quality of the information presented, and the way in which it is presented with regard to its source. Copyright laws, on the other hand, are not concerned with the quality of the information, but only with the way in which it is presented. Whether or not research results are fabricated or falsified is not a problem of copyright law. Copyright law has the main goal of protecting authors' creative efforts and only the undermining of such efforts by others comes under its scope.

As a result, ethical rules of academic integrity may not always coincide with legal rules surrounding the art of scientific research and writing. What is unethical may not always be illegal and vice versa.

This paper aims at explaining the legal aspects of authorship with a focus on plagiarism. In the first part, the main principles of copyright protection will be summarized. After a brief description of plagiarism from the perspective of scientific ethics, plagiarism will be examined as a legal concept mainly with regard to what constitutes copyright infringement and what kind of sanctions are provided.

² Available at: <http://www.ukoln.ac.uk/projects/ebank-uk/docs/scientific-practice.doc>

³ Available at: <http://www.admin.ox.ac.uk/ps/staff/codes/air.shtml>

Since there is no universal copyright law, reference will be made to international agreements, to European Union law and the laws of the United States, Germany and Turkey.

Plagiarism as an Ethical Concept

Plagiarism is an important problem in academic writing, not only among students, but even among academic staff. The act of plagiarizing is defined in some dictionaries as;

The deliberate and knowing presentation of another person's original ideas or creative expressions as one's own⁴” or, “to steal and pass off (the ideas or words of another) as one's own: use (another's production) without crediting the source; to commit literary theft: present as new and original an idea or product derived from an existing source.⁵

Examples of some university ethic codes also contain similar descriptions:

For purposes of the *Stanford University Honor Code*, plagiarism is defined as the use, without giving reasonable and appropriate credit to or acknowledging the author or source, of another person's original work, whether such work is made up of code, formulas, ideas, language, research, strategies, writing or other form(s).

According to the *Duke University Bulletin of Information & Regulations 2005-2006*:

Plagiarism occurs when a student, with intent to deceive or with reckless disregard for proper scholarly procedures, presents any information, ideas or phrasing of another as if they were his/her own and/or does not give appropriate credit to the original source.

All of these descriptions show that the common understanding of plagiarism involves the presenting of someone else's ideas, research or work as one's own, without crediting the source. This definition has two main elements: The copying of someone's ideas or words, and the lack of reference to the source. It is irrelevant whether use has been made of an idea or other information or expression contained in the work, or what the extent of such use is or whether there is a protectable work in the sense of copyright law. What is important is

⁴ *Black's Law Dictionary*, 8th Edition Online (Visited on 22 May 2008)

⁵ *Merriam-Webster Dictionary Online* (Visited on 22 May 2008)

the lack of credit to the source, which deceives the public. Copyright law, on the other hand, excludes unprotectable works and unprotectable subject matter such as ideas, as explained in further detail below.

Plagiarism as a Legal Concept

The concept of plagiarism as a violation of copyright law is different than the ethical one, as it is determined by the boundaries of the protection granted to authors by the law⁶, rather than an independent code of best practice on how research should be conducted and presented. Plagiarism does not have a legal definition stated in any international copyright treaty, and national laws also tend to lack a legal definition.⁷ In order to draw the boundaries of plagiarism as a violation of the law, one must look at the subject matter of protection in copyright, the rights of the author and the limitations and exceptions of copyright granted in favour of the public. In general, it can be said that a breach of copyright will exist when a protectable work is used without permission, in a way which is not covered by the limitations and exceptions to copyright granted in favour of the public, or in a manner whereby the limitations and exceptions have not been properly respected. More precisely, plagiarism will constitute a breach of copyright, when a work under copyright protection is reproduced in whole or in part without permission and without the indication of source and/or beyond the extent of permitted quotation.

Subject Matter of Copyright Protection

Plagiarism would constitute an illegal act only when works that are protected by copyright law are plagiarized.⁸ 'Original' works that come under protected work categories such as literary or scientific works, musical works, audiovisual works or works of fine arts can be the subject of plagiarism. In some legal systems, such as in the United States, registration or notice may be additionally required for certain types of legal protection to be provided.

⁶ Stearns, *Copy Writing: Plagiarism, Process, Property, and The Law*, 80 *80 California Law Review* 513, 526; Band/Schruers, *Dastar, Attribution, And Plagiarism*, 33 *American Intellectual Property Law Association Quarterly Journal* 2005, 1, 3-4.

⁷ For example, the copyright laws of the United States, United Kingdom, Germany, France, Switzerland, and Turkey do not contain a definition of plagiarism.

⁸ Fischer, *Das Literaturplagiat – Tatbestand und Rechtsfolgen*, Frankfurt, 1995, 28; Schack, *Urheber- und Urhebervertragsrecht*, 4. Auf. Tübingen 2007, R n. 2 52; Dreier/Schulze, *Urheberrechtsgesetz* 2. Auf. München, 2006, §23 Rn. 27; Stearns, 527.

Idea vs. Expression

From an academic point of view, the value of scientific work may be judged by the originality of the ideas it contains. Copyright law, however, does not protect ideas. According to one of the fundamental principles of copyright law, ideas, concepts, methods or formulas are not protected and cannot be monopolized.⁹ The reason for not granting such protection is the fear of preventing the development of science and culture and unduly restricting the freedom of expression. All persons should be free to learn about and develop existing ideas.

What copyright protects is the *expression* of an idea.¹⁰ In order to be worthy of protection, ideas must be expressed in a concrete form. The form may change depending on the type of scientific or artistic activity. But once an idea is expressed in a concrete form, then this form and expression comes under the protection of copyright law.

The idea/expression dichotomy is clearly spelled out in Article 9 II of the Agreement on Trade Related Aspects of Intellectual Property Rights¹¹, which states that:

Copyright protection shall extend to expressions and not to ideas, procedures, methods of operation or mathematical concepts as such.

The fact that copyright protection only extends to expressions and not to ideas does not prevent certain ideas from being protected by other types of intellectual property. For example, inventions may be protected by patent law, if they meet the requirements of patentability.

The fact that copyright law does not protect ideas means that failure to give proper credit to the sources of ideas, methods, formulas and concepts as such will not create a violation of the law. This is the first and most important difference between plagiarism as an ethical concept and plagiarism as a legal concept. For example, according to the Stanford University Honor Code, the use of an original work without appropriate credit to the source would

⁹ Obergfell, "Zwischen Zitat und Plagiat – Umfang und Grenzen der Zitierfreiheit bei literarischen und wissenschaftlichen Schriftwerken" *Kunstrecht und Urheberrecht* 2005 (2) 46, 49; Dreier/Schulze, §24 Rn. 27; Schricker/Loewenheim, *Urheberrecht* 3. Auf. München 2006, §2 Rn. 50; Fromm/Nordemann/Vinck, *Urheberrecht* 8. Auf. Stuttgart 1994, §24 1; Schack, Rn. 166; Band/Schruers, 3-4; Stearns, 523-524, 526; Ayiter, *Hukukta Fikir ve Sanat Ürünleri*, Ankara 1981, 164; Erel, *Türk Fikir ve Sanat Hukuku*, Ankara 1998, 204-205.

¹⁰ Fromm/Nordemann/Vinck, §24, Rn. 1; Schack, Rn. 166; Fischer, 36.; Band/Schruers, 3-4; Stearns, 523-524.

¹¹ The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) is a part of the Agreement establishing the World Trade Organisation with 152 member states throughout the world.

constitute plagiarism, whether such work is made up of code, formulas, ideas, language, research, strategies, writing or other forms. As stated above, formulas, ideas, research or strategies would not be protected by copyright law, and a lack of proper citation with respect to such parts of the work would not constitute an infringement of copyright law. In the legal sense, plagiarism is restricted to stealing someone else's words, not ideas or strategies. Codes of a computer program written in computer language are also seen as the words of a book and protected. Again, what is protected here is not the underlying logic or function of the computer program, but simply the way its code is written.

Originality

It is also important to note that copyright law does not protect all expressions of ideas. The fact that an idea is written in words or is expressed in numbers or in other forms does not mean that it will come under automatic protection. In order to be protected by copyright law, the expression must have *originality*.

Originality is a concept that is very difficult to define and is understood differently in different legal systems. Under the Anglo-American legal tradition, originality means “only that the work was independently created by the author (as opposed to copied from other works), and that it possesses at least some minimal degree of creativity”.¹² Some Continental European legal systems on the other hand, may require the existence of a higher level of creativity or quality in the expression. In this sense, originality excludes works whose language is ordinary and commonplace, which does not represent sufficient creativity to distinguish the work from similar outputs.¹³ In some legal systems, other criteria such as aesthetic quality or social purpose may be required for some works to be protected by copyright law.¹⁴ European law tends not to permit value judgments to have a role in the protection of literary and artistic works.¹⁵

¹² *Feist Publications, Inc. v. Rural Telephone Service Co.*, 499 U.S. 340 (1991).

¹³ German law: Dreier/Schulze, § 2 Rn. 18; Fromm/Nordemann/Vinck, §2 Rn. 9; Schricker/Loewenheim, §2 Rn. 23; Obergfell, 48. Turkish law: Erel, 32-33; Ayiter, 44; Tekinalp, *Fikri Mülkiyet Hukuku*, 4th Ed. Istanbul 2005, 191.

¹⁴ For example under Turkish law, works of fine art must have an aesthetic quality in order to be protected by copyright law. (Turkish Law on Literary and Artistic Works no. 5846 “LIA” Art. 4).

¹⁵ Several directives in EU law have dealt with originality, with respect to photographs, computer programs, films and databases. They each state that no criteria other than originality shall be taken into account in determining which works shall be protected. See, for example, “Directive 2006/116/EC on the term of protection of copyright and certain related rights” [OJ (2006) L 372/12] in respect

It is important to note that the concept of originality is different from that of novelty. The ideas presented in a work need not be new in order to come under the protection of copyright law. It is sufficient for the formulation of the ideas to be original.¹⁶

As a result of the requirement of originality, not all written text is protected. Information, facts or data, which do not represent any creativity in the way they are presented (for example in a database) are not protected by copyright law.¹⁷ Furthermore, it is irrelevant whether the information presented in any text is not new, or whether it is fabricated or falsified. This is another difference between plagiarism as a violation of the law and plagiarism as an infringement of academic integrity.

However, information may be protected by other means. In European Law, *sui generis* protection is provided for data that is included in a database. According to the directive on the protection of databases, EU Member States must “provide for a right for the maker of a database which shows that there has been qualitatively and/or quantitatively a substantial investment in either the obtaining, verification or presentation of the contents to prevent extraction and/or re-utilization of the whole or of a substantial part, evaluated qualitatively and/or quantitatively, of the contents of that database”.¹⁸ Furthermore, unfair competition laws, which aim at preventing the abuse of one’s work output, may also be helpful in protecting information.

The Rights of the Author

Authors are entitled to certain moral and economic rights. Moral rights aim at protecting the integrity of the work and the author’s name and reputation;

of photographs: “A photographic work (...) is to be considered original if it is the author’s own intellectual creation reflecting his personality, no other criteria such as merit or purpose being taken into account.” Or see “Directive 91/250/EEC on the legal protection of computer programs” [OJ (1991) L 122/42] “in respect of the criteria to be applied in determining whether or not a computer program is an original work, no tests as to the qualitative or aesthetic merits of the program should be applied.”

¹⁶ Fischer, 37; Fromm/Nordemann/Vinck, §2, Rn. 9.

¹⁷ Stearns, 526.

¹⁸ Directive 96/9/EC on the legal protection of databases [OJ (1996) L 077/20]. This protection was created because in principle data is not protected by copyright law. It is called *sui generis* protection because it is different from copyright protection in its legal reasoning and conditions of protection. Copyright law protects the author and creativity, while *sui generis* database protection protects the maker of the database and the investment made to collect the data. Copyright protection lasts longer than *sui generis* protection, which is recognized for 15 years.

while economic rights aim at protecting the economic gains the author may have through the use of his work.

Moral Rights

The fundamental moral rights of the author are defined in the Berne Convention for the Protection of Literary and Artistic Works, which is one of the oldest international conventions in the area of copyright law dating back to 1886, being last amended in 1979. The Berne Convention article 6^{bis} provides that authors have the right to claim authorship of the work (also called the right of paternity) and the right to object to any mutilation or deformation or other modification of, or other derogatory action in relation to the work, which would be prejudicial to the author's honour or reputation. Therefore, an author has the right to have credit for his/her work. Another aspect of this right is to prevent work that he/she has not produced from being falsely attributed to him/herself.

Moral rights are seen as part of the right of personality. Therefore they are strongly attached to the author's person and they may not be assigned to others. They are independent of economic rights and may be protected by the author even after economic rights are transferred to third parties.¹⁹ Countries may choose to allow an author's successors, or other persons assigned by the law, to protect such rights after the author's death.²⁰

Not all countries recognize the author's moral rights. While all European countries including the UK are a party to the Berne Convention and protect moral rights, these rights do not enjoy general protection in the United States. The United States became a party to the Berne Convention in 1989, but US federal laws were not amended to reflect moral rights, except for works of visual art.²¹ This significant distinction plays an important role in how copyright infringement is defined under US law and European laws. Under US law, plagiarism is viewed as a violation of the author's economic rights, while European laws view plagiarism as a violation of both moral and economic rights. This distinction becomes important when the term of protection of economic rights expires or economic rights are transferred to third parties. Moral rights may continue be protected even after the economic rights are no longer protected or have been transferred to a third party.

The breach of the author's right to claim authorship lies at the heart of plagiarism as a legal concept.²² It is the breach of this right that causes plagiarism, as a rule of ethics, to cross the line into being a violation of the

¹⁹ Berne Conv. Art. 6bis.

²⁰ Berne Conv. Art. 6bis (2).

²¹ Stearns, 531.

²² Fromm/Nordemann/Vick, §24 Anh. 6; Obergfell, s. 49; Schack, Rn. 252; Fischer, 17; Dreier/Schulze, §13 Rn. 15.

law. The fact that the necessary credit is not given to the author of the original work is a common element of plagiarism both as an ethical and legal concept. The right to object to modifications may also be violated if the plagiarized text is reproduced with certain changes.²³

Economic rights

The economic rights of the author relate to various ways in which the author may exploit his work economically. For example, the author may reproduce and distribute his work in book form. He may also choose to make it accessible to readers in electronic form over the internet, or he may allow it to be read on to a CD or broadcast on the radio. All of these various forms of usage are examples of ways in which the author may obtain a financial benefit from his work.

The fundamental economic rights of the author such as adaptation, copying, distribution or broadcasting of the work have already been defined in the Berne Convention. Newer international agreements such as the TRIPS (Trade Related Aspects of Intellectual Property Rights) agreement and the World Intellectual Property Organisation (WIPO) Copyright Treaty introduce new rights that have come into play with the advance of technology, such as the Internet. The EU also defines certain economic rights of the author. National laws regulate such rights in detail.

The economic rights of the author may be listed as the right of reproduction or copying (whether in hard copies or electronic form, whether permanent or transient), distribution of copies by sale, rental or lending, public performance and reciting of a work, the broadcasting and re-broadcasting of a work and the making of a work available to public in such a way that individuals may access the work at a time and place they choose. The last right covers Internet usage and may also cover use of a work over mobile phone systems.

The author may ask for a payment in return for granting a third party the right to use his work. Sometimes the author's right of remuneration is defined in the law as an inalienable right which the author may keep even though the copyright on the work is transferred to a third party.²⁴

Plagiarism is a violation of the right to copy the work.²⁵ This is another common element of plagiarism as an ethical concept and a legal one. In addition to the act of copying, distribution of the plagiarized work or making

²³ Obergfell, 49.

²⁴ For example, Directive 2006/115/EC on rental right and lending right and on certain rights related to copyright in the field of intellectual property [OJ (2006) L376/28] states that even when the public rental right is transferred, the author shall retain the right to remuneration (art. 5.1), which means that the author will be able to receive royalties through collecting societies for this right.

²⁵ Obergfell, 51.

the plagiarized work available to public would constitute further breaches of economic rights.²⁶

Since plagiarism as a legal concept depends of the lack of permission of the author for the copying of his work, the so-called 'self plagiarism', or use of one's own previous work is not regarded as a breach of law, due to the fact that a foreign work is not used, approval of the author exists and the work is published under the author's name.²⁷ Self plagiarism, however, may be disapproved of from an ethical point of view, since the reader may be led to believe that the work of the author is new and original. As copyright law is not interested in the novelty of the work or originality of its content, lack of these elements does not lead to a breach of law.

The right of a adaptation may also be important for the question of plagiarism. A adaptation is the creation of a derivative work from an existing work, with the creative input of the person making the adaptation. The permission of the author is needed for a adapted works to be exploited in public. Adaptations are made public with the name of the person making the adaptation, together with a reference to the original work indicating that it has been adapted. If the adaptation lacks in originality, then adaptation may lead to plagiarism²⁸, since the second work may be seen merely as a copy of the original work with certain amendments which do not deserve independent protection.

Finally the scale of plagiarism may also be important. While in some legal systems plagiarism does not depend on the amount of work plagiarized²⁹, in others, legal protection may be provided for breaches that may be qualified as substantial.³⁰ Ethically, however, plagiarism may be sanctioned even where the taking of another's work is limited to a small portion.

Exceptions and limitations to copyright

The rights mentioned above are absolute and exclusive rights, which authors may enforce against all persons who make use of such rights without obtaining the author's permission. However, in trying to achieve a balance between the interests of the author in exploiting his work and of the public in

²⁶ Obergfell, 51.

²⁷ Fromm/Nordemann/Vinck, §24, Anh. 10. Schack, Rn. 256; Fischer, 20. It should be noted, however, that if the reproduction rights of a work were given to a third party by contract, then the exploitation of the work even by its author may constitute a breach of contract.

²⁸ Schack, Rn. 252.

²⁹ This is the case in German law: Fromm/Nordemann/Vinck, §24 Anh. Rn. 4.

³⁰ The US law, for example requires the act of copying to be either qualitatively or quantitatively substantial to constitute copyright infringement. Stearns, 528.

having easy and cheap access to the work, the law has provided limitations and exceptions to the author's rights. This means that in certain cases defined in the law, persons may freely exploit the work without having to consult the author or obtain his permission. The laws may grant such freedoms at no cost to users, or may require a fair remuneration to be paid to authors. The EU has created a harmonized list of limitations and exceptions from which EU member states may choose, but to which they may not add new ones.³¹

It is important to note that exceptions and limitations are only applicable with regard to economic rights and not moral rights.

Time limitation – Works in public domain

The most important limitation on copyright is the time limitation. Copyright is not like other property rights. It is protected only for a given amount of time, which, for European countries is the lifetime of the author and 70 years following his death.³² Upon the death of the author, the successors inherit the economic rights for a period of 70 years, provided that they were not previously transferred or licensed to third parties by the author. Once the term of protection expires, the work falls into the public domain. This means that anyone can freely reproduce, distribute, adapt or broadcast a work or put it on the internet, without having to obtain the permission of the author or his successors, and without having to pay money. The work becomes truly a public good after the expiration of the term of protection.

As the economic rights on a work in the public domain are no longer protected, they can not be breached. However, laws which recognize moral rights may allow such rights to be protected even after the expiry of the protection for economic rights.³³ Turkish law, for example, gives the Ministry of Culture the right to protect the moral rights relating to a work in the public domain that may be important for cultural life.³⁴ French, Italian, Spanish and Polish laws also protect moral rights indefinitely.³⁵ German copyright law on the other hand, does not protect moral rights following the author's death.³⁶ The same is true for British law, except for the right to prevent false attribution of a work to the author, which is protected for 20 years after the author's death.³⁷ However, even in cases where copyright laws no longer protect the right to claim authorship or to prevent false attribution, it may still

³¹ Directive 2001/29 EC on the harmonization of certain aspects of copyright and related rights in the information society (OJ 2001 L167/10) Art. 5.

³² Directive 2006/116/EC on the term of protection of copyright and certain related rights, (OJ 2006 L 372/12).

³³ Berne Conv. Art. 6bis (2).

³⁴ Turkish LIA, art. 19 par. 5.

³⁵ Schack, Rn. 320.

³⁶ Schack, Rn. 320.

³⁷ §86 (1) Copyright, Designs and Patents Act 1988.

be possible to protect the author's name under the general rules on the protection of the right of personality after the author's death³⁸, or under the rules of unfair competition or deceit, since the public will be deceived by wrong indication of authorship.³⁹

Freedom of quotation

One limitation that is highly important for scientific research is the freedom of quotation. The Berne Convention permits the making of quotations from a work which has already been lawfully made available to the public, provided that their making is compatible with fair practice, their extent does not exceed that justified by the purpose, and reference is made to the source and to the name of the author.⁴⁰

According to the EU Directive on the Information Society, Member States may allow for the freedom of quotation under the following conditions:⁴¹

“Quotations for purposes such as criticism or review, provided that they relate to a work or other subject matter which has already been lawfully made available to the public, that, unless this turns out to be impossible, the source, including the author's name, is indicated, and that their use is in accordance with fair practice, and to the extent required by the specific purpose.”

In many European countries, the freedom of quotation is allowed for the purpose of criticism or review. That is, in order to explain one's own thoughts about a matter, one may review the existing literature and may bring a criticism to it.⁴²

Quotation is the reproduction of a work or its parts, in original form and by giving a reference.⁴³ Since the author has the moral right to prevent any modifications to the work, quotation must be made by quoting the work as it is, without any changes. However, it is permissible to make a translation for purposes of quotation.⁴⁴ It may also be permissible to make grammatical changes required by the formulation of a sentence, such as converting from active to passive speech.

Reproducing a work by paraphrasing it would constitute a breach of copyright, if the reproduced text does not contain sufficient creative

³⁸ Schack, Rn. 253, 323. For example, Courts in Germany granted a name protection to Bertold Brecht 40 years after his death. (OLG München, ZUM 1998, 417, 421).

³⁹ Fromm/Nordemann, §24 Anh. Rn. 6.

⁴⁰ Berne Conv. Art. 10.

⁴¹ EU Directive 2001/29, (fn. 31) Art. 5. (2) d.

⁴² Eg. German UrhG §51, Turkish LIA art. 35.

⁴³ Fischer, 27.

⁴⁴ Obergfell, s. 53; Schrickler/Dietz, §62 Rn. 19.

contribution by the second author and no source is indicated.⁴⁵ If, however, the expression is the independent creation of an author, while the idea may have been previously stated by another author, copyright infringement would not exist, since ideas are not protected by copyright. Etically, however, reference must be given to the source even in such a case, in order to provide the possibility of tracing ideas to their source, of analyzing the depth of research, of checking whether the sources have been correctly understood and of creating an option for further reading.

The extent of the quotation is also important. Under the Bern Convention and EU law, a quotation may not exceed the limit required by the purpose. It is not possible to set a concrete limit or proportion to the amount of quotation. In every case, it has to be assessed individually. However, the principle is that the purpose of the quotation is to enable the second author to express his views about the work of the first author. The quotation may not be so extensive to constitute a near reproduction of the work of the first author, or to outweigh the contribution of the author making the quotation. The quotation must in any case not prevent the author of the original work from benefitting from his own work. Therefore, when the quotation is more extensive than that which may be permitted by the law, a violation of the law may exist, despite the fact that credit is given to the original author's name.

Quotation of a complete work is also possible. If the work is a very short one, such as a poem, it may be necessary to quote the complete work. In this case, the number of such quotations must be kept low, in order not to damage the author's rights.

Parody

It is possible to use a work for the purpose of caricature, parody or pastiche.⁴⁶ In such cases, it must be evident that someone else's work is being used for these purposes.⁴⁷ Furthermore, such use must reflect creativity or it may risk being qualified as plagiarism.

Use of political speeches and public lectures

According to EU law, free use of political speeches as well as extracts from public lectures or similar works may be permitted, to the extent justified by the informatory purpose and provided that the source, including the author's name, is indicated, except where this turns out to be impossible.⁴⁸ In other words, with regard to political speeches and public lectures, an exception is granted for the economic right of copying, but not for the moral right of

⁴⁵ Fromm/Nordemann (Vinck), §24 Anh Rn. 2; Schack, Rn. 252, 253.

⁴⁶ EU Directive 2001/29, (fn. 31) Art. 5 (k).

⁴⁷ Fischer, 26-27.

⁴⁸ EU Directive 2001/29, (fn. 31) Art. 5 (f).

claiming authorship. Therefore, use of political speeches or public lectures without mentioning the author's name would constitute a violation of the law.

Use for reporting purposes

According to EU law⁴⁹ and the Berne Convention⁵⁰, “reproduction by the press, communication to the public or making available of published articles on current economic, political or religious topics or of broadcast works, or other subject-matter of the same character” is allowed, provided that such use is not expressly reserved and as long as the source, including the author's name is indicated. This exception aims at satisfying the need of the public to have access to an analysis of information on current events. However, newspapers usually reserve such rights, to prevent reproduction of their articles in other media.

Furthermore, it may be permitted to use works in connection with the reporting of current events, to the extent justified by the informatory purpose and as long as the source, including the author's name is indicated, unless this turns out to be impossible.⁵¹ In this case, the work itself may have become an item of news, or a work may accidentally appear in the news, in which case the permission of the author would not be necessary.

Legal texts, news

Finally, it must be pointed out that some texts may be exempt from protection, such as texts of laws or court judgments or news of the day. As such texts are fundamental for public knowledge, one is free to copy and disseminate them, or make adaptations of them, such as annotations. News items are not protected⁵² for reasons of the public's right to information; in any case they usually lack originality of expression, which would also disqualify them from the scope of protectable works. Official legal texts are also exempt from protection, not for the reason of lack of originality, but due to the public's right to know them. Neither the state, nor the officers who wrote such texts, may declare copyright in them. Since these texts are not protected by copyright, it would not be a breach of copyright law to include such texts word for word in one's own writing. However, the fact that one is free to copy and disseminate legal texts, does not give a person the right to present a legal text as their own. For example, when a law is passed, the state usually publishes a justification of the law which explains the reasons for passing the law and contains hints on how it should be interpreted and applied. The

⁴⁹ EU Directive 2001/29, (fn. 31) Art. 5 (c).

⁵⁰ Art. 10^{bis} (1).

⁵¹ EU Directive 2001/29, (fn. 31) Art. 5 (c); Berne Conv. Art. 10bis (2).

⁵² Berne Conv, Art. 2 (8).

inclusion of passages from such a text in a law book may not be a breach of copyright as such, but would deceive the reader into believing that the author of the law book wrote such text, and cannot be allowed. In this case, laws on deceit or unfair competition may be applied. Unfair competition takes place when someone makes unpermitted use of other people's works and effort, thus gaining an unfair advantage.

Question of Fault

Rules on academic integrity usually require plagiarism to be intentional, or at least to be committed by negligence, where the author as a reasonable person showing due care should have been aware of the occurrence of an instance of plagiarism. If the author has plagiarized by mistake, for example due to sloppy taking of notes, this may be pardoned from an ethical point of view. Also, the effect of the passage of time on the human memory may also lead to excusable cases of plagiarism. Sometimes, a person may forget that he has read or heard a work somewhere and may fall into the false belief that he himself had created it originally. This case, also called 'cryptomnesia' in psychology⁵³, may be excusable from an ethical perspective.

In cases such as these, plagiarism may be deemed not to exist from an ethical point of view. However, from a legal point of view, a breach of copyright law would still exist, even if this may not be called plagiarism.⁵⁴ It is sufficient for a text to be used without permission and without the necessary reference, for the law to be infringed. The intention of the wrongdoer would, however, be relevant for the legal sanctions that might be applicable in such a case. For example, while it may be possible to claim the withdrawal of a plagiarized book from the market, it may not be possible to claim indemnity for any damages caused to the author, since indemnity requires the wrongdoing to be committed by intention or at least negligence. In this sense, the law is stricter than the ethical approach.

Non-legal sanctions against plagiarism

The most important result of plagiarism may be the loss of reputation of the author. This is the case in societies where ethical rules of conduct are viewed

⁵³ *Merriam-Websters Medical Dictionary* (Online) defines *cryptomnesia* as follows: "the appearance in consciousness of memory images which are not recognized as such but which appear as original creations". Visited June 23, 2008, <http://dictionary.reference.com/browse/cryptomnesia>.

⁵⁴ Obergfell, 51; Schricker/Loewenheim, §23 Rn. 26; Fromm/Nordemann, §24 Anh. Rn. 8; Schack, Rn. 254; Fischer, 111; Stearns, 523-524; 533.

as important norms by which each respectable citizen in the society must abide.

Academic or other institutions may establish professional rules of conduct and may impose sanctions for their breach, such as formal reprimand, termination of office or disciplinary sentences for students. If an academic title was granted based on plagiarized work, the title may be withdrawn.

Legal sanctions against plagiarism

Breach of copyright law calls for certain legal sanctions and remedies. The author has the right to demand the termination and elimination of breach of copyright and the prevention thereof, if there is a threat of breach in the future. The elimination of breach may include such measures as seizing and destroying the infringing copies. The author may also demand that the court order be announced through the press or other media, for the public to be informed. This sanction may be very important in cases of plagiarism. Plagiarism need not be committed through fault (*i.e.* intentionally or by negligence) in order for these claims to be made by the author. However, if the author would like to have compensation for damages, then he would have to establish the fault of the wrongdoer.

Criminal sanctions against plagiarism

The breach of an author's rights may also be sanctioned through criminal penalties. This is usually the case for the author's economic rights, but not moral rights. For example, in Germany, the breach of moral rights, such as the right to claim authorship, are not criminally sanctioned.⁵⁵ The same is true for the UK.⁵⁶ Under Turkish law, on the other hand, plagiarism is a criminal offence. The intentional claim of authorship of someone else's work, or making quotations from a work without indicating the source, is an offence that calls for imprisonment from six months to two years or for judicial fines.⁵⁷ Indicating the source in an insufficient, incorrect or misleading manner also calls for six months of imprisonment.⁵⁸

⁵⁵ Schack, Rn. 739.

⁵⁶ §107 CDPA 1988.

⁵⁷ Turkish LIA, as amended in 2008 by law no. 5728, Art. 71 (3).

⁵⁸ Turkish LIA, as amended in 2008 by law no. 5728, Art. 71 (5).

Standing to sue

The right to demand legal protection belongs to the persons holding rights on the work plagiarized. Since plagiarism is not clearly defined in the law, but is seen as a breach of the right to claim authorship and the right to copy the work, the question of standing to sue becomes an important one, when the author has transferred the economic rights to a third party. In this case, the author (or his successors) should be able to demand protection against the breach of the right to claim authorship, since this is what lies at the heart of plagiarism. Where plagiarism is of such magnitude that it would have an impact on the economic rights, the economic right holders should also be granted protection.

In terms of formalities, the European system does not require any formalities such as registration or deposit for a work to be protected. As soon as the work is created, it is protected by the law.⁵⁹ This may sometimes produce problems of proving authorship, which laws try to resolve by certain presumptions.⁶⁰ In the American system, registration may be necessary to be able to protect a work against infringers.⁶¹

Conclusion

The definition of plagiarism from the point of view of scientific ethics is not the same as the legal one. Based on the information given above regarding copyright protection, in order for an author's rights to be legally infringed by way of plagiarism, the following conditions must be met:

- there must be a work protected by copyright;
- the unpermitted use of the work must relate to the expressions contained in the work rather than ideas or facts or information contained therein;
- necessary credit to the author or source must be missing;
- or, even if necessary credit has been given, the extent of the quotation must have exceeded that which is permitted by law.

These conditions may at times restrict the scope of legal protection against plagiarism. For example, the exclusion of ideas, concepts, methods, facts or other data from the scope of protection of originality means that the lack of

⁵⁹ Berne Conv. Art. 5 (2).

⁶⁰ For example, under Turkish law, the person whose name appears as author on a publication will be recognized as such until proven otherwise. [Turkish LIA Art. 11(1)].

⁶¹ US Code Title 17 §§411- 412.

credit to the author for such parts of the work will not lead to an infringement of copyright law, while such acts would constitute plagiarism in the ethical sense. However, other legal avenues such as unfair competition or sui generis database protection may provide protection for the unpermitted use of data.

At times, copyright infringement may cover acts which may not be seen as plagiarism. For example, unintentional use of a work without due citation may not be seen as plagiarism from an ethical point of view, while this would still constitute a breach of law.

Where plagiarism constitutes a legal infringement, the right holders may have recourse to legal, and, if permitted, criminal sanctions.

**ALLEA - Standing Committee on Science & Ethics
Workshop on Current Issues in the Ethics of Science
Istanbul, 24 May 2008**

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**ALLEA - Standing Committee on Science & Ethics
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