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Responsibilities and Rights of Authors, Peer Reviewers, Editors and Publishers: A *Status Quo* Inquiry and Assessment

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ABSTRACT

Publishing is an intricate process that involves, as the central triad, the authors, the editors, and the publisher, although the importance of the peer reviewer could extent this to a tetrad. Indeed peripheral parties such as librarians, marketing agencies, and data-base companies are linked to the publishing process, post-publication, and will thus not be the focus of this paper. When an author submits a paper to a journal, they are under several ethical and legal responsibilities. Once those responsibilities have been fulfilled, the manuscript then is in the hands of the editor(s), and the baton of responsibility is thus passed on. The editor or in most cases, the editor-in-chief (EiC), has the highest academic responsibility towards the scientific community. This is closely linked to the publisher, which publishes the journal that the EiC represents. Authors also have responsibilities towards the EiC and editor board and towards the publisher, but the opposite is also true. In this paper I wish to examine what it means to be an author, an editor, or an EiC, how this process is vetted and what responsibilities are associated with these positions. I also focus on how attention and scrutiny is often, and increasingly, focused almost exclusively on the author, but almost rarely on the EiC, the editors or the publisher. I further argue that for the publication process to be fair, transparent and effective, there must be stricter rules or guidelines concerning the responsibilities of all three parties in this triad, each of whom has inherent rights, which can, and must be exercised in a non-partisan way. The peer reviewer is often perceived as an external source of quality control, but essentially falls under the responsibility of the editor and publisher, including the choice of peer, the peer's suitable qualifications and that person's ability to effectively complete the task.

"Dulce et decorum est pro scientia mori?" (Is it noble and fitting to die for science?) Jaime A. Teixeira da Silva

Keywords: accountability, corresponding author, editor-in-chief, Impact Factor, ISSN/ISBN, publishing process Abbreviations: CA, corresponding author; CSR, corporate social responsibility; EiC, editor-in-chief

WHAT ARE RESPONSIBILITIES? AND HOW DO THEY APPLY TO AUTHORS, EDITORS AND PUBLISHERS?

This paper aims to respond to 12 key questions since the focus tends to always be on the first four:

What responsibilities do authors have towards editors?

What responsibilities do authors have towards publishers? What responsibilities do authors have towards the scientific community and science?

What responsibilities do authors have towards the wider society?

What responsibilities do editors have towards authors?

What responsibilities do editors have towards publishers?

What responsibilities do editors have towards the scientific community and science?

What responsibilities do editors have towards the wider society?

What responsibilities do publishers have towards authors?

What responsibilities do publishers have towards editors? What responsibilities do publishers have towards the scientific community and science?

What responsibilities do publishers have towards the wider society?

Collin's Dictionary best describes the term responsibility as "the ability or authority to act or decide on one's own, without supervision". What this implies is an inherent burden of obligation towards something or someone, or both. Wikipedia lists an interesting list of responsibilities, and using certain aspects of that listing, I wish to allocate responsibilities that an author, editor and publisher must assume as part of their status (Table 1). In this paper, the terms responsibility, obligation and duty are all synonymous, but to avoid confusion, only the term responsibility will be used, even though I am of the opinion that an obligation is an externally imposed responsibility. The responsibilities of the corresponding author (CA) are much more specific and this issue has been dealt with in more detail elsewhere (Teixeira da Silva et al. 2013), although there is an overlap between the CA's responsibilities and all other co-authors. In this paper, the term "author" will deal with any author, including the CA, assuming collective responsibility, i.e., as defined by Wikipedia "... a concept or doctrine, according to which individuals are to be held responsible for other people's actions by tolerating, ignoring, or harboring them, without actively collaborating in these actions." Similarly, the term EiC (for editor-in-chief) and editor will also be used interchangeably within this paper, also by assuming collective responsibility, although it is understood that the CA and the EiC formally represent the pool of authors or editors, respectively, and that the CA and the EiC take responsibility on behalf of all authors and editors, respectively.

Initially, I had thought that each party would have core responsibilities, followed by peripheral responsibilities, or major and minor responsibilities. However, I then realized that a responsibility is a responsibility, and thus this artificial categorization will not be used in this paper. The term responsibility will be used *sensu lacto* to represent any action or function for which one must hold accountability, small or large.

 Table 1 Responsibilities that authors, editors and publishers have before, during and after the publication process.

| during and after the publication process. | | | |
|---|--------------|--------------|--------------|
| Responsibility (type) | Author | Editor | Publisher |
| Personal/individual | ✓ | ✓ | ✓ |
| Collective | \checkmark | \checkmark | \checkmark |
| Science and the science community | \checkmark | \checkmark | \checkmark |
| Corporate | No | √* | \checkmark |
| Social | \checkmark | \checkmark | \checkmark |
| Moral | \checkmark | \checkmark | \checkmark |
| Legal | \checkmark | \checkmark | \checkmark |
| Media | √ ** | √ ** | \checkmark |
| Economic*** | \checkmark | \checkmark | \checkmark |
| Peer review | No | \checkmark | \checkmark |

Note: The assessment of responsibility is only a yes/no assessment. It is almost impossible to quantitatively determine if the responsibility of any one of the three entities is higher than that of another entity simply because such an assessment would be very subjective.

* This will depend on whether the journal is for a commercial for-profit publisher, in which case there is responsibility. In the case of non-commercial (non-profit) or societal journals, there is limited or no corporate responsibility.

** Where the author holds a high position within a faculty, there may be a certain level of responsibility towards society through the media, for example national research institutes or leaders of labs dealing with contentious issues such as stem cell research, genetic transformation, etc. The editor, particularly the Editor-in-Chief (EiC) is the official spokesperson and liaison officer between the publisher and the scientific community, and may have this responsibility. This will definitely be the case where the EiC is the publisher.

*** Here, the author may have responsibility towards a funding agency, or even the research institute that provides a salary, or a position. The editor may be bound by a contract with the publisher that may, or may not, involve a financial remuneration. The publisher may be bound to sponsors, private or public, paying societal members, and even clients who pay for journal services (e.g., subscriptions, etc.)

Individual responsibility

1. The author

The author's greatest responsibility is towards science. Thus, in everything related to methodology, publishing and professional practice, the ultimate responsibility is always towards science. This includes contracts with a university or research institute, ascribing to the highest possible moral and ethical codes of conduct, at each and every step of the research and publishing processes. This implies, very simplistically, being loyal to the scientific process by following the following principles:

- a) establishing testable hypotheses, and conducting experiments using designs that are appropriate to challenge and respond to these hypotheses. Any deviation from this principle is irresponsible and is conducting research which is ill-designed and thus leading to insufficiently tested research. Ill-tested research should not be published, or, if representing limited trials, should be published, at most, as a research note.
- b) conducting research that is consistent, and within the best ability possible. Within a group context, this often can involve multiple individuals, each with a separate responsibility, thus there is always the possibility of error, which is diminished by repetition of trials, and by the use of experienced staff. Any deviation from this principle can lead to research that is rushed, poorly conducted, and thus unsuitable for high level journals, and is often the source of and reason for predatory publishing.
- c) analysing data that is appropriate. This includes the choice of tests, the number of replicates, treatments, the choice of probability level and the avoidance of pseudo-replication. Any deviation from any of these can result in statistically invalid studies, which invalidate the results and the subsequent conclusions. Conclusions that are made without statistical analyses are dangerous because they have not been "tested" and thus there is no confidence that in fact the conclusion drawn is correct with any level of confidence. Falsely drawn conclusions can be considered as fraudulent, to a certain extent. Poorly tested data sets should not be published, since they mislead the scientific community

and public at large.

- d) In writing a manuscript, text should not be copied from other sources. This challenge becomes more difficult, especially where authors are not good writers, or where they are not native English speakers (assuming an English journal). Plagiarism involves the copying of text from another source, *verbatim*, while self-plagiarism involves the copying of text, *verbatim*, from one's own personal previously published publications. Plagiarism and an assessment of what it represents and how it is being dealt with is the subject of another paper.
- e) Also related to writing a manuscript, the data and structural composition of the paper should follow generally established principles in publishing. This can be complicated by the fact that the CA is often a novice, an MSc or PhD student, for example, can rush a job to meet project or report deadlines. The excuse for poor quality and lack of attention to details or requirements is somewhat irrelevant. A manuscript should be well examined for context, content, structure, language, and scientific content to the best of that author's ability. Where a group of authors is involved, every author has the responsibility to examine all of these aspects, i.e., collective responsibility (see later). Failure of even one author to examine the final text could result in probems later on in the publication process.
- f) Submission. Usually, this is the responsibility of the CA. These responsibilities are dealt with elsewhere in more detail (Teixeira da Silva et al. 2013). However, the most salient points are that the CA should never, as much as possible, be an inexperienced individual, in which case there should be at least two CAs. Responsibility in submission is, as indicated above, a collective responsibility on the part of all authors, even though the physical act of submission lies in the hands of the CA. These responsibilities include, but are not exclusively, ensuring that journal style and format are followed, instructions to authors are adhered to, a suitable covering letter is written, and compliance with the ethical guidelines of that publisher. This last issue is, however, extremely contentious, and will be dealt with elsewhere in more detail, through case studies.
- g) Post-publication. As long as the manuscript is retained in the public arena, has been published and thus constitutes a formal declaration of research findings, the author will always, indefinitely, have responsibility towards that data set and results. This includes queries that other scientists may have about the contents of that manuscript.
- h) The author will always respect the rules and laws established by each publisher regarding the distribution and use of the PDF file (soft-copy reprint of the manuscript).

All these responsibilities apply to print and online (open access (OA), or not) journals.

2. The editor and EiC

The term editor will be used to interchangeably describe the editor and the EiC. As for the authors, the greatest responsibility of the editor is towards science. All other links that the editor may have to other scientists, to research institutes, to publishers or to any other third parties are second-tier relative to the responsibilities towards science. This implies that any actions, attitudes, or situations that may compromise the integrity of science, or its value or transparency, place a heavier sense of personal responsibility on the shoulders of the editor. Moreover, the editor has, by accepting a manuscript into the review process, the responsibility of ensuring that the author is fulfilling his/her personal responsibilities. By allowing that paper to be processed, following peer review and personal decision, the editor is directly placing a stamp of approval for publication into the scientific arena. This in itself constitutes a much greater responsibility than the personal responsibilities of the author, because they encompass the editor's personal responsibilities as well as the authors' responsibilities. Usually, such a responsibility would be shared with the publisher, as the editor serves as the spokesperson for the publisher, and thus passes down and implements the policies and requirements of the publisher, possibly even independent of their own convictions. This latter aspect may be a serious violation of ethical conduct, through false declarations of the lack of conflicts of interest, to serve a personal – often selfish – purpose.

All these responsibilities apply to print and online (OA, or not) journals.

3. The publisher

The publisher shares the greatest responsibility, as indicated in **Table 1**. This implies that all staff within a publisher that have contact with the public, with editors, with authors, all have individual responsibility, as part of a net of professionals, but, collectively, also share this very large responsibility. As for the editor, but to a greater extent, the publisher has the responsibility that the authors' that they are representing and taking gains from, respect their individual responsibilities listed above (a-g), and also takes responsibility for the editor(s), and their actions and decisions. These are unquestionable and unmovable responsibilities, although rarely stated openly or publically on any publisher's web-site. The publisher also has the following responsibilities:

- a) To ensure that all information pertaining to that publisher in print or online format is correct, updated, not misleading, and open to peer scrutiny. Any false information immediately draws a red line between an honest and a fraudulent publisher.
- b) To ensure a reasonable speed of publication.
- c) To always provide information to the authors and editors of any changes in the publisher or publishing process that directly or indirectly affect these parties.
- d) To ensure the accuracy of information in the final published product.
- e) To guarantee that the final published is not edited or tampered with in any way post-publication. Any serious errors should be disclosed through open access documents as errata.
- f) In the case of OA publishing, the publisher has a particularly acute responsibility of ensuring that published papers are openly available to the public at all times, 24 hours a day and 365 days a year. Any problems with servers, PDF files or access must all be fully addressed, as quickly as possible, by the publisher.
- g) Related to f), publishers of print journals that do not financially compensate authors with royalties or with a hard-copy of the journal issue within which their manuscript was published, or a free set of offprints, are obliged to at least provide the PDF file of the published manuscript, not only to the CA, but to any co-author who may request it at any time. This can be in the form of an e-mail attachment or, should the publisher have the financial resources, an electronic distribution system. There should never be a limited number of times an author can request or download a PDF file.
- h) The publisher must ensure that published data is always available for posterity. In the case of print journals this could be through physical repositories such as libraries, national institutes, or other commercial repositories. The decision to include on one or more data-bases will depend on the priorities of each publisher, but this should not be a mandated responsibility, this should be optional, often depending on the needs and priorities (financial, academic, or other) of the publisher. In the case of OA journals, OA publishers are forcibly responsible to ensure that multiple digital repositories are maintained. Since internet security, visibility, and functionality are not guaranteed, OA publishers rely exclusively on the internet to show-case their products, and

thus the responsibility is strongly dependent on thirdparties, which is not the case for publishers of print journals.

- i) Security. The publisher has a massive responsibility of ensuring that copyrighted material is protected, or respected. Undue and illegitimate uses of a publisher's material are extremely difficult to control, and protection across borders is literally impossible at present. In the case of OA publishers, the inappropriate use of PDF files or digital material or files is challenging, for example the export of an entire journal's PDF file collection onto university or private servers. Large, commercial publishers have the financial and legal resources to ensure or minimize the potential risks, but smaller publishers do not. An explosion in predatory publishing highlights the risks related to publisher size and resources.
- j) The fact that a copyright is transferred from an author to a publisher further accentuates the publisher's responsibility of representing the author's work and data set, ensuring that the environment within which that manuscript is published is honest, free of faults, and consistent with all the other responsibilities that are automatically assigned to the publisher. The fact that an author may retain his/her rights such as in a common's agreement within an OA context does not alleviate the publisher of their responsibility. Quite the contrary, the publisher has an even greater responsibility to ensure that the *milieu* within which an author has decided to represent their data is fitting of a publisher.
- k) ISSN and ISBN. The publisher should always respect the rules and guidelines established by these two organizations from whom they have received ISSN and ISBN numbers for journals and books, respectively.
- Thomson Reuters. A publisher must always exert maximum academic quality control, respecting the peer review process, archival and indexing of issues and all other pre-requisites established by Thomson Reuters when dealing with the Impact Factor.
- m) Abstracting and indexing agencies. The publisher must confirm to the requirements of abstracting and indexing agencies to which their journals have been submitted.
- n) Other publishers. A publisher should in general respect another publisher if that publisher shows correct responsibility as detailed here, otherwise it has the right and the responsibility to call out peer publishers who have failed their responsibilities.

Collective responsibility

This issue is quite interesting and to look at this term and what it implies requires us to take a peek back in time since, in biblical times, entire communities would often be published by God for the actions of a few, representing the most spiritual and moral notion of collective responsibility. Undoubtedly such similes would be found in Islamic or Buddhist (or other religions) scriptures, but I only refer to those scriptures that have formed part of my cultural inheritance, since I can relate best to these. I have relied on my own scriptural readings and on Wikipedia to fortify the facts. Independent of religious affiliations, scientists can learn something from this. In the Old Testament of the Bible, all in the book of Genesis, three interesting examples demonstrate the concept of collective responsibility. In the first, in the story of Noah's Ark, God wanted to collectively punish humankind for the evil they had committed, leaving the responsibility of saving humankind to Noah, who was left to gather a pair of all species he could before the floods would wipe out the rest of sinful humanity. In the second, God comes down to see a massive tower that the survivors and subsequent generations of Noah's Ark have begun to build with the purpose of reaching heaven. The theological interpretation is that God assumes that if humans united in such a powerful way to build something literally impossible (in this case reaching heaven) through unity of thoughts and

language, whether for noble or for ignoble purposes, but for their own self-fulfilling purposes, that they would be ignoring the trinity, and thus God. Almost in an act of selfpunishment for being blinded by this almost omnipotent ability to create something God-like, God then introduces foreign languages into the mouths of the standardized population, causing the tower to be destroyed and the population to be dispersed. The third story is the fascinating tale of Sodom and Gomorrah. Briefly, in this tale, God wishes to destroy the cities of Sodom and Gomorrah, which have degenerated into total sin. However, God identifies one righteous man, Lot. Before God decides to destroy these two cities, he wishes to warn Lot of the imminent tragedy by sending two angels disguised as ordinary men. God requests Lot to gather as many righteous men as he can before the destruction of the sinful cities. Initially, Lot promises to find at least 50 righteous men, but that number drops sequentially to 40, 30, 20, 10 and most likely only Lot himself (subject to various interpretations). As the angry masses storm Lot's house to kill the two "guests" inside, Lot saves the guests (the angels) by offering his virgin daughters to the masses. Even more enraged, the sinful masses storm Lot's house. At this moment, the angels intervene and protect Lot, telling him to escape and never to "look back". Lot escapes with his family, including his wife who, at the exact moment that God is destroying the cities of Sodom and Gomorrah with brimstone and fire, turns back. She is immediately transformed into a pillar of salt. A fourth pertinent example, from the Book of Exodus (also Old Testament), describes how God liberates the Israelites from the Egyptian pharaohs who have started to live in sin by building their own gods. Popularly termed the 10 plagues of Egypt, God brings in 10 plagues (sequentially, water, frogs, lice, flies, livestock disease, boils, hail, locusts, and darkness). Finally, in a last show of force against the Egyptians' sins, God implements the death of the first-born of all Egyptian humans and animals, and promises to save only those homes where a cross was made on the door using the blood of lambs. Following this last plague, the $10^{\rm m}$, the pharaohs succumb to God's wrath and release the Israelites.

It is not difficult to see the parallels between biblical times or biblical theologies with modern society and how the same principle could theoretically still be at play, particularly as we see increasing decadence within many societies, and more and more in the financial and business sectors. However, in reality, the number of cases that relate to collective guilt are limited, possibly because modern legal systems assign guilt to individuals rather than to the collective group. However, this is changing as different responsibilities begin to overlap, particularly in the business world, where corporate social responsibility or CSR, needs to be increasingly coordinated with social and government responsibilities. Focusing on publishing, the collective responsibility of publishers (at least those that are for-profit corporations) is thus much higher than that of authors and editors because there is a much wider umbrella of responsibilities towards society, governments and the wider business community, i.e., CSR. According to Wikipedia (2012a), CSR has other terms: corporate conscience, corporate citizenship, social performance, or sustainable responsible business/responsible business. Wikipedia defines CSR very distinctly as "is a form of corporate self-regulation integrated into a business model. CSR policy functions as a built-in, self-regulating mechanism whereby a business monitors and ensures its active compliance with the spirit of the law, ethical standards, and international norms. CSR is a process with the aim to embrace responsibility for the company's actions and encourage a positive impact through its activities on the environment, consumers, employees, communities, stakeholders and all other members of the public sphere who may also be considered as stakeholders." This is actually a very fascinating and telling definition, since it shows how much responsibility publishers in fact have, not only towards business management, but also towards almost every party that is in some way linked with the company (in

this case the publisher). In contrast, an author or editor are usually responsible only for their individual actions, thus there is neither corporate responsibility, nor collective responsibility. In serious cases related to ethics, for example, the institute tends to disassociate itself from that individual, to reduce the negative impact on its own image, which has similarly high, but different responsibilities towards the scientific community, society and governments than corporations (publishers). The fusion of business and science tends to blur this fine line between individual, institutional, corporate and collective responsibility, and tends to have wider-reaching consequences, affecting many more than just the individual for one simple reason: money is involved. This brings us back, in full circle, to my initial Biblical interpretations of a consequence that lies in wait for sins, or social illnesses, borne in this case by money.

War is another interesting aspect that tends to focus on collective responsibility, often through the concept of guilt by association. It is not uncommon to see the association of all Germans with Nazis as a result of WWII, or Japanese neo-right wing nationalists with imperialist Japanese in the 1930's. Why should, for example, all Iraqis be associated with Saddam Hussein, all British citizens with British colo-nialist policies of the 16th and 17th centuries, or all plant biotechnologists with Monsanto? Social media, particularly that which is biased, tends to provide society with a limited window of scope, and thus collective perceptions lead to, in cases, of crises, collective responsibilities. These broader issues will not be discussed here, but they are mentioned briefly because science is not insular, and the issues that exist within the non-scientific society have a deep impact on and influence the scientific community (see Teixeira da Silva 2011), its moral and ethical standing, and thus responsibilities.

Returning to science, authors, to some extent, hold a collective responsibility towards their research institute and other scientists. More broadly, editors (and the EiC) hold a collective responsibility towards their research institute, other scientists, peers, other editors, and the publisher. And the entity with the widest collective responsibility is the publisher, who holds responsibility and accountability towards scientific community, society, governments and other publishing-related businesses. Any of these parties who renegades on its basic collective responsibilities is defrauding the members they are responsible for and accountable to.

A FOCUS ON "PEER" REVIEWERS AND THEIR RESPONSIBILITIES

The term "peer" reviewer seems to be increasingly flaunted and abused in recent times. In strict, high level societal journals, it is very clear what constitutes a peer, but the definition is extremely subjective, ranging from extremely finescale to a level as wide as science (Fig. 1). There are no written laws or rules, only interpretations, so it is difficult to thus claim that a journal's peer reviewers are valid or invalid since each journal will have its own interpretation of what constitutes quality and what constitutes a "peer reviewer". This distortion of definitions can lead to serious situations where the term "good quality", as claimed by one journal, can be claimed by another journal to be of poor or bad quality. An accusation made by one party (author, editor, journal or publisher) of poor or invalid peer review by another party (author, editor, journal or publisher) may be in fact based on simple differences of opinion, interpretation and basal definitions of what constitutes quality. This issue of perception, and who perceives quality, is central to the issue of publishing, but is marginal to the focus of this paper, and will thus only be mentioned in the context where it is perceived to influence the rights and responsibilities of authors, editors and publishers. Assuming that there are no rules, therefore, explaining what in fact constitutes a peer reviewer, this makes it open season for publishers to select whomever they wish, using whatever criteria – if any – they



Fig. 1 Diagram showing how the interpretation of a peer reviewer can be extremely broad or extremely-narrow, depending on where the cutoff pint is considered, and by whom. To take a clear example, imagine I am an author of a manuscript on the molecular mechanisms of photosystem II (PSII) of the leaves of tissue-cultured Cymbidium (an orchid) plants that have been grown under photoautotrophic (i.e., CO2-enrichment) conditions. As can be seen by the figure, what constitutes a "peer" really depends on the level of expertise of the person used to revise the manuscript. It also depends on other factors discussed in the text. In the case of the figure below, peer levels are: 1 = PSII specialist; 2 = molecular biologist focusing on photosynthesis; 3 = plant physiologist with a focus on photosynthesis; 4 = orchid biotechnologist; 5 = tissue culture specialist; 6 = photoautotrophic tissue culture specialist; 7 = plant physiologist, molecular biologist or biotechnologist (broadly); 8 = botanist; 9 = plant scientist (broadly). However, the breadth of expertise and the "level" of peer status would define what is a valid or invalid peer review. What is also often not defined is what is not a peer review or what is an invalid peer reviewer. In the ideal case, a peer review should include at least one individual within each different expertise "category", so in this specific case, the "ideal" peer review process would require a least 8 peer reviewers since a peer with each different level of expertise would most likely focus on and critique very different aspects of a manuscript. Very rarely do publishers conduct an "ideal" peer review.

so wish. Once again, within an academic society, the rules and criteria might be much stricter than those used by a commercial publisher, whose ultimate objective is profit, and who are willing to sacrifice quality through lax peer review in the name of profit. False claims to peer review by using level 9 peer reviewers (**Fig. 1**) who are only marginally "peer" in nature, is the rationale that predatory publishers use to defend their stance that they are indeed "peerreviewed" journals.

Taking a step back, the peer reviewers are selected by the editor, on occasion, but always by the publisher, or by both. Whether the publisher is conscious or not of the actual choice of peer is irrelevant, for example, where online submission and editorial systems are employed, because in this case the publisher assumes a double responsibility: a) to ensure that adequate (number and quality of expertise) peers are selected; b) to verify, regularly, that the online submission and editorial system are functioning optimally, and that the expertise of reviewers who are listed on those automated editorial systems are in fact regularly verified. This means that the publisher holds the maximum responsibility within publishing of what it publishes and how that process takes place since it is fully responsible for ensuring the scientific quality of what is published through the "peer" review process. That said, this fortifies the notion that the publisher holds the highest responsibility among the triad of authors, editors and publishers. This then begs the question of how exactly peer reviewers are vetted and selected by editors and the publisher. Are specific individuals hand-picked based on their background, skills and expertise? Are spam e-mails used to masses of individuals, which may or may not be related to the topic at hand? Are peer reviewers remunerated or do they offer their services for free? Is the process open and transparent, or closed to scrutiny by the public and scientific community? These issues will directly impact the final outcome of quality, which, emphasizing what was already stated above, is the ultimate responsibility of the publisher. I wish to examine some of these issues in more detail, but by maintaining the conversation broad without providing cases studies, which will be the topic of future publications. In an ideal situation, an editor or publisher has the responsibility of ensuring that



Number of reviewers and/or revisions

Fig. 2 Hypothetical graph showing how the level of perfection increases exactly in the same way and with the same shape as the number of reviewers (editors or peer reviews) or the number of revisions increases. This thus fortifies the concept that the level, scope and number of peer reviewers used within the peer review process (Fig. 1) will have a substantial outcome on the level of perfection. Perfection can be uses synonymously with academic confidence, or accuracy. Red dot = dubious level of review. \mathbb{O} = low level of technology, with potential correlation to a developing economy, financial or socio-economic stability; \mathbb{O} = intermediate level of technology, with potential correlation to a developing economy, financial or socio-economic stability.

the scientific quality of a manuscript submitted to that journal is as accurate as possible. Naturally, the level of accuracy increases as the number of reviewers (editors and/or peer reviewers) and revisions (by authors and/or by editors) increases (**Fig. 2**), with perfection being the ideal superimposition of both parameters.

Suddenly, from a divergence from the central topic at hand, some key questions emerge:

- 1) Should the review process be blind or double-blind? Yes, it should.
- 2) Should the identity of the peer reviewers be revealed after the manuscript has been published? Yes, it should. The reader may feel confused about the apparent contradiction between point 1) and this point 2). I am emphatically stating in pint 1) that the peer review process should be conducted, by several level 1-level 6 or 6 peers (Fig. 1) without the peer knowing the identity of the authors, and with the authors being blind to the identity of the peers. This ensures maximum privacy, and limits potential conflicts of interest to almost zero. The use of multiple peers of high-level peers will also remove the bias and imbalance caused by the use of a very limited number of peers. In reality, publishers are under increasing pressure to publish more, and quickly, and this tends to result in corners (corner = quality) being cut.
- 3) If the process is not blind, does the peer reviewer have the responsibility of making a formal declaration that there are no conflicts of interest with the authors, the editors and/or the publisher? Yes, he/she has.
- 4) Does the public (in this case the scientific community) have the right to view the peer reviewer notes in the case where a published paper may contain dubious data, results, or other information that has been called into question? Yes, they do. Who is responsible for making such documents available? The editor(s), EiC and/or publisher.
- 5) Who is accountable, ultimately, for the choice, quality, and performance of the peer reviewer? The publisher since the publisher manages the peer review process either through its employed editors, or through automated online editorial systems. Thus, any fault with the peer review system must lie squarely on the shoulders of the publisher.
- 6) If a peer reviewer is not paid, what guarantee is there

that a dedicated peer review has been conducted? There is no guarantee, and one of the hall-marks of predatory publishers is that the so-called "peer reviewers" they employ offer a rushed, undedicated review of the manuscript, often completing the task within (potentially) minutes. Once again, the publisher holds full responsibility (collective responsibility) for the performance of the peer, who also holds individual responsibility towards science and the science community.

Suddenly, it becomes apparent how much responsibility the peer reviewer has in the entire process, which is the entire responsibility of the publisher. Thus, ultimately, a bad choice by a publisher of an unqualified peer reviewer will reflect poorly on the manuscript, the journal, the peer reviewer, the editor, the EiC and the publisher. In other words, a poor decision regarding the peer reviewer will reflect on the lack of responsibility on the part of the publisher at so many levels. In fact, where a publisher, a journal or an editor claims to have conducted "peer review", but where insufficiently qualified individuals are vetted for the peer review process, or who do not fulfill their required functions, the publisher, and all associated strata of individuals working under it, can be accused of fraud. The term fraud, sensu sticto, and sensu lato, is a crime. Fraud is defined (Wikipedia 2012b) as "an intentional deception made for personal gain or to damage another individual". In essence, a publisher that claims to be conducting peer review, but where the peer review has not taken place, or is not completed fully and correctly, is willfully deceiving the scientific community. In this case, the publisher has committed a crime, a fraud, and the publisher is thus fraudulent. This is another central issue to publishing, but one which is often skirted or totally avoided. This will be focused elsewhere in more detail through case studies.

All these responsibilities apply to print and online (OA, or not) journals.

DOES THE AUTHOR HAVE THE RIGHT TO CHALLENGE A REJECTION?

This challenges a basic foundation of this paper: where does the limit lie between personal responsibility and editorial responsibility? It is not uncommon for an author to disagree (sometimes strongly) with an editor or an EiC regarding the decision to reject a manuscript, or even "peer" or editorial comments that accompany a decision. Under such circumstances, the EiC may often claim that the decision is final and that the decision may not be challenged. However, is this true? I am of the opinion that every author has the full right to challenge an editorial decision provided that a logical and justified reason is provided. Any editor that does not respect that challenge may be, at minimum, acting unfairly, at maximum, being a tyrant, and the decision may thus be considered to be questionable at best, or fraudulent at worst. It is also not uncommon for scientists who have reached a high-level stratus within the peer community to be disliked by peers, either personally or professionally, for reasons associated with professional competition, or jealousy. Under these circumstances, where a rejection decision has been made by the editor, and where a fair challenge has been made by the author, and where the challenge and request for re-review has been denied by the editor and/or publisher, it is not unreal to suspect strong conflicts of interest. Where the author suspects such possible unethical behavior on the part of the editor, EiC, or editor board, the author has the right to request an alternative editor to handle the peer review process. It is rare, and perhaps never indicated, among main-stream and lesser known publishers, what the author's rights are under such specific circumstances. Since the corporate, economic, public, social and media responsibilities of the publisher are much higher than that of the author (Table 1), it is understandable that the publisher would not seek a conflict with an author and would do everything in its power to resolve the issue peacefully, so as to avoid a public relations (PR) backlash. In

common PR terms, this is termed damage control.

HOW DOES TONE OR LANGUAGE AFFECT THE RIGHTS OF AUTHORS?

Publishing, the ultimate climax of the scientific efforts in a laboratory, greenhouse of field work, can be a passionate issue for many scientists, and rightly so. In many cases, depending on the discipline, weeks, months and even sometimes years of hard work culminate in a single manuscript. Thus, a mere 5 or 10 pages or print can in reality represent hundreds or even thousands of hours and potentially an equal amount of financial investment. Therefore, the author wishes, in most cases, to strongly defend their rights and possibility of publication, expecting a fair, transparent and professional service at all steps of the way. An author who meets with or suspects a conflict of interest or mismanagement at any stage of the review process has the right to complain, and to voice their dissatisfaction. As indicated above, publishers - having the maximum responsibility within publishing – would want to avoid any possible conflicts with authors and, using basic business management strategies, would use the most diplomatically available language possible to resolve issues, in order to achieve their CSR. In street speak, this could be finesse, politically-correct language or civility. However, all of these issues are pedantic and secondary relative to the issue of rights and responsibilities. All of these issues related to tone are simply an expression of emotion or the use of language to manage a situation. Most scientists are not PR officers, politicians, public speakers or business-related individuals, and on occasion, the tone of voice within a communication or e-mail may be understandably coarse, or even excessively critical. Once again, such a tone would be understandable, considering the investment that an author makes to complete an experiment. However, this issue is frequently used by editors and publishers to mask or demeanor the author's actual rights. The authors' rights to challenge a decision DO NOT CHANGE, independent of the tone of voice. Therefore, even if an author expresses anger, rage, or outrage, the rights still need to be respected by the editor and the publisher, although, admittedly, the situation will be difficult to manage when the author does express such fervent opinions. Editors or publishers who actively decide not to respond or to respect the will (and the right) of the scientist/author who challenge a decision, are renegading on their key responsibilities listed in Table 1, i.e., abandoning their responsible allegiance towards authors, scientists, and the scientific community. The failure to deal with a query or a challenge shows arrogance, and reduces the image that transparency is an essential aspect of the publishing step and of their corporate responsibility towards science and society, i.e., diminished CSR. Thus, there should be reason to doubt such an editor, or publisher, and the editorial capacity, professionalism and ability to deal responsibly with the scientific community. These issues will become much clearer in future publications that focus on more specific case studies.

HOW CAN INCOMPROMISABLE ISSUES BE RESOLVED?

In certain circumstances, and these cases may actually much more common than has been noted publically, there are incompromisable resolutions between authors and editors or between authors and publishers. In these cases, where a common ground and peaceful resolution cannot be found, what recourses do authors, editors and publishers have? In an extreme case, all three parties can resort to a legal resolution in which legal advice is sought and legal council is used to represent the plaintiff in a court of law. This could prove very complex in transnational cases where the author may be from one country and the editor or publisher from another. Moreover, legal fees would undoubtedly cripple an author, who, under most circumstances, has extremely limited funds, which are usually limited to research purposes, thus legal counsel would almost certainly imply the use of private funds. Thus, a legal option is rarely pursued. Moreover, there is often a fine line between (or an overlap with) what is law, and what constitutes morality or ethics, which are not covered by laws. Except for libel, plagiarism that leads to financial losses or other tangible losses, or other fairly clear-cut cases, it is difficult to show or prove that any party has committed a crime other than to offend, lower a standard or misrepresent. Publishers however, who have a much higher responsibility at so many different levels (Table 1), would seek to reduce the PR damage to a minimum, and would prefer to settle the issue in court when the resolution has become incompromisable. For the very large, main-stream publishers, it is not uncommon to find an extremely powerful and large legal team, which can also serve as a deterrent. For example, Reed-Elsevier, the parent company of Elsevier, the biggest science publisher in the world (in terms of volume and has legal department, LexisNexis revenue). а (http://www.lexisnexis.com/en-us/home.page), which is one of the most powerful and influential legal companies in the USA. Incidentally, the motto of LexisNexis is "We believe that when you put information and technology into the right hands, you give people the power to shape the world", which strangely brings us back to the biblical issues discussed earlier on religious aspects of collective responsibility. Based on such potentially powerful legal departments by publishers, particularly the large commercial ones, and considering that legal counsel would almost inevitably be self-paid, most authors would rarely seek legal recourses to mitigate a litigation with a publisher. It is extremely rare to hear of a court-case against a publisher by a scientist or author. Certainly, I have never heard of one, fortifying my notion that the publisher, through unspoken threats, diminishes the voice, and thus the rights, of the author. The author, seeing few avenues of recourse, either gives up, recluses to a state of silence, or seeks to abandon the challenge because of the expense, or the complication. Within this ambience of legal repression, silent or not, the rights of authors are subdued, while their responsibilities are to some extent, manipulated. This begs the question: Is there a need to return to the Dark Ages of justice? In no way am I suggesting the return to the guillotine, or the noose, but most certainly, where issues of injustice, actual or perceived fraud exist, these should be exposed publically. One of the greatest hindrances in ensuring quality and responsibility is that so much information and so many processes are not publically available. A system works best when it is transparent, and the ability to see in an open, honest and clear way each and every step of the research and publishing processes places pressure on the author, editors, peer reviewers and publisher to ensure that the publishing process is as free of flaws as possible. Since many recent events in the publishing sphere have showed us that fraud and corruption are rife, there is only one way, possibly, to re-instate a state of honesty and transparency: the court of public opinion, through blogs, wikis, and other more extreme measures, if necessary.

HOW IS ACCOUNTABILITY MEASURED AND VERIFIED, AND BY WHOM?

Accountability is an important word in the context of responsibility. Usually, as described above, authors, editors, peer reviewers and publishers share two main responsibilities: personal and collective. When there is success, then success should be shared equally among all the parties, and rightfully so, since all parties have participated in a chain of events to ensure success. Thus, should there be a case of fraud, the responsibility may lie collectively in the hands of all parties. True authorship is almost impossible to verify since the quantitative description of the involvement of each author within a paper is virtually impossible to verify *in loco*, certainly not by the editor or the publisher. Based

on this premise, it would be safe to say that the first step of the publishing process (i.e., the assignment of authorship) poses the greatest risk, yet it is the step with the weakest verification and accountability. This is one reason why publishers now focus on those issues that they can quantify, such as plagiarism in order to provide some form of quantifiable accountability. However, since the very first step of the publishing process is imperfect (i.e. regarding the validity and veracity of authorship), the second issue regarding plagiarism becomes relatively redundant. Accountability is a central theme to responsibility, but requires case studies to show how the lack of accountability can lead to fraud within science publishing. This issue will be dealt with separately, also though case studies.

One excellent way of confirming the individual responsibility of an author or a scientist, i.e., verifying the validity of an individual, is through their CV. Broadly, there are two types of CVs, a broad CV that highlights several personal aspects of the person, while a professional CV will highlight, almost invariably, basic personal information, but not intrusive, and mainly professional work experience, professional associations and membership, degrees earned, papers published, congresses and symposia attended, and any other information that would show the professional prowess of that scientist, editor, or publisher personnel within that specific professional field. I am strongly of the opinion that a scientist's CV, thorough, unedited and fully representative of 100% of that individual's professional record must be made publically available at all times. This could be in the form of a downloadable file (e.g., Word or PDF), or a website that shows the full professional profile. The importance is to provide full transparency about the individual using the logic of "if there is nothing to hide, then there is nothing to hide". Naturally, this should be a strictly professional CV, and aspects such as personal document (e.g., passport or ID card) numbers, phone numbers, credit cards or any other issue that is not central to the professional profile of that individual, should be set aside and should not form part of the professional CV. The rationale behind having a publically available, openly available professional profile is that any member of the scientific community or public (society, government, etc.) can always refer to such a document or web-site, either out of interest, or for verification purposes. This is a *sine qua non* responsibility of authors, peer reviewers, editors and publisher personnel. Any individual who purposefully leaves out even one piece of information from their CV, or who manipulates the content in any way that skews the true and original version of facts, is committing a fraud.

There is currently no watchdog in science publishing. Each scientist fends for him/herself, but often within the context of a research institute, i.e. collective responsibility. The EiC also defends the editors within an editor board, whom he/she represents with one voice, i.e., collective responsibility. And, each publisher tends to defend its own interests. Currently, there is no international regulating agency, or watchdog, to monitor that responsibilities are ensured and implemented. Although quantitative systems such as Thomson Reuter's Impact Factor (IF) claim to represent a quantitative form of quality, they are only representative of a business parameter that is used for the ultimate purpose of profit-making, and thus carries a low level of corporate responsibility, or does it? Similarly, ISSN and ISBN numbers that are assigned to "scholarly" journals and books are assigned such numbers by ISSN and ISBN agencies, respectively. Therefore, although the ISSN and ISBN claim not to be responsible for the actions of the end-user, the fact that they are assigning official numbers that ultimately give legitimacy to a journal and publisher, implies that they hold a relatively high level of responsibility towards the scientific community. I am of the opinion that a global watchdog is not required, nor should it exist, since the accumulation of such a power within the hands of a small minority would potentially create serious problems with issues related to conflicts of interest, among others.

Thus, in the currently unregulated environment, the world of science publishing is fast becoming the wild-wild west of deregulation, a free-for-all. This current state of de- and unregulated global publishing in science is potentially one major reason why it is almost impossible to reign in the current wave of predatory publishing and fraud.

Do other rights play a role?

Most certainly, children's rights, women's rights, the 10 commandments, the Bill of Rights, and other socioreligious rights play a fundamental role at the level of the individual, and even, at times, at the level of the institution, for example a Catholic University or an Islamic University. Thus rights and responsibilities that an individual is exposed to either socially or religiously will strongly influence the perceptions of responsibility within science research and publishing. These socio-cultural differences can often lead to very strong conflicts of interest between authors within international collaborations, between universities, between authors and editors, and between authors and publishers, because the perceived sense of rights and responsibilities are different. Neither is superior, and neither should be imposed, making the situation unbearable and unresolvable, at times. These issues will be dealt with separately.

ON CONTRACTS AND MONEY, AND SYSTEMS OF INCENTIVES FOR PUBLISHING

These issues are almost never discussed, almost as if a secret or silent taboo. However, these two topics are central to this paper, because they may reveal serious weaknesses in different steps of the publishing process. An author who is not rewarded for publishing in top-level journals – or to publish at all – will more likely not strive to publish, and is more likely to commit fraud or crimes, since the incentive to publish is zero. The lack of incentives indirectly implies the lack of appreciation for that scientist's skills, which reflects poorly on the institute. Conversely, the over-incentivization of scientists to publish can also result in potentially unwanted fraud. A scientist who is financially remunerated based on the number of publications, receiving stratified remuneration depending on whether the publication is a book, a review, an original research paper or a short communication or research note can lead to potentially institutionalized fraudulent behavior, as risky if not more, than no incentivization at all. For example, when universities provide increases in salaries, research grants and bonuses, improved positions and tenures, upgrades from assistant professorship to full professorship based on monetized incentivization, in turn based on the number or level of publications, the system is open to serious fraud and abuse, often uncontrolled and unmonitored, simply because standards are unwritten or unspecified. For example, many universities assign research funds or improved cash bonuses or salaries based on the IF of a paper. This incentivizes scientists to push for publications in higher IF journals, to reap greater profits. At this point, the publishing process has turned from an academic responsibility into a gambling game. This is the classical situation in China where public universities give financial rewards based on the IF of their publications. Not only does this instill an ambient of greed and aggressive competition, it has the strong potential to breed fraud and corruption, stated or silenced. At the benefit of whom? Ultimately, the author benefits, the university may benefit by receiving additional funds from governments for "performance", while the publisher reaps greater profits through subscriptions, and the cycle of monetization inbreeds potential corruption by its very nature. When such a monetization of a system takes place, the responsibility is no longer towards science. It is exclusively towards a financial reward. Science is no longer conducted with the sole purpose of defining a problem of resolving a hypothesis, it is now focused on one final end-point: a financial return based the efforts invested. Responsibilities can be diluted and corrupted in such a system. And publishers assume the greatest responsibilities for joining in the gambling game, by spurring and stimulating the profits-for-publishing scheme. Publishers who pursue such policies at the expense of the basic notions and principles of science may have lost their responsibilities towards science, scientists, and society. When publishers join "the game", they must also take responsibility for stimulating gambling within science and publishing. Consequently, when an editor or a peer reviewer is contracted by a publisher to ensure "quality", with the ultimate purpose of ensuring profit, and to keep milking the cash cow, then publishers are responsible for, in a way, manipulating the quality control process for non-scientific purposes. The questions that emerge from such monetization of science, and which remain unresolved, are:

- a) Why can the public not see any contract that is signed between editors and publishers?
- b) When editors or peer reviewers are paid, how is quality ensured? What conditions within such contracts ensure a transparent and fair peer review process?
- c) Is it morally correct for editors and peer reviewers to receive money from publishers?
- d) Is it correct for editors and peer reviewers not to be remunerated by publishers?
- e) Is it correct that publishers not pay royalties to authors but make profits from their intellectual investments and achievements?
- f) Does the transfer of copyright by an author to a publisher alleviate the publisher of responsibilities, or does it enhance their responsibilities?
- g) Are publishers obliged to reveal the decision-making process, the decision-makers, or the risks involved with conflicts of interest?

These issues are all central to better understanding the risks associated with distorted responsibilities that come about as a result of the monetization of the publishing process.

THE PSYCHOLOGY AND MORALITY OF RESPONSIBILITY

It is often easier to define something by something it is not. Similarly, it is sometimes easier to view responsibility by what it is not, or by observing how it is avoided, or skirted. Diffusing or limiting responsibility, with the purpose of avoiding it, is often accentuated when an individual is in a group, passing blame and thus using the pretext that responsibility has been assumed by others, but never oneself. This is made easier when responsibility is poorly defined, or when groups are excessively large. This can easily be envisioned in large universities with large departments, or interdepartmental staff where multiple responsibilities to more than one department are assigned. It is also easily visualized in a large corporation, such as a large commercial publisher, where there are multiple levels of individuals each taking on different duties (or responsibilities). The larger the institution or corporation, the greater the risks and responsibilities. In a prosocial context, in which an individual skirts responsibility by assuming that those around them have already assumed it, can be envisioned within science, too. The fact that a CA is assigned makes other co-authors feel that they are no longer responsible for all of the issues related to the publication process during and after submission, which is clearly a false, unethical and irresponsible position to hold. Similarly, a peer reviewer or editor who cuts corners in the review or editing process simply because this is the unspoken reality, also constitutes a gross violation of the review and editorial process, and thus skirts responsibility by using the "he-did-it-so-I-did-it" mentality. And, at the level of publishers, they may look at other publishers and state that this is the "industry standard" and thus there is no need to edit, change or challenge it, skirting thus their multiple responsibilities (Table 1) in the hope that an author will not be bold or intelligent enough to



Fig. 3 The range of personalities that would encompass a rainbow of perceptions related to moral responsibility. A hard-core determinist would emphatically believe that everything happens based on a set of conditions without which nothing else could happen. Hard-core libertarians would believe, however, that nature takes its course through cause and effect, and that there are no pre-conditions that would *a priori* establish the state of an event. A strongly libertarian author who confronts a strongly deterministic editor within the context of a conflict might, with difficulty, resolve the problem. A fraudulent scientist might be a hard-core incompatibilist, claiming that since he/she has no free will, they are not morally responsible for their actions, skirting thus the basic responsibilities of the author (**Table 1**). What science publishing requires is a state of maximum compatibilism in which all parties are mindful of all the circumstances that surround an issue or a situation, but such policies might be impossible to achieve within a business model of publishing where hard-core determinism is at play. One could contend that OA would be the ultimate representative of free will within publishing incompatible with print journals, which would represent a more conservative deterministic publishing model. In a separate prism, hard-core determinism could imply obligate responsibility in which there is a sense of a pre-determined, fateful state without the possibility of change. In contrast, at the other end of the responsibility spectrum, lies facultative responsibility, which could alter, or be excused, based on situation, circumstance, or surroundings. Is it possible for a hard-core libertarian to also be a hard-core determinist? I believe yes. The only state that would potentially violate this graphic representation of moral responsibility, or annul its validity, would be fate, or responsibility assumption. Basal figure (central block) adapted and modified from Wikipedia. http://en.wikipedia.org/wiki/Moral_

challenge that *status-quo* mentality. This bystander effect can be more broadly interpreted when institutions or publishers hide or cover the identity of individuals who are directly responsible for specific actions, often signing off in e-mails as "The Editor Board", the "Management", the "Faculty", or similar group associations specifically made to fortify the defense of the group, and minimize the individual responsibility. In a negative context, this can easily be perceived – in increasing levels of seriousness – as a lack of transparency, deceit, or mismanagement, all of which do not reflect a positive image of the institute or publisher, and cast doubts in the minds of anyone observing a situation from the outside.

According to Wikipedia, "Moral responsibility is the status of morally deserving praise, blame, reward, or punishment for an act or omission, in accordance with one's moral obligations. Deciding what if anything is morally obligatory is a principle concern of ethics." This interpretation of moral responsibility is central to the responsibilities of authors, editors and publishers in Table 1, and of peer reviewers. The free will of an individual or the deterministic nature of an individual will determine how responsibilities are perceived, and implemented (Fig. 3). Thus, a libertarianist author who confronts a totalitarian or hard-core deterministic editor would almost invariable fail to solve issues related to conflicts of interest, simply because the perceptions of responsibility would be so radically different. In this case, where a publisher is made up of so many individuals, should it be a collective responsibility to resolve an impasse?

How do others define responsibility?

"Peer-reviewed published literature, in the sciences as well as in the arts, is an essential foundation upon which knowledge builds in our society. The publication of articles allows for the validation and discussion of new ideas. Articles also provide credit for professional advancement as scientists seek grants and promotions. Being accountable for the content of an article seems to be a minimal responsibility for an author whose name is on a paper; maintaining objectivity and acknowledging potential biases when called upon as an expert to review a grant proposal or a submitted article before publication also seems a reasonable standard." Columbia University (2012).

Very recently (1 November, 2012), the European Mathematical Society Ethics Committee approved a white paper that defined, with some overlap what has been defined in this paper, but tending to simplify the issues, the responsibilities of authors, reviewers, editors and publishers. A particularly important point which needs to be saliented from their document reads "An editor should withdraw from any editorial duties that would involve a personal, commercial, or professional conflict of interest. An editor should also avoid any misuse of their privileged position or of information received as part of their editorial duties to influence the handling of their own papers, or those of colleagues, students, or personal acquaintances. Certainly no information received in confidence should ever be used in the editor's own work."

GLOSSARY

These terms have been based on Wikipedia definitions, *verbatim*, except where otherwise defined.

Predatory publisher: www.scholarlyoa.com

Prosocial behaviour: "voluntary behavior intended to benefit another"

Responsibility assumption: "the doctrine that an individual has substantial or total responsibility for the events and circumstances that befall them in their personal life, to a substantially greater degree than is normally thought."

Status quo: "the current or existing state of affairs"

Tyrant: "the word "tyrant" carries connotations of a harsh and cruel ruler who places his or her own interests or the interests of an oligarchy over the best interests of the general population, which the tyrant governs or controls".

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