

Open letter to the President and committees of the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG)

Who defends scientists against false accusations?

Injustice in the case of Birbaumer / Chaudhary and consequences for an adequate investigation of scientific misconduct

The signatories believe that in the case of Birbaumer / Chaudhary massive deficiencies in the system of investigating scientific misconduct have emerged, which have led to false and also highly divergent judgments of the University Commission and the DFG Committee on the Investigation of Scientific Misconduct. Furthermore, despite the possible errors in the votes, the DFG's verdict on the accusation of a lack of data depth seems extraordinarily harsh to us. We believe that the very one-sided press reports launched by the whistleblower and time constraints of the Excellence Initiative have had a negative impact on the process. The inadequate involvement of international experts familiar with the specific topic and the failure to observe possible conflicts of interest may also have had a negative impact, as many aspects of the desired high-risk research in the DFG-funded Reinhart Koselleck project were obviously not understood or misinterpreted. Niels Birbaumer had to close his lab and cannot continue his work on communication on completely locked-in patients.

On the basis of these circumstances, we call upon the University of Tübingen and the German Research Foundation to review their judgments and to pay justice to our colleagues Birbaumer and Chaudhary.

Below we have listed the relevant facts and access to a website with complete documentation. If you support this cause please send an Email to:

praesident@dfg.de

DefendBirbaumerChaudhary@gmx.de

We have also set up a gofundme page to help Niels Birbaumer to pay for legal action, press work and continuation of his work with the patients he has been caring for up to now. We would appreciate your support.

Documentation of the investigation of scientific misconduct in the case of Birbaumer / Chaudhary and suggestions for an improved practice

On the following pages, we briefly summarize how, from our point of view, three misjudgments in the case of Birbaumer / Chaudhary could occur and how to avoid such misjudgments in the future.

We would like to make two remarks: The German Research Foundation is a functioning research organization, but it is not immune to mistakes. We explicitly do not address our criticism to colleagues working in the commissions who have voluntarily made considerable effort to find the truth. In order to substantiate the statements made here, we have set up a website (www.communication4als.com) in which the processes are documented in German and English.

1. Brief introduction to the case

On January 31, 2017, Chaudhary, Xia, Silvoni, Cohen & Birbaumer publish in PLoS Biology an article entitled "Brain-Computer Interface-Based Communication in the Completely Locked-In State," in which they demonstrate that it is possible to use functional near-infrared spectroscopy (fNIRS) as a brain computer interface (BCI) even in completely locked-in patients (here four patients with amyotrophic lateral sclerosis, ALS) to achieve a simple form of communication. This is one of the first reports of its kind that involves several patients (a previous publication in Neurology in 2014 involved one case).

A whistleblower's text alleged that the data were wrong.

The whistleblower had previously published with the authors but was not included in the article in PLoS Biology 2017 because he had neither visited the patients with the authors for data collection nor participated in the data analysis.

In August 2017, Dr. Chaudhary again suggested cooperation to the whistleblower and in September he gave the whistleblower data from completely locked in state (CLIS) patients, which the whistleblower analyzed in September 2017, using a different method. The whistleblower stated on 29.9.2017 that he could not replicate the data of the PLoS Biology article and that the article should be withdrawn.

This was followed by a summary of the problems directed to the research group (RG) Birbaumer from his point of view (9.10.2017). In the subsequent discussions with the RG Birbaumer it was decided to analyze the data together. However, it became clear that the whistleblower's method did not take into account the peculiarities of the brain activity of these patients (e.g. the need to develop a new algorithmic model for brain responses every day) or the principles of fNIRS evaluation. Also, the methodology he used did not address the specific exclusions of data for CLIS patients resulting from the fact that these patients are artificially nourished and ventilated and unable to communicate. Therefore, another collaboration on a joint article did not materialize.

The whistleblower sent a comment to PLoS Biology during these discussions on November 8, 2017, which was initially rejected on March 13, 2018 and appeared in a revised form on April 8, 2019. The accused authors published a commentary on this commentary, which contained new calculations by an independent laboratory, which yielded even better results than originally published. In their comment they pointed out errors in the data analysis of the whistleblower. Another comment by Reinhold Scherer on the same date addressed the importance of replication and an open discussion of the replicability of findings in the BCI community. At no time were questions of scientific misconduct up for debate. Nevertheless, the whistleblower on 16.4.2018 - after the original rejection of his article - surprisingly informed the confidants of the Medical Faculty Tübingen and raised allegations of scientific misconduct against the authors of the PLoS Biology article published in 2017. Corresponding

allegations against the accused were subsequently made to the University Commission also because of the calculations published in the 2019 commentary. At the same time he raised allegations of scientific misconduct at the DFG.

2. Work of the trusted persons of the University of Tübingen

The ombudspersons heard only the whistleblower, but not the accused. Nor did they call for external experts, although they stated in their comments to the University Commission on Scientific Misconduct that they themselves were not experts on this issue and explicitly recommended to the Commission the use of external experts.

Furthermore, the report to the university commission is in the indicative rather than the common subjunctive.

The whistleblower made the accusation of wrong data calculation, the invention of individual data and the presentation of the data in the public despite proven errors in the data, which he, the whistleblower claimed to have identified. None of the allegations is correct, as the commentary on the ombudsperson's letter on the website shows. An external evaluator could easily have recognized the errors in the recalculation of the whistleblower. The opinions of several international and neutral scientists who were reviewers for PLoS Biology were not considered.

PROPOSAL FOR THE WORK OF TRUSTED PERSONS:

Trusted persons must always hear to both the whistle-blower and the accused and obtain at least one external report from a person knowledgeable in the field, who must also examine the results of the whistle-blower. Reports must be kept neutral (no conflict of interest) with regard to the formulation of the statements, and in the case of incriminated articles, the entire review process must be taken into account.

3. Vote of the University Commission to investigate scientific misconduct

The University Commission for the Investigation of Scientific Misconduct was informed on 22.11.2018 about the process and started their work on 23.1. 2019. The commission did not include a person who was familiar with the topics BCI, fNIRS and ALS and was only composed of professors of the University of Tübingen.

The defendants were heard at the beginning of the investigation in February and March 2019 and were given the opportunity to speak with the Commission only after the conclusion of the investigation in May 2019. However, since the defendants felt that the verdict was already in place and could not be appealed - as the letter from the chairman pointed out - they refused to attend a hearing offered for formal reasons

only.

The University Commission also included a member of the whistleblower's institute, which raises the concern of conflict of interest. This committee member resigned from the Commission in April 2019 and was immediately appointed as an external 'expert', even though he lacked the above qualifications. In this respect, too, there is concern about conflict of interest because of past membership in the Commission and membership of the whistleblower's institution, which questions the independence of the expert testimony given by him.

In early April, the whistleblower launched a press campaign that contained defamatory statements about the accused. The Commission's documentation shows that the charge of scientific misconduct could not be substantiated until then and that on 26.4.2019 a draft was proposed in which a more comprehensive documentation of the data of the PLoS Biology article was proposed without identifying misconduct. It can be assumed that the University Commission had knowledge of the defamatory press reports. However, the Commission did not add any international reviewers who would have been unaffected by the press releases in German.

After commissioning the "expert" from the whistleblower's institute and after the press release, the University Commission changed its draft and stated in its report of 30.5.2019 data invention, data suppression and data falsification. These findings were largely based on a misinterpreted dataset in April 2019, which deviated from the uploaded data in PLoS Biology and the Excel spreadsheet sent to the Commission in May 2019 at the request of the Commission with more detailed information on the sessions. A clarification of the different data by the expert or the commission did not take place - rather the expert and the Committee concluded falsification. The additional allegations also assume that the calculations of the whistleblower are correct and that those of the accused are wrong without this being proven. In addition, the verdict was stated as being final, without any possibility of legal recourse.

PROPOSAL FOR THE WORK OF UNIVERSITY COMMISSIONS:

University commissions for the investigation of scientific misconduct must include independent experts from the subject area and must have international members. External experts from the specific area of the accused must be heard. The data of the whistleblower as well as the data of the accused must be verifiably checked. The Commission's vote must be made available to the accused in advance for a final statement. The work of the Commission should follow an adversarial, not an inquisitorial, legal principle, i. e. confirming and exonerating facts should be presented to a neutral body. The verdict should be amenable to legal recourse.

4. Press reports in the Süddeutsche Zeitung and SZ Magazin

As already mentioned, a report defaming the accused was published on 9.4.2019 in

the Süddeutsche Zeitung and on 12.4.2019 in SZ Magazin. From that point on, the public image of the accused in the public opinion no longer guaranteed an objective assessment of the work of the accused.

PROPOSAL FOR THE USE OF MEDIA IN SCIENTIFIC MISCONDUCT PROCEDURES:

Whistleblowers, accused persons and members of the commissions should not communicate with the press during the investigation of scientific misconduct. Infringements of such a rule to exercise restraint by the whistleblower must result in the Commission discussing the whistleblower's motives and taking due care in reviewing the allegations by giving them particular scrutiny. Public statements by members of the commission raise doubts about their impartiality. In such cases, it is particularly necessary to involve international experts who are not or less strongly influenced by prejudicial local media reports.

5. Further accusations of the whistle-blower concerning the accused and other persons at the University of Tübingen

The whistle-blower made numerous other untenable accusations to his superiors and the accused, ranging from coercion, the falsification of votes of the ethics committee to the misappropriation of rooms. This circumstance also gives rise to the suspicion that the clarification of scientific misconduct was not the primary, at least not the only, motive of the whistle-blower.

PROPOSAL FOR DEALING WITH NON-SCIENTIFIC ALLEGATIONS BY WHISTLEBLOWERS:

In cases where a whistle-blower is very eager to incriminate, the whistleblower's allegations must be examined particularly thoroughly and investigated in greater depth, even on the basis of exonerative data, as this is likely to lead to non-scientific motives.

6. Linking the investigation of scientific misconduct with the review of the Excellence Initiative

The University of Tübingen informed the Excellence Office of the Science Council about the progress of the scientific conduct proceedings and possible punitive measures prior to the final review of the University of Tübingen's institutional strategy in the Excellence Initiative. Such a combination of an investigation of scientific misconduct and a decisive review of an entire university carries the risk of a misjudgement, as it can lead to the premature submission to public pressure (e.g. due to defamatory reporting in the press). Furthermore, there is also a certain time pressure to reach a decision with regard to review dates.

Finally, the conviction in investigations of scientific misconduct is directly or at least indirectly considered in the review process. This could also explain why the

University Commission came to a decision in May 2019 after an unusually fast procedure and did not call in any external experts.

PROPOSAL FOR DEALING WITH SCIENTIFIC MISCONDUCT IN THE CONTEXT OF EXCELLENCE REVIEWS AND OTHER FAR-REACHING REVIEW PROCEDURES:

Due to their great importance for the fundamental rights of those concerned and the subject area, studies on scientific misconduct should not be used as a criterion for peer review in the context of the Excellence Initiative or other peer review procedures. The exploitation of a scientist's fundamental rights for such purposes is ethically and legally unacceptable.

7. Verdict of the Committee for the Investigation of Scientific Misconduct of the German Research Foundation

The Joint Committee of the German Research Foundation announced its vote on 19.9.2019 by means of a press release, the contents of which were announced to the accused 90 minutes in advance. An official information of the accused about the verdict took place only two weeks later on 2.10.2019.

Both, the University and the DFG commission examined the same work according to their own standards. However, the DFG committee found the accused not guilty of the invention of data as claimed by the University Commission nor the suppression, let alone the falsification of data. Rather, only a lack of "data depth" was found. This verdict was based on insufficient video documentation and summary calculations of certain patient sessions. In addition, the exclusion of training sessions was said to have been insufficiently documented. Furthermore, in their opinion the study had to be classified as clinical and, in this sense, had been incorrectly documented. Also deviating from the University Commission, incorrect GLM calculations and an insufficient database for the recalculation of the data in a figure of the 2019 Commentary were criticised.

In the press release, only the incriminating but not the exonerating statements were communicated. It is not possible to have the verdict reviewed by an independent body. To some extent, the defendants only learned about the further accusations that were made through the press release. The refusal of a prior hearing in the case of new allegations limits the possibilities of an effective defence in an unacceptable way. The defendants also vehemently deny these new allegations. The accusations are also not covered by facts. As far as we know, the DFG Commission was also not made up of international members and did not draw on international reviews from the narrower research area.

The DFG commission did also not take into account the fact that this was a strictly peer-reviewed and funded study under the DFG's Reinhart Koselleck Programme, a programme designed to address particularly innovative and risky research topics that cannot be assessed against the criteria of a traditional clinical study because many of the criteria have yet to be developed. It was not sufficiently taken into account that every single sanction measure (blocking access to research funds, withdrawal of

articles, repayment of research funds) constitutes a far-reaching encroachment on the fundamental rights of the accused (Article 5 of the German Basic Law, freedom of research and science). On the basis of the allegations established by the DFG, the necessary intensity threshold for misconduct has not been reached. In particular, the accused deny any intention behind possible errors.

PROPOSAL FOR THE WORK OF THE DFG COMMITTEE ON SCIENTIFIC MISCONDUCT:

Such a committee should be made up of international members and, because of its significance for the fundamental rights of a scientist and for research as a whole, should comply with the rules governing the appointment of reviewers to a research group or Collaborative Research Centre. International external reviewers familiar with the field should be heard. The scientist must be heard on the allegations and be given an opportunity to comment on new allegations before the final vote, otherwise an adequate defence is not possible. The committee should follow an adversarial, not an inquisitorial legal principle, i.e. incriminating and exculpatory facts should be presented to a neutral authority. The DFG's vote should take into account the type of research programme in which the work was carried out. In any case, the defendant must be informed of the verdict before it is announced to the press. It should be possible to review the judgement with legal means.