

Convocatorias 2014
Proyectos de I+D “EXCELENCIA” y Proyectos de I+D+I “RETOS INVESTIGACIÓN”
Dirección General de Investigación Científica y Técnica
Subdirección General de Proyectos de Investigación

AVISO IMPORTANTE

En virtud del artículo 11 de la convocatoria **NO SE ACEPTARÁN NI SERÁN SUBSANABLES MEMORIAS CIENTÍFICO-TÉCNICAS** que no se presenten en este formato.

Lea detenidamente las instrucciones que figuran al final de este documento para rellenar correctamente la memoria científico-técnica.

Parte A: RESUMEN DE LA PROPUESTA/SUMMARY OF THE PROPOSAL

INVESTIGADOR PRINCIPAL 1 (Nombre y apellidos):

Jesús Zamora Bonilla

INVESTIGADOR PRINCIPAL 2 (Nombre y apellidos):

David Teira Serrano

TÍTULO DEL PROYECTO: Interferencias e inferencias normativas en la actividad científica

ACRÓNIMO: NormInt

RESUMEN [Máximo 3500 caracteres \(incluyendo espacios en blanco\):](#)

En este proyecto pretendemos estudiar las interferencias de las normas morales y sociales en la investigación científica, elaborando a partir de aquí una concepción pragmático-inferencialista de las normas en una perspectiva contractualista. Ejemplos de tales interferencias serían fenómenos tales como el efecto del experimentador en ciencias sociales (los sujetos de un experimento se desvían de la tarea asignada siguiendo normas implícitas en su interacción con el experimentador [p.e., cortesía]); los nativos engañando como informantes en el trabajo de campo antropológico; o la manipulación estratégica del protocolo en un ensayo clínico por parte de los pacientes para servir a sus propios intereses

En primer lugar, queremos producir un mapa de tales interferencias normativas y, en particular, de los errores metodológicos generados por la interacción entre las normas de los científicos y las de sus sujetos de estudio. Queremos estudiar también las estrategias para controlarlas y su justificación epistémica en una perspectiva contractualista.

Queremos, además, estudiar en profundidad tres casos de interferencia normativa en tres disciplinas, donde no se suele analizar como tal. A partir de una concepción de la normatividad pragmático-inferencialista, pondremos de manifiesto su existencia. Los casos son: el conocimiento incorporado (embodied) en los experimentos psicológicos, la investigación de las capacidades morales de los animales y la definición de la enfermedad en medicina.

En segundo lugar, a partir del material acumulado, queremos articular una concepción pragmático-inferencialista de la normatividad en una perspectiva contractualista. Nuestra hipótesis de partida es que las prácticas inferenciales (articuladas socialmente, normativamente y conforme a una perspectiva individual) son más primitivas que las prácticas representacionales. Este enfoque nos permite captar el tipo de interacción que pretendemos analizar en nuestros casos de estudio.

PALABRAS CLAVE: Normatividad, inferencialismo, contractualismo, efecto del experimentador

TITLE OF THE PROJECT: Normative inferences and interferences in scientific research

ACRONYM: NormInt

SUMMARY [Maximum 3500 characters \(including spaces\):](#)

Our general goal in this project is to study the interferences of moral and social norms with scientific research, articulating a pragmatic inferentialist account of norms within a contractarian framework. Examples of such interferences are: the so-called experimenter effects in the social sciences (the experimental subjects deviate from the assigned task, following implicit social norms, such as courtesy); natives misleading anthropologists during their fieldwork; or the strategic manipulation of a clinical trial protocol by the patients in order to serve their own private interests.

First, we want to map the normative interferences as such; in particular, the methodological distortions generated by the interaction between the norms of scientists and the norms of their research subjects.

We will appraise such interferences at two levels:

- We want to produce a systematic map of the interferences generally acknowledged among the concerned scientists and discuss the methodological strategies to block them, using a contractarian approach.
- We want to investigate in depth three cases of normative interference in three disciplines where they are not generally conceived as such. Adopting a different account of norms, by drawing on an inferentialist perspective, will reveal the interference. The cases are: embodied cognition in experiments in psychology, the investigation of the moral capacities of animals, and the definition of disease in medicine.

Second, capitalizing on the interferences explored, we want to articulate a pragmatist-inferentialist concept of normativity within a contractarian framework. As a general working hypothesis our approach assumes that inferential practices (normatively, perspectively and socially articulated) are more primitive than representational ones, and are more apt to fit with the essential elements of a normative understanding of the cases we plan to study.

KEY WORDS: Normativity, inferentialism, contractarianism, experimenter effect,

Parte B: INFORMACIÓN ESPECÍFICA DEL EQUIPO

B.1. RELACIÓN DE LAS PERSONAS NO DOCTORES QUE COMPONEN EL EQUIPO DE TRABAJO (se recuerda que los doctores del equipo de trabajo y los componentes del equipo de investigación no se solicitan aquí porque deberán incluirse en la aplicación informática de solicitud). Repita la siguiente secuencia tantas veces como precise.

Nombre y apellidos: Alejandro Díaz García
Titulación: Licenciado en psicología (Uam, 2009); Máster en lógica y filosofía de la ciencia (USC, 2012)
Tipo de contrato: Personal investigador en formación
Duración del contrato: Temporal

Nombre y apellidos: Javier González de Prado Salas
Titulación: Licenciado en Física (UAM, 2007); Licenciado en Teoría de la Literatura y Literatura Comparada (UCM 2009); Máster en lógica y filosofía de la ciencia (USAL, 2010)
Tipo de contrato: Personal investigador en formación
Tipo de contrato: Temporal

Nombre y apellidos: Marco Antonio Joven Romero
Titulaciones: Primer ciclo de la licenciatura en Matemáticas, Licenciatura en Humanidades, Máster en Filosofía Teórica y Práctica y Diploma de Especialización en Filología Aragonesa.
Tipo de contrato: En formación (Beca predoctoral Gobierno Aragón)
Duración del contrato: Temporal

Nombre y apellidos: Susana Monsó Gil
Titulación: Licenciada en Filosofía (UCM 2011); Máster en Valores Humanos y Ética Global Contemporánea (KCL 2012).
Tipo de contrato: Becaria FPI, contrato "en formación" a partir de diciembre
Duración del contrato: Temporal

B.2. FINANCIACIÓN PÚBLICA Y PRIVADA (PROYECTOS Y/O CONTRATOS DE I+D+I DEL EQUIPO DE INVESTIGACIÓN) (repita la secuencia tantas veces como se precise hasta un máximo de 10 proyectos y/o contratos).

Jesús Zamora Bonilla
Título del proyecto: "La emergencia de las normas tecnocientíficas"
Referencia del proyecto: HUM2005-01686/FISO
Entidad financiadora: Ministerio de Educación y Ciencia
Entidades participantes: Universidad Nacional de Educación a Distancia
Duración, desde: Enero 2006 hasta: Diciembre 2008 Cuantía de la subvención: 11.000 eur
Investigador responsable: Jesús Pedro Zamora Bonilla
Número de investigadores participantes: 5
Relación con el proyecto que se presenta: está muy relacionado/
Estado del proyecto o contrato: concedido/

Jesús Zamora Bonilla, David Teira, María Jiménez Buedo
Título: Hacia una nueva fundamentación de la filosofía de las ciencias sociales.
Referencia del proyecto: FFI2008-03607
Entidad financiadora: Ministerio de Ciencia e Innovación.
Entidades participantes: UNED
Duración: Enero 2009-Diciembre 2011. Cuantía de la subvención: 45.000 €
Investigador responsable: Jesús Pedro Zamora Bonilla
Número de investigadores participantes. 7.
Relación con el proyecto que se presenta: está muy relacionado/
Estado del proyecto o contrato: concedido/

Jesús Zamora Bonilla, David Teira
Título: Red CREP – Grupo ENTC.
Referencia del proyecto:
Entidad financiadora: Comunidad de Madrid.
Entidades participantes: UAM, UCM, CISC, Univ. Carlos III, UNED.
Duración: Enero 2008-Diciembre 2009. Cuantía de la subvención: 300.000 €
Investigador responsable: Jesús Pedro Zamora Bonilla
Número de investigadores participantes: 5 (16 en toda la red).

Jesús Zamora Bonilla
Título: Trends and tensions in intellectual integration.
Entidad financiadora: Gobierno de Finlandia.
Entidades participantes: Universidad de Helsinki
Investigador responsable: Uskali Mäki
Número de investigadores participantes. 22.
<http://www.helsinki.fi/filosofia/tint/index.htm>
Relación con el proyecto que se presenta: está muy relacionado/
Estado del proyecto o contrato: concedido/

Jesús Zamora Bonilla
Título del proyecto: Representación y explicación en la ciencia: análisis inherentistas y funcionales
Referencia del proyecto: FFI2008-01580
Entidad financiadora: Ministerio de Ciencia e Innovación.
Entidades participantes: U. Barcelona, U. de Girona, UNED, U. Málaga, U. Munchen, CPNSS-LSE, U. Rotterdam, U. Quilmes
Duración, desde: 1/01/2009 hasta: 31/12/2011
Cuantía de la subvención: 45000 €
Investigador responsable: José Díez
Número de investigadores participantes: 8
Relación con el proyecto que se presenta: /está algo relacionado/
Estado del proyecto o contrato: concedido/

Jesús Zamora Bonilla, David Teira, María Jiménez Buedo
Título del proyecto: Formal approaches to social epistemology
Referencia del proyecto:
Entidad financiador: NWO (Gobierno de Holanda)
Entidades participantes: U. Tilburg; U. Pennsylvania; U. Sidney; UNED
Investigador responsable: Stephan Hartmann
Cuantía de la subvención: 75.000 €
Número de participantes: 15
Relación con el proyecto que se presenta: mismo tema/
Estado del proyecto o contrato: concedido/

Jesús Zamora Bonilla, Cristian Saborido, Javier González de Prado, Susana Monsó, Marco Joven
Título: El inferencialismo como epistemología social.
Referencia del proyecto: FFI2011-23267
Entidad financiadora: Ministerio de Ciencia e Innovación.
Entidades participantes: UNED
Duración: Enero 2012-Diciembre 2014. Cuantía de la subvención: 56.000 €
Investigador responsable: Jesús Pedro Zamora Bonilla
Número de investigadores participantes. 10
Relación con el proyecto que se presenta: mismo tema/
Estado del proyecto o contrato: concedido/

David Teira Serrano, María Jiménez Buedo, Álex Díaz,
Referencia del proyecto: FFI2011-28835
Título: Sesgos en experimentos con humanos en las ciencias sociales y biomedicas
Investigador principal (nombre y apellidos): David Teira Serrano

Entidad financiadora: MINECO

Duración (fecha inicio - fecha fin, en formato DD/MM/AAAA): 01/01/2012-31/12/2014

Financiación recibida (en euros): 33.722,70 €

Relación con el proyecto que se presenta: Está muy relacionado

Estado del proyecto o contrato: concedido

David Teira Serrano

Referencia del proyecto: HUM2006-03221/FISO

Título: *Epistemología de la agencia y prácticas episteméticas.*

Investigador principal (nombre y apellidos): Jesús Vega Encabo

Entidad financiadora: Ministerio de Ciencia y Tecnología

Duración (fecha inicio - fecha fin, en formato DD/MM/AAAA): 1/10/2006-30/9/2009

Financiación recibida (en euros): 33.600 €

Relación con el proyecto que se presenta: Está algo relacionado

Estado del proyecto o contrato: concedido

Parte C: DOCUMENTO CIENTÍFICO

C.1. PROPUESTA CIENTÍFICA

NORMATIVE INFERENCES AND INTERFERENCES IN SCIENTIFIC RESEARCH

1. State of the art

Our general goal in this project, broadly stated, is to study the interferences of moral and social norms with scientific research. We want to address two separate, although interrelated, topics. On the one hand, we want to map the interferences as such; in particular, the methodological distortions generated by the interaction between the norms of scientists and the norms of their research subjects. We will appraise such interferences at two levels: first, mapping those generally acknowledged among the concerned scientists (e.g., the experimenter effect in the social sciences); then, investigating in detail some normative interferences that are not generally conceived as such (e.g., moral behaviour in animals). On the other hand, capitalizing on the interferences explored, we want to articulate a pragmatist-inferentialist concept of normativity within a contractarian framework.

This application connects two previously funded research projects. In the grant FFI2011-28835, we have used this contractarian approach to cope with the methodological dilemmas raised by experimental biases. We want to expand this approach now to cope with a broad range of normative interferences. In the grant FFI2011-23267, we have set the foundations for the incorporation of an inferentialist approach into a contractarian framework, which we now want to expand into a full-fledged discussion of normativity. Four funded research fellows started their PhD theses within these two projects and this new project will set the umbrella for their completion.

1.1 *The interference of norms on scientific research*

Traditionally, this topic has been addressed from the standpoint of the neutrality of scientific researchers (or the lack of it): e.g., do the values of scientists interfere with their positive research conclusions? During the last decade, we have seen a growing literature on the articulation of social values with scientific research: e.g., how should we organize and fund this latter so that it meets best the demands of a society? We want to approach the interference between science and values from a third, so far less explored, angle: when scientists study people, the moral and social norms these latter follow may interfere with scientific research in various ways.

Let us start with a general typology of the normative influence that scientists and non-scientists (we shall generically refer to them as *people*) may have on each other. Scientists may influence people in two ways: as researchers and as citizens. We shall leave aside the interest that scientists qua *citizens* may have in promoting a normative agenda (e.g., the *Science for the people* movement), since, in principle, it does not impinge on their scientific research. However, scientists qua *researchers* may exert a normative influence on the people they study. This influence can go two ways: bottom-up and top-down

Scientists may influence their research subjects top-down, when they project their normative judgments onto their scientific categories. Traditional debates on the neutrality of scientists, from Weber onwards, hinge also on this sort of influence. Among social scientists this has sometimes been a pressing concern as well. A nice illustration of this can be found in the debate on *cultural relativism* in anthropology, at least at its very beginning. According to Hollinger (2003), anthropologists like Franz Boas used cultural relativism to block their own normative judgments about the social phenomena they studied. This way, they did not contaminate the evidence gathered in the field. Although the discussion of cultural relativism evolved into a debate on its normative consequences, we find in Boas an implicit acknowledgment that the norms of the societies studied by an anthropologist interfered on his research. The way people behaved prompted normative reactions in the scientist studying them that spoiled the epistemic quality of his analysis. Unfortunately, this topic has not been pursued any further.

Scientists may influence their research subjects bottom-up, when these latter adopt the theories of the former as norms. Donald MacKenzie has been investigating what happens when the subjects studied by social scientists adopt the theories of these latter as norms for their own behaviour. MacKenzie has documented how, for instance, theoretical models for pricing stocks in finance became decision rules for traders in actual markets. He has argued that this is a clear case of performativity: practical use of an aspect of economics makes economic processes more like their depiction in economics. For MacKenzie, we should speak of the efficacy of these models rather than assessing their truth: when people ceased to use them as practical tools for decision-making, the accuracy of their predictions decreased dramatically. In our own terms, performativity shows how the neutrality of scientific research can be subverted when the people under study transform positive models into their own norms for action. Philosophers of science have only recently taken issue with MacKenzie's performativity -e.g., Guala (2013).

Sometimes the influence goes at once top-down and bottom-up. The work of Ian Hacking [e.g., *The social construction of what?*, Harvard UP, 1999] on *interactive kinds* is paradigmatic here: a scientific theory about psychiatric conditions, contaminated by normative considerations, may be adopted by the concerned patients who start to behave according to the theory.

Non-scientists may normatively influence scientific research again in two ways. *People may exert a normative influence on scientists top-down*: e.g., the community supporting scientific research may contribute to set its agenda according to its own values. During the last two decades several philosophers of science have been studying the social epistemology of scientific research in this light, by investigating how scientific communities should be organized in order to foster certain epistemic values (e.g., diversity) or how their decisions should be informed by the values of the society that sustains their research. However, this influence rarely interferes with the methods by which scientists conduct their research.

This happens when *people exert a normative influence on scientists bottom-up*: as research subjects, they may react to the methods implemented on them. Usually, this is a topic appraised under the general umbrella of research ethics (within the broader field of bioethics). However, research ethics adopts a top-down approach: assuming a set of standard normative principles (autonomy, beneficence, etc) that should guide research practices in which humans are involved (e.g., experiments or field work). In case of conflict between bioethical principles and scientific research, the former will generally prevail.

We are interested instead in a straightforward appraisal of the bottom-up influence of the norms of research subjects on scientific methods. We draw here on the outcome of a previous project FFI2011-28835 in which we studied a significant case in point: the so called *experimenter effects* (Jiménez Buedo 2014, Guala & Jiménez Buedo 2014): the way an experimental subject acts when s/he takes cues from the experimenter about what constitutes appropriate behaviour in the experimental setup. For instance, instructing subjects "to cooperate" in an economic experiment on reciprocity may lead them to act in a less selfish manner than they otherwise would.

There is a still small but growing literature on this topic, to which we already contributed (Teira 2013b,c) appraising experimenter effects as biases and showing to what extent debiasing procedures (such as blinding the participants as to the goals of the experiment) constitute an epistemic warrant of the experimental outcome. *We now want to address, in a more systematic manner, the normative interferences instantiated in the experimenter's effect*.

There is no general discussion, as of today, of this phenomenon. But it has been often observed in various disciplines. *We can classify the interferences depending on the intentions of the study subjects.* In standard experimenter effects, we often find a spontaneous reaction to the study protocol, prompted by not properly controlled variables: the participants in an experiment may be inadvertently prompted to follow a social norm (on cooperation) interfering with the hypothesis tested. This is the minimal degree of intentionality.

There is then a smooth transition between unintentional reactions and explicit engagement with research methods. A somewhat intermediate case hinges around deception in social psychology (Korn 1997). Lying to your participants about the true nature of the experiment (as in Milgram's classic study on authority) may help in avoiding experimenter effects. But if the participants later discover the true nature of the experiment, this may dissuade them of taking part in further research (or alter their behaviour if they suspect they may be deceived again: see Ortmann & Hertwig 2002).

More explicit engagements have been also documented. Anthropologists have debated the famous case of Margaret Mead's research on Samoan sexual behaviour (Shakman 2009). Although this is a controversial issue, it illustrates an interesting possibility: natives may have jokingly misinformed Mead about their practices. They intentionally reacted to her research methods, thus spoiling her fieldwork, even if they were not aware of its goal. Even more radically, in medicine, AIDS patients in the early AZT trials explicitly challenged the research protocol for going against their interests (Epstein 1996). They wanted the active treatment, not a placebo, so the participants organized themselves, swapping treatments in order to maximize their chances of getting a dose of AZT. The trial had to be stopped.

Here is the first range of interferences that we want to map, studying the methods in use in various disciplines to cope with them and to what extent they are epistemically justified. In order to appraise such interferences, we will adopt a working concept of norm grounded on *strategic interactions*, of the sort analyzed in game theory (e.g. Bicchieri *The grammar of society: the nature and dynamics of social norms* [Cambridge UP, 2006]). Norms emerge as coordination devices in the interplay of self-interested agents that are seeking to maximize a payoff function. We have extensively articulated an epistemic interpretation of such norms in science in a contractarian framework (e.g., Zamora Bonilla 2002, 2006). We now want to explore how the different methods of coping with such interferences can be justified from a contractarian perspective (Teira 2013a, b, c).

1.2 Less evident normative interferences

So far, we have considered cases in which the norms of both the scientists and the experimental subjects interfere with experiments in the social sciences. Now, we want to focus on situations where the outcomes of scientific research may be affected by the normative lenses through which the scientist interprets the object of study – in particular, such normative lenses may affect the way in which the object of study is characterized. This kind of interferences takes place not only in social sciences, but also in disciplines within the natural sciences (for instance, biology) and are not always easily explained in a purely contractarian framework, so they demand further developments in our understanding of normativity. More specifically, we want to consider cases in which it is not clear to what extent the object of study actually possesses certain normative features (independently of external attributions) or, rather, such features are merely attributed by external observers (i.e. the scientists). We will consider in depth three case studies –of which the first two provide the PhD topics of two of our research fellows.

The first case study is in direct continuity with those presented in the previous section-see Díaz 2014 for a survey. Experiments in psychology are conducted under a number of implicit assumptions about the behaviour of the participants, grounded in the cognitive paradigm now prevalent in the field. Their reactions within an experimental setup, for instance, would be driven by the standard processing computational mechanisms that allow for the representation of beliefs, intentions, goals, etc. The very design of experiments is also informed by such assumptions: e.g., the training of the participants, the type of information provided, etc. However, these assumptions can be contested if we adopt a less computationally-demanding paradigm in psychology: e.g., enactivism, embodied cognition or ecological psychology. From this alternative standpoint, we may appraise the interaction of subjects within experimental situations in terms of an adaptive process that involves simultaneously acting and picking up information available in the surrounding environment. Norms, in this approach, are conceived as a second-order control system that emerges (or need to be coupled with) sensorimotor regularities and successful adaptations in the physical and social environment. We may thus appraise

in a different light the sort of experimenter effects considered in the previous section, discussing whether the current cognitive paradigm can exhaust the analysis of the cues triggering the effect.

In a similar vein, our second case study, is the recent debate in comparative psychology and cognitive ethology, on the possibility that animals might display normative or moral behavior -see Rowlands & Monsó 2015 for a survey. Studies have been conducted in the field to determine whether animals follow social norms when dealing with issues such as food-sharing, or whether there are certain norms attached to the display of play signals. At the same time, there have been experiments performed to determine whether different animals have a sense of fairness, will cooperate to achieve a certain goal, or will react sympathetically to the suffering of conspecifics. These studies on normative and moral behaviour in animals and, especially, the criticisms directed at them, often hinge on an implicit highly intellectualistic conception of normativity and morality. Thus it is often assumed without further argument that a certain behaviour cannot be normative unless the individual who performs it is capable of having an explicit understanding of the norm that underlies it. Such an idea is, for example, expressed in the work of Marc Hauser (2001) and is at the core of the separation between rule-governed and rule-describable behaviour. The problem is that this conception of normativity focuses on the most rarified and linguistically-mediated forms of normativity in humans and takes them as the standard against which to measure the performance in animals. We want to argue for a less intellectualized conception of normativity, grounded in the ability of emotions to track normative propositions. This approach would allow scientists to capture elements of animal normativity, invisible so far.

Finally, in a similar spirit, we want to take issue with the notion of *disease* in medicine –again for a survey see Saborido & Moreno (in press); Saborido et al. (in press). There is a long standing philosophical debate on the definition of disease in which the two main alternatives are naturalism and constructivism. In the former, disease would be a purely positive construct (a statistical range of values in a given biological variable). In the latter, disease would be defined in terms of the values defining well-being in a community of individuals. We have been trying to articulate a middle ground, in which the norms of health would be appraised in terms of the self-organizing functions of biological organisms. We draw on the current systemic characterizations of notions such as *adaptive regulation* and *functional integration* in theoretical biology. With these notions in sight, we want to investigate how to ascribe pathological behaviors to biological systems according to their *embodied normativity*. There is one tradition which claims that biological norms and goals are merely attributed by scientists as external observers. Biological systems would only be subject to norms insofar as scientists interpret them as being subject to them (Schaffer 1993; Nagel 1961; see also Dennett 1987, Boorse 2002). A contrasting approach argues that biological norms emerge from the constitution, activity and history of biological systems, rather than just being projected by scientists. One popular proposal is that biological norms have origin in the selective history of organisms (Millikan 1984; Neander 1991). An alternative view is that biological normativity arises from the self-organization and self-maintenance of biological organisms (Varela, 1997, Weber and Varela, 2002, Di Paolo, 2005; Mossio, Saborido and Moreno, 2009). We want to explore this last view and, in particular, we want to examine whether biological norms may be grounded in the self-regulatory behavior of biological, self-organized organisms.

When it comes to disease, one of the principal goals of medical treatments is to help the natural adaptive capacities of living systems to counterbalance those biological states that threaten the preservation of organizationally closed processes of self-maintenance. By helping to avoid biological pathologies, medicine contributes to the preservation of that state of successful performance of biological functions we call "health". With a bio-functional characterization of health, we could even ascribe to non human entities, such as plants, animals or ecological systems.

1.3. Further developments of inferentialism within a contractualist framework

The philosophical framework underlying, in different degrees, the research proposals stated so far is a pragmatic inferentialist approach to norms. The major landmarks in the development of this approach during the last six years of funded research have been:

- The application of the inferentialist-contractualist understanding of scientific norms to specific problems in social epistemology, like the notion of ‘social contract of science’ (Álvarez & Zamora Bonilla, 2013), the phenomenon of co-authorship (Zamora Bonilla, 2014), and the debates about the social implications of science (Monzonís & Zamora Bonilla, 2013).

- Its application to other problems in general epistemology and philosophy of science, like the dynamics of scientific argumentation (Donato & Zamora Bonilla, 2014), some connections with the debate on realism-vs-rhetoric (Zamora Bonilla, 2012a), the relation between competition and cooperation in scientific research (Zamora Bonilla, 2013b), and the experimenter's regress (Teira 2013a,b,c)
- Its application to methodological and ontological problems in the philosophy of the social sciences, like the scientific status of those disciplines (Zamora Bonilla, 2012b, 2013a), or the ontological status of collective agents (González de Prado & Zamora Bonilla, 2015).

We want to capitalize on the research topics presented above and articulate a broader concept of normativity within a contractarian framework. We would like to develop an *inferentialist-pragmatist* account of social normative practices (Brandom 1994, Price 2011), with a particular focus on those presented in the previous sections. This account does not address the question of what a norm is, but rather focuses on what agents *do* when engaging in normative practices.

Pragmatic normative inferentialism asserts that the fundamental mark of rationality is the capacity to engage in (social) games of *giving and asking for reasons* (Sellars, Brandom). Thus, rational agents (to whom contentful intentional states may be ascribed) would be those that can take part in such practices of giving and asking for reasons. An agent counts as rational if she can be held responsible for her actions –that is, if she can be demanded to provide reasons for her actions. Rational agency, as understood here, is therefore closely linked to normativity, since the justificatory games of giving and asking for reasons are intrinsically normative (as will be explained below). The content of intentional states or performances is determined – in this inferentialist framework – by their inferential role in these justificatory practices: that is, the content of a claim p would be given by an account of which other claims provide reasons to endorse p , and for the endorsement of which further claims p may count as a reason (or as part of a reason). Mastering such inferential relations is what makes you a rational and discursive being. Accordingly, Brandom takes inference as his semantic primitive, in contrast to the main tradition in modern philosophy, which has usually chosen representational notions (such as reference, picturing, satisfaction, isomorphism or designation) as their primitives. Semantic content is characterized in terms of inferential role. In this way, a given state or performance can be said to express certain content p when the role of such state or performance in the game of giving and asking for reasons mirrors the inferential relations in which the claim p is involved. Thus, if the claim p entails the claim q , a state or performance expressing the claim p may count as offering reasons for a state or performance expressing the claim q .

As a general working hypothesis, hence, our approach assumes that inferential practices (normatively, perspectively and socially articulated) are more primitive than representational ones, and are more apt to fit with the essential elements of a normative understanding of the phenomena we plan to study within our project.

In addition, we want to study the emergence of social normativity by considering the way in which agents regulate their own behavior and the behavior of others, and how this relates to, and can illuminate, other philosophical problems. For our research goals, a crucial feature of the study of human social normative practices is that the researcher is part of such practices. When a researcher interprets the norms of a community, the members of the community may in turn evaluate the researcher's interpretation (Brandom, 1994). This way an interplay arises between the normative perspectives of the researcher and of the community being studied, such that both outlooks are mutually shaped. We want to explore to what extent this approach can provide an alternative to standard accounts of reflexivity, where the strategic interaction between the agents involved is rarely considered (see Teira 2008 on MacKenzie's performativity)

In order to develop this concept of normativity, there are some current debates in which we want to take part. First, the application of inferentialism to the debate about the nature of rationality and normativity, following the steps of J.L. Bermudez's *Decision Theory and Rationality* (OUP, 2009). Second, the exploration of the links between inferentialism and other philosophical approaches on social reasoning, on the one hand, and empirical research on the psychology of reasoning in humans – adults and children- and other animals, like, e.g., the work of Michael Tomasello [*A Natural History of Human Thinking*, Harvard UP, 2014]).

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2. General goals

Our general goal in this project is to study the interferences of moral and social norms with scientific research, articulating a pragmatic inferentialist account of norms within a contractarian framework.

First, we want to map the normative interferences as such; in particular, the methodological distortions generated by the interaction between the norms of scientists and the norms of their research subjects.

We will appraise such interferences at two levels:

- We want to produce a systematic map of the interferences generally acknowledged among the concerned scientists and discuss the methodological strategies to block them, using a contractarian approach.
- We want to investigate in depth three cases of normative interference in three disciplines where they are not generally conceived as such. Adopting a different account of norms, by drawing on an inferentialist perspective, will reveal the interference. The cases are: embodied cognition in experiments in psychology, the investigation of the moral capacities of animals, and the definition of disease in medicine.

Second, capitalizing on the interferences explored, we want to articulate a pragmatist-inferentialist concept of normativity within a contractarian framework. As a general working hypothesis our approach assumes that inferential practices (normatively, perspectively and socially articulated) are more primitive than representational ones, and are more apt to fit with the essential elements of a normative understanding of the cases we plan to study.

These goals can be indirectly related to some of the research guidelines of the Horizon 2020 program, since the normative phenomena we want to analyze can be appraised within the framework of the Science with and for Society. In particular, the sort of reflexivity we are dealing with is addressed in the ISSI.2.2014 section (Citizens and multi-actor engagement for scenario building). However, we work at a much more abstract, foundational, level.

3. Specific goals

- 1) Map of the normative interferences arising from the interactions of researchers and study subjects in different disciplines.
- 2) Classify such interferences according to the type of strategic interaction involved, and develop the methodological recipes to correct them, drawing on our contractarian approach.
- 3) Analyze the threat posed by the experimenter effect to the internal and external validity of experiments in the social science

- 4) Analyze the experimenter effect in psychology experiments drawing on the resources of alternative paradigms in psychology to explore the normative interaction.
- 5) Re-analyze the evidence on the moral capacities of animals adopting a non-intellectualist take on normativity.
- 6) Develop a bio-functional definition of disease in which the self-maintenance of organisms provides the normative grounds for the account.
- 7) Develop a general inferentialist model of epistemology, in the sense of explicating what can be the description of an agent of system defined by its inferential capacity, such that we can state that its goal is an epistemic one (e.g., discover the truth), and comparing it to other epistemological approaches
- 8) Investigating the consequences of the inferentialist model of agency to the debates about the nature of rationality, in particular its comparison to Rational Choice Theory, and in connection with empirical work on cognitive abilities and strategies of real agents.

Principal Investigators in charge of each goal:

Teira: 1, 2, 3, 4

Zamora Bonilla: 5, 6, 7, 8

4. Methodology

Since this is an in-house project at the Department of Logic, History and Philosophy of Science (UNED), we will work according to our regular procedures:

- We will contribute to the Departamental seminar series by inviting speakers, including young graduate researchers in the joint events with the Seminario de Filosofía de la ciencia –run by our graduate research fellows. See

http://www.uned.es/dpto_log/seminarios.html
<http://sfcmadrid.wordpress.com/>

- Once a year we will organize an international workshop on the topics of the project, in the New Trend in the Philosophy of the Social sciences series
- We will run a bi-weekly reading group
- Since four junior members of the project are completing their theses, we will foster their international exposure with external co-advisors, visiting fellowships, joint papers and at least a presentation every year at an international conference. As you can see in their CVs, we are already implementing this approach
- We will keep a public log of our activity, as in previous research projects. E.g., http://portal.uned.es/portal/page?_pageid=93,25459465&_dad=portal&_schema=PORTAL
- Given the novelty of the topic, we will produce an edited volume with a major international publisher, inviting leading authors in the field (some of whom are already co-authors: Reiss, Hartmann, Sprenger, Guala, etc). We will try to incorporate some of them into our research team. This volume will hinge on two previous conferences on the topic to be hold at our home university (UNED) in Madrid
- We will do outreach activities, as in our previous project: radio broadcasts, podcasts, and popularization talks. See: http://portal.uned.es/portal/page?_pageid=93,25665257&_dad=portal&_schema=PORTAL

5. Resources

Regular computer equipment, as detailed in the budget.

6. Chronogram

Tasks	Persons	First Year (*)	Second Year (*)	Third Year (*)
1) Map of the normative interferences arising from the interactions of researchers and study subjects in different disciplines.	Teira, Jz Buedo, Díaz	X X X X X X X X X X X X X	X X X X X X	
2) Classify such interferences according to the type of strategic interaction involved, and the methodological recipes to correct them, drawing on our contractarian approach.	Teira,		X X X X X X	X X X X X X X X X X X X X
(3) Analyze the threat posed by the experimenter effect to the internal and external validity of experiments in the social science	Jz Buedo,			
		X X X X X X X X X X X X X	X X X X X X X X X X X X X	X X X X X X X X X X X X X
4) Analyze the experimenter effect in psychology experiments drawing on the resources of embodied cognition to explore the normative interaction.	Díaz			
		X X X X X X X X X X X X X	X X X X X X X X X X X X X	

5) Re-analyze the evidence on the moral capacities of animals adopting a non-intellectualist take on normativity.	Monso	X X X X X X X X X X X X X	X X X X X X X X X X X X X	
6) Develop a bio-functional definition of disease in which the self-maintenance of organisms provides the normative grounds for the account.	Saborido	X X X X X X X X X X X X X	X X X X X X	
7) Develop a general inferentialist model of epistemology, in the sense of explicating what can be the description of an agent of system defined by its inferential capacity, such that we can state that its goal is an epistemic one (e.g., discover the truth), and comparing it to other epistemological approaches	Zamora, Teira, González de Prado, Teira	X X X X X X X X X X X X X	X X X X X X X X X X X X X	X X X X X X X X X X X X X
8) Investigating the consequences of the inferentialist model of agency to the debates about the nature of rationality, in particular its comparison to Rational Choice Theory, and in connection with empirical work on cognitive abilities and strategies of real agents.	Zamora, Teira, González de Prado, Joven.	Zamora, González de Prado, Teira		

(*) Mark an X inside the corresponding boxes (months)

C.2. IMPACTO ESPERADO DE LOS RESULTADOS

Throughout the last decade we have developed our research in close collaboration with scientists: we have presented our research at social sciences conferences (namely on experimental economics), and in national and international healthcare institutions (European School of Molecular Medicine, Escuela Nacional de Sanidad (ICIII). We have also developed course materials, under contract, on evidence-based reasoning for the forensic science service of the Spanish police (Guardia Civil). At our department we offer a number of programmes on science communication, where we use our own research. We also conduct a number of outreach activities: radio broadcasts [RNE3, RNE5] and podcasts, talks addressed at popular audiences. With this track record, we will proceed accordingly with this project.

As to the scholarly presentation of our outcome, we draw again on our experience in accessing the most competitive conferences and journals in our field: e.g, we have been attending the PSA for the last six years; Cristian Saborido is one of the highly cited authors of the *British Journal for Philosophy of Science*. We will stick to these standards of excellence, gradually introducing our graduate research fellows into them.

Finally, we want to produce a volume with a major international publisher and the leading authorities in the field, drawing on two conferences that we will organize in Madrid.

C.3. CAPACIDAD FORMATIVA DEL EQUIPO SOLICITANTE

No procede

C.4. IMPLICACIONES ÉTICAS Y/O DE BIOSEGURIDAD

No procede