Kinds of Reasoning
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Carlotta Pavese (Duke University)

“Reasoning and Presuppositions”

In this talk, I introduce and defend what I call “the presuppositional view of reasoning.” According to it, reasoning is constitutively presuppositional: *There cannot be reasoning that does not take something for granted.* I argue that this view of reasoning provides a better solution to a long-standing puzzle about reasoning — Carroll’s regress of the premises — than any of the extant solutions; and that it provides a satisfactory answer to the *delineation question* — the question of what distinguishes transitions between mental states that are cases of reasoning from transitions that are not. Finally, I argue that the presuppositional structure of reasoning is mirrored by the presuppositional structure of arguments. My view of reasoning raises a skeptical puzzle: *if there cannot be reasoning that does not take anything for granted, can we ever come to know anything by reasoning?* I argue that this skeptical puzzle can be addressed by appeal to an appropriately externalist, broadly Williamsonian, notion of evidence. If reasoning is constitutively presuppositional, does that mean that reasoning is constitutively *ideological*? I suggest that the answer to this question is “Yes” but that, *modulo* my response to the skeptical puzzle, the consequences of that might not be quite as dire as one might fear.

Jan Sprenger (Università di Torino)

“The Semantics of Indicative Conditionals: 
The Return of the Trivalent Knights”

The semantics of indicative conditional are a notoriously difficult philosophical problem. Many philosophers take the view that they don't have classical truth conditions: the truth value of ‘If A, then B’, cannot be determined as a function of the truth values of A and B. Focus has therefore shifted to the acceptability and/or probability of indicative conditionals.

Unfortunately, this view severs the ties between the semantics and the epistemology of indicative conditionals. I propose a principled solution that goes back to De Finetti: to adopt a trivalent semantics, based on reading indicative conditionals as conditional predictions of the consequent. The talk explores advantages and drawbacks of this view.
Javier Anta (Universidad de Barcelona)

“Diagrammatic Reasoning and Geometrical Explanations in Modern Physics”

Diagrammatic-based cognition in the many scientific practices encompassing physics has been an underexplored topic, either from a broad philosophical-epistemological or from a genuinely empirical line of research. One of the reasons that diagrammatic or visual reasoning in physics has received relatively few attention may be the general tendency among philosopher of science, especially during the 20th century, to believe that only linguistic representations and symbolic manipulation of theoretical content were epistemologically relevant (Perini; 2005). The progress made in the 90s within the field of multimodal logical (Etchemendy & Barwise; 1996) and visual-geometrical reasoning (Brown; 1999) lead to the philosophical community to regard systems of diagrammatic representations as valid and epistemically reliable vehicles of scientific content.

In this talk, I elaborate on the idea that reliable diagrammatic reasoning in physics could allow developing genuine geometrical (then, mathematical) explanations of empirical phenomena. In order to defend this strong thesis, with interesting consequences in the hot debate on mathematical explanations, I will first investigate how could be possible for a physical diagram to be epistemically reliable. Shimojima (2004) claimed that the inferential potential of a diagrammatic representation is determined by how effectively are exploited visual-spatial resources in order to encode relevant information. In his very line, a diagrammatic representation would be epistemically reliable if every inference carried on it is valid, namely, that the conclusion diagrammatically derived depends, both syntactically and semantically, on the information contained in the premises; this is what I will refer as “Criterion of Inferential Validity” (CIV). For instance, abducting that one positron moves on a space-time trajectory parallel to that of an electron by mean of a Feynman diagram (depicting electron-positron annihilation) would constitute an invalid inference, since the linear path diagrammatically represented does encodes no information about the positron’s trajectory. It does not mean that Feynman diagrams cannot epistemically reliable, but otherwise that their cognitive role is restricted to visually simplify (Kaiser; 2005) complex differential operations.

The second step in the argument is to analyze how empirical phenomena could be explained by epistemically reliable diagrammatic representations. An interesting case is a geometrical procedure developed by the physicist John Wheeler (1963) to calculate within a relativistic framework certain missing quantities, like the mass of a particle of tritium, in a nuclear reaction. His procedure consisted on constructing a polygon, wherein each segment represented the mass of a particle, embedded within three-dimensional energy-momentum coordinates. Then, the conservation of relativistic mass in the reaction could be visually explained by the geometrical fact that a single
segment, representing the total mass, was present in both the pre-reaction and the post-reaction scenarios. As a conclusion, I will defend the idea (developed from Giaquinto; 2015) that genuine geometrical explanation of physical phenomena, as in Wheeler’s case, is possible via epistemically reliable visual representations because of the syntactic-semantic conformation of diagrammatic procedures to intrinsic geometrical-operational rules.
Lucy Campbell (2017) presents a taxonomy of knowledge according to which knowledge is the ability to use facts as reasons. Campbell then presents an Anscombean account of practical knowledge on which knowledge of one's intentional action is directly tied to how that action can function as a reason. That is, an agent has practical knowledge just in case she can use the fact that she is intentionally acting, causally underwritten by her intention, as a reason. Yet, Campbell’s account of practical knowledge misses the point if the question at issue is how an agent knows what it is she is doing intentionally under a set of descriptions. Moreover, on Campbell’s account, an agent may use the fact of her intentional action as a reason to believe or report her reasons for so acting, e.g. “In order to ψ,” while at the same time both failing to believe that she is so acting and in the midst of the relevant act. But this should be impossible.

In this paper, I present a separate taxonomy of knowledge inspired by John Greco’s (2010) virtue-epistemology, according to which knowledge is a true belief that results from the exercise of intellectual ability. I then give an Anscombean account of practical knowledge (call it Practical Knowledge From Ability or PKFA) according to which practical knowledge is true belief that results from the exercise of what I call ‘practical intellectual ability’. Crudely put, practical intellectual ability is the agent’s ability to (with self-awareness) form and execute her intentions. I then appeal to insights from Sebastian Rödl (2007) and Anne Newstead (2006, 2009) on the connection between intentional action, reasons for acting, and self-reference. I claim that PKFA, with these additional insights, best captures Anscombe’s account of practical knowledge in Intention. Specifically, PKFA can explain the sense in which practical knowledge is knowledge of ‘what happens’ as an agent’s intentional action, the use of observation and inference in practical reasoning towards an intention/intentional action, and the possibility of extending self-knowledge of one’s intentional action to knowledge of goings-on in the world. PFKA thus gives an appealing account that illuminates Anscombe’s following remark: ‘I have called such a statement knowledge all along; and precisely because in such a case what I say is true—I do open the window; and that means that the window is getting opened by the movements of the body out of whose mouth those words come’ (2000: 51).
Decoy effects in intertemporal and probabilistic choices: the role of time pressure, immediacy, and certainty.

A decoy is an irrelevant option that, when added to a binary choice, is not selected but nonetheless alters the subjects’ preferences between the other two options, systematically biasing towards one of them (the target of the decoy) and violating some of the fundamental economic principles of rational choice. Since their first observation (Huber, Payne, & Puto, 1982), the decoy effect has been considered an important anomaly of rational decision-making, albeit recently its applicability to real-life choice scenarios has been challenged (Shane, Lee, & Baskin, 2014; Yang & Lynn, 2014) and is now a matter of some debate (Huber, Payne, & Puto, 2014). In particular, decoys have been often studied in choices between outcomes occurring at different points in time, i.e. intertemporal choices (Kowal & Faulkner, 2016; Gluth, Hotaling, & Rieskamp, 2017), with mixed results: sometimes decoys are impactful, sometimes they are not, and in general they seem to be more effective in biasing towards larger-and-later (LL) outcomes, rather than towards sooner-and-smaller (SS) rewards. We suggest that this puzzling set of results is due to an underappreciation of two important influencing factors: time pressure (Pettibone, 2012) and immediacy/certainty (Weber & Chapman, 2005). Moreover, we argue that decoy effects constitute an excellent testbed to assess similarities and differences between intertemporal choice and risky decision-making, which constitutes another open issue of debate (Green & Myerson, 2004). Two studies are presented to support these claims. In Study 1 (N=92), we demonstrate that asymmetrically dominated decoys influence both intertemporal choice and risky decision-making only in the absence of time pressure, since otherwise the comparative process required for the decoy to have an impact cannot occur, consistently with predictions made by connectionist models of decision (e.g., multialternative decision field theory, Roe, Busemeyer, & Townsend, 2001). In Study 2 (N=53), we show that, when the SS option is no longer presented as immediate/certain, the impact of decoys on intertemporal and risky choice becomes symmetrical – that is, they can prompt subject to become either more patient/daring or more impulsive/prudent, since the anomalous element of immediacy and certainty has been removed from the equation. We conclude by discussing the implications of these findings for our understanding of the multifaceted role of time and chance in decision making.
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Analogies are pervasive in science. Often scientists adopt analogies with an “illustrative” aim, in order to convey a complex idea to a lay audience. For example, an astronomer may compare the distance between the planets in the Solar system with the distance among players on a football field, as an aid to understanding. In addition to serving as illustrations, analogies are often said to play another role in inquiry, namely generating and supporting scientific hypotheses. For instance, in his Sidereus Nuncius, Galileo argued that the observed shadows on the surface of the Moon could be explained by analogy with the shadows that the mountains on Earth create on nearby valleys, hence supporting the hypothesis that the surface of the Moon consists of valleys, plains and mountains much like our planet does. Similarly, in the Origin of Species, Darwin argued that the variety of living organisms on Earth could be explained by a mechanism, natural selection, which is analogous to the mechanism of artificial selection by which breeders have, over time, given rise to so many breeds of cats, dogs, etc.

A particularly delicate issue concerns how an analogical argument in support of a certain hypothesis is assessed in the context of inquiry. Arguments by analogy are considered weak when the resemblances they rely upon are superficial, and are considered strong when the resemblances are deep. But what sorts of features make for deep resemblance? According to Hesse (1963), an argument by analogy is strong when the resemblances between the phenomena being compared (e.g. the shadows on Earth and on the Moon) extend to the causes of those phenomena (e.g. the light coming from the Sun). However, I shall argue that this account is too narrow, in that scientists sometimes take an analogy between distinct phenomena to be deep also in cases where the causes of those phenomena are dissimilar, and yet the laws obeyed by them are mathematically the same. One of my examples is the mathematical resemblance between the laws of hydrodynamics and those of electromagnetism, which helped to lay the ground for J.C. Maxwell’s “electromagnetic theory of light”.

As an alternative to Hesse’s “causal” account, I will propose and defend a broadly “unificationist” approach. On this view, one may take an analogy between a source and a target domain to support a hypothesis about the target domain just in case (and to the extent that) one takes there to be evidence that the two domains have analogous explanations. I will illustrate this proposal with an example from the history of optics, the dispute between Descartes and Fermat on the nature of light. I will then argue that this unificationist proposal vindicates not only the widespread use of mathematical analogies in scientific inquiry, but also the similar use of mathematical analogies in mathematics. Finally, against the charge that the account is somehow circular, I will demonstrate how the proposal can still be informative by integrating it with a plausible picture of what counts as an analogy between scientific explanations.
In this talk I will present a semantic model for deductive reasoning that incorporates a solution to the scandal of deduction. The scandal has received much attention (see, e.g., Sequoiah-Grayson 2008, D’Agostino and Floridi 2009) and can be introduced by the following argument:

(1) If a deductive inference is valid, the conclusion is already contained in the premises;
(2) If the conclusion is already contained in the premises, a deductive inference is useless;
Hence, (3) if a deductive inference is valid, it is useless.

In my view, the scandal can be tackled by focusing on the following questions: (i) how comes that one may not appreciate that the conclusion of a deductive inference is contained in the premises? (the cover problem); (ii) how comes that one can finally reach the conclusion by performing the deductive inference? (the uncover problem). Indeed, by providing adequate answers to these questions, one can retain (1) and oppose (2), hence (3).

Based on a positive and a negative perspective on the sense of a sentence, I will introduce the corresponding notions of representational content and logical content. (1) holds if rephrased in terms of logical content, namely by conceiving of the sense of a sentence in terms of how things do not stand if it is true. (1) does not hold if rephrased in terms of representational content, namely by conceiving of the sense of a sentence in terms of how things do stand if it is true. Since understanding is directly correlated to representational content (and not to logical content), one gets an answer to the cover problem (i).

Based on this, I will introduce my model, reconstructing a deductive inference as a process by which a subject starts from the premises, gets first their representational content and then their logical content, tranforms some of this logical content (the one corresponding to the conclusion) into the representational content of the conclusion, and finally gets the conclusion. In this way, I introduce a way to make sense of how the unpacking of the information contained in the premises proceeds, thus providing an answer to the uncover problem (ii).

My model goes along with a proposal put forward by J. N. Keynes and seems to fit well with the picture theory of the Tractatus. Moreover, it embodies a semantic approach to deductive reasoning (as opposed to a rule-following one) that is analogous to the one recently introduced by Valaris (2016) as a way to meet Boghossian’s Taking Condition: “Inferring necessarily involves the thinker taking his premises to support his conclusion and drawing his conclusion because of that fact” (2014: 5).
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Contemporary moral psychologists have largely accepted that moral judgments are generated intuitively and automatically. At the end of the 20th century, influential work on automatic processes from researchers such as Bargh (1994) began to turn psychologists’ attention away from the predominating rationalist theories of moral development from Jean Piaget (1965) and Lawrence Kohlberg (1973), which focused on slow, deliberative moral reasoning. Still, this “automaticity wave” did not necessarily seriously challenge the role of moral reasoning in moral judgment; rather, it reflected a shift in the research interests in the scientific community that left moral reasoning’s role in moral judgment mostly untouched. However, Jonathan Haidt’s social intuitionist model (SIM) poses the greatest challenge to traditional philosophical perspectives on moral judgment. SIM proposes that moral judgments are (1) primarily intuitive, (2) are justified via reason after the fact, and that such justifications are (3) primarily designed to influence others. This paper problematizes the following concepts in Haidt’s SIM: automaticity, rationality, reasoning, context independence and affective valence. Each of these concepts has bearing upon how one might construct and defend a conceptually precise defense – or critique – of rationalism, the philosophical view that reason is the principal source of knowledge (including knowledge of moral judgments) and that reasoning lies at the heart of our moral activities. By unbundling the various characteristics that psychologists and philosophers alike have bundled into their definitions of reason and intuition, I aim to (1) show how Haidt has not challenged the rationalist’s descriptive account to such a great extent, (2) demonstrate that the rationalist position remains defensible, and (3) add conceptual precision to subsequent empirical research on the efficaciousness of reason.

My argument in this paper is twofold. In the first half, I will argue that Haidt’s SIM does not challenge moral reason’s descriptive role to the great extent that he claims. To address the descriptive challenge, I will first lay out Haidt’s key conceptual and descriptive claims, followed by several implicit descriptive claims. Then I will dispel the SIM’s implicit notion that automaticity and rationality are incompatible. To do so, it is important to draw a distinction between "reasoning" and "rationality." Given this distinction, I argue that Haidt has not challenged rationality’s role in moral judgment. In the second half, I contend that it may be helpful to problematize two characteristics in Haidt’s account of reason – context independence and the absence of affective valence – because they have bearing upon how one might construct and defend a conceptually precise defense (or critique) of rationalism. Taken together, I want to show that it is necessary to “unbundle” the various characteristics that psychologists and philosophers alike have “bundled” into their definitions of reason and intuition in order to clarify, critique, or defend a rationalist position, and to conduct further empirical research on the efficaciousness of reason.
Both the lottery paradox and the preface paradox famously show that the following three principles are inconsistent: (Sufficiency) very probable propositions are justifiably believable; (Conjunction Closure) justifiably believability is closed under conjunction introduction; (No Contradictions) propositions known to be contradictory are not justifiably believable. This paper shows that there is a hybrid of the lottery and preface paradoxes that does not require Sufficiency to arise, but only Conjunction Closure and No Contradictions; and it argues that, given any plausible solution to this paradox, the acceptance of Conjunction Closure surprisingly implies the acceptance of the thesis that justifiably believability is factive.

More precisely, the hybrid of the lottery and preface paradoxes introduced in this paper is as follows. Imagine that you have written a book that contains all and only logically independent claims that you are justifiably to believe. By Conjunction Closure, you are justifiably to believe that all of the claims in the body of this book are true. Imagine, further, that a perfectly omniscient agent has reviewed the manuscript of your book and has let you know that there is exactly one mistake in the book, without telling you, however, which of its claims is false. Assuming that you know that the agent is perfectly omniscient, you can come to know – and, thereby, justifiably believe – that there is exactly one mistake in the book. Then, by a further application of Conjunction Closure, you are justifiably to believe that all of the claims in the body of this book are true and exactly one of the claims in the body of this book is not true. However, assuming that you realize that this is an obvious contradiction, by No Contradictions, you cannot be justifiably to believe it. Therefore, it is clear that this hybrid paradox only requires Conjunction Closure and No Contradictions as premises.

There are three possible solutions to this paradox: first, denying No Contradictions; second, denying Conjunction Closure; third, denying that the paradox is possible. Denying No Contradictions is a non-starter. It follows that any acceptable solution to this version of the paradox must either deny Conjunction Closure or deny that the paradox can possibly arise. An answer to the following question, then, becomes relevant: how can one deny that this paradox can possibly arise? This paper argues that the only plausible strategy to deny that the paradox can arise is to endorse the thesis that justifiably believability is factive, for all other viable explanations imply radical skepticism, and skepticism is very unpopular among contemporary philosophers in the business of advancing views of justification. Therefore, any acceptable solution to the hybrid paradox must either deny Conjunction Closure or accept the thesis that justifiably believability is factive. Accordingly, by material implication, the paradox shows that the acceptance of Conjunction Closure implies the acceptance of the thesis that justifiably believability is factive.

Obviously, this conclusion is troublesome for all philosophers defending views of justification that deny the thesis that justifiably believability is factive, while accepting Conjunction Closure.
The thesis of the present talk is that the 'Verisimilitudinarian approach to scientific progress' (from now on: 'VS') fails as a defense of scientific realism: VS is too weak a conception to sustain a fully realist view of progress, because 1) it assumes that objective truthlikeness is the aim of inquiry, but 2) it only traffics with estimated truthlikeness, so that 3) the role of truth in theory choice and scientific practice is at best unclear and at worst entirely absent; hence, VS collapses on a 'functionalist / instrumentalist -like' theory. In the last part of the talk, I also briefly present Bird's cumulative conception of scientific progress: like VS supporters, he has in mind the realist-correspondist intuition of a 'real world' to which our best theories should try to correspond, but all the metaphysical weight is put on the notion of 'approximate truth' – whose connection with 'the realist-correspondist truth' (from now on: 'the Truth') is absolutely vague.

The main arguments to sustain this thesis result from a thorough analysis of the notion of truthlikeness (or 'verisimilitude'): the relationship between estimated truthlikeness and objective truthlikeness will be examined, and in particular Niiniluoto's Bayesian interpretation of the former; after a concise presentation of the main anti-realist readings of scientific practice, I will argue that, analogously, all that matters in VS – as well as in Bird's model – is the empirical adequacy of a theory (or similar 'functionalist / instrumentalist -like' assessments) and our consequent 'degree of belief' in it.

As for the structure of the talk, I briefly introduce the main topics connected to the very general term 'realism', I distinguish some different dimensions of realism (metaphysical, semantic, epistemological, etc.), and I indicate where VS stands in the debate; I then present the key tenets and the most influential authors of VS and their main goals, I analyze the procedure to estimate the verisimilitude of a theory, I point out the similarities with some anti-realists account, and develop the main arguments in favor of my thesis; in the last part, I analyze Bird's cumulative conception of progress and the related notion of 'approximate truth' and describe a general problem that realist-correspondist models seem to share. The conclusion will be that, although reasoning on the Truth is appealing, it is very difficult to build a model in which the Truth and our reasoning are connected. Some concluding remarks will follow.
Maria Paola Sforza Fogliani (Scuola Universitaria Superiore IUSS Pavia)

“On Defending Modus Ponens. Putative Counterexamples and Their Failures”

The aim of my talk is to defend modus ponens (MPP) and modus tollens (MTT) from some of the most influential counterexamples advanced against these rules of inference.

I will begin the discussion by focusing on those presented by McGee against MPP (McGee [1985]); after having illustrated the first and most famous of the three arguments, I will try to clarify some relevant concepts – in particular, that of counterexample. Then, I will discuss the main solutions that have been proposed during the years, and argue that none of them will do; all of the authors who have come up with one have tried to show either that McGee’s inferences are not of the form of MPP (Lowe [1987]; Paoli [2005]), or that their conclusions are true, or at least acceptable (Sinnott-Armstrong et al. [1986]), or that their premises are false (Katz [1999]). I will reject most of these proposals on the basis of the fact that they seem to rest on non-independently motivated technical tricks. Finally, I will suggest a solution to McGee’s counterexamples; interestingly, this very analysis is able to account for several other counterexamples presented against both modus ponens and modus tollens (Kolodny & MacFarlane [2010]; Yalcin [2012]; cf. Forrester [1984]).

I will wrap up by pointing to some metatheoretical concerns and argue that the proposals of revision at hand, besides the specific criticisms they have to face, are anyway threatened by circularity issues – in particular, by those presented by the Centrality Argument (Putnam [1978]).

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Michał Sikorski and Noah Dongen (Università di Torino)

“How to reason about Objectivity”

Objectivity is important for science. However, philosophers failed to provide a definition that can be put into practice. Our presentation is the first step toward such definition.

The important and popular way of thinking about objectivity in philosophy, exemplified by Douglas (2004) or Megill (1994), focuses on its complexity. For example, Douglas collects eight different conceptions of objectivity and postulates them as meanings of the concept that cannot be reduced to one-another. Despite its popularity, this method of reasoning seems to be misguided for at least two reasons. As we will show, it lacks justification and it is not useful in practice.

We propose an alternative method for thinking about objectivity. As an example, healthcare operates without a clear and specified definition of what it is to be healthy. However, we are clearly capable of treating illness and injury that damage or reduce health. We argue that in science no clear definition of objectivity is necessary, as long as we can identify and remedy the particular practices and components of methods that harm objectivity (e.g., multiple testing of data, small samples, absence of falsification attempt, and biases).

It is our intention to take first steps in an assessment of an empirically informed inventory of factors (e.g., Simmons et al., 2011) that impair the scientific objectivity of method and results. The inventory will be compiled into a negative definition (i.e., what is not objective), which can be used as an instrument (e.g., check-list) to assess deviations from objectivity in scientific practice. It is our intention that the inventory can be extended and adjusted by us and others as we learn more about how and by what objectivity can be diminished. We conclude with a demonstration of the instrument on actual cases from science and compare our results to what we could expect if we used a Douglas-like method.

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The idea that logic is normative for the reasoning process is a standard assumption in philosophy. However, this assumption is not uncontroversial; it has been famously questioned by Harman (1984; 1986), who provides four objections to argue that “[…] there is no clearly significant way in which logic is specially relevant to reasoning” (1986: 20). In an unpublished paper, MacFarlane (2004) argues that the normativity of logic is best articulated via “bridge principles” that connect facts about logical entailment with norms for the reasoning process. The most recent literature on the normativity of logic (Field 2009; Field 2015; Steinberger 2017) has been focusing on how to articulate bridge principles that are in good standing against Harman’s objections.

My aim in this talk is to focus on a related topic; that is, on what the source of the normativity of logic might be, and, in light of this, what the status the bridge principles is. I distinguish between two ways one can conceive of the bridge principles as norms for reasoning. The first option, which I take to be MacFarlane’s, is to take the concept of logical validity as having itself a normative component. On such ground, the bridge principles emerge directly from the practice of reasoning, and elucidate the normative aspect of logical consequence. An alternative option is to take the normativity of logic to have its source in human rationality. I argue that being subject to a standard of formal coherence is constitutive of being a rational agent. Formal coherence is preserved, fundamentally, in the laws of logic. In this latter picture, the bridge principles can be taken as describing how the more general requirement of logical coherence acts as a norm for the reasoning process.
Evolutionary explanations are often faced with the criticism of providing nothing more than a ‘just-so stories’, a historical account that has no evidence in its favour. For Charles Darwin, it was very important to collect plenty of evidence for his theory of natural selection. Biologists to this day continue to accumulate corroborating evidence. When biologists try to explain the occurrence of a certain behaviour or a phenotype in general, they often start by hypothesizing how the trait could be adaptive. This research program is often criticized as a sort of Panglossian adaptationism, i.e. assuming the adaptiveness of a trait without further evidence. I shall not concern myself here with the question of whether the adaptionist research program is a fruitful one, but with the question of how evolutionary game theory (EGT) models, which are often employed in such adaptationist theorizing serve as explanatory devices.

This paper argues for the explanatory power of EGT models in three distinct but closely related ways. First, following Sugden and Aydinonat & Ylikoski I argue that EGT models are created parallel worlds i.e. surrogate systems in which we can explore particular (evolutionary) mechanisms by isolating everything that could be interfering in the real world. By specifying the pool of strategies, the game and the fitness of the strategies involved, EGT explores potential phenomena and dynamics emerging and persisting under natural selection. Given a particular phenomenon, e.g. cooperation, war of attrition, costly signalling, EGT enables the researcher to explore multiple ‘how-possibly’ explanations of how the phenomena could have arisen and contrast them with each other, e.g. sexual selection, kin selection and group selection. Secondly, I argue that by eliminating ‘how-possible’ explanations through falsification, we can arrive at robust mechanisms explaining the stability and emergence of evolutionary stable equilibria in the real world. In order for such falsification to be successful, it requires deliberate research in multiple scientific disciplines such as genomics, ethology and ecology. This research should be guided by the assumptions made in the applications of particular EGT models, especially the range of parameters for payoffs and the strategies found in nature. Thirdly, I argue that in order to bridge the gap between the remaining set of ‘how-possibly’ explanations to the actual explanation requires abduction, i.e. inference to the best explanation. Such inference shall proceed by considering issues of resemblance between the multiple EGT models and the target system in question evaluating their credibility. Together these three explanatory strategies will turn out to be sufficient and necessary to turn EGT models into a genuine explanation.