

# Should Critical Realism Become the Methodological Foundation of Analytical-Empirical Sociology?

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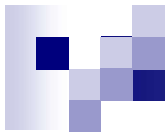


# Introduction

The philosophy of the social sciences that is at present most popular is Critical Realism (**CR**) – **not** Critical Rationalism. CR is a well organized school. There are

- annual conferences, there is
- a journal – the „Journal of Critical Realism“ (which exists in 2023 in its 21st year and is open access); there is a
- Centre for Critical Realism and a
- newsletter (Alethia). There is further a
- critical realism network, a
- book series about Critical Realism (with Routledge), and a
- Roy Bhaskar Centre (<https://www.roybhaskarcentre.com/>), after the Founder of CR.

**To what extent are the basic doctrines and arguments of CR tenable?**



## Contents of the presentation

I cannot discuss all the arguments of advocates of CR in detail for limitations of time. I will concentrate on two topics:.

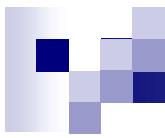
- A short introduction to CR.
- I will provide a decisive test of the fruitfulness of CR: the compatibility of its doctrines with a generally accepted theory about human behavior.

# A Short Introduction to Critical Realism

The **founder** of CR is **Roy Bhaskar** (1944 bis 2014) with his dissertation “A Realist Theory of Science” (**1975**). Important is also his book „The Possibility of Naturalism. A Philosophical Critique of the Contemporary Human Sciences” (1998).



**Major proponents** are Margaret Archer, Dave Elder-Vass, Philip S. Gorski, Douglas Porpora, and Daniel Little.



There are different positions of adherents of CR. In what follows I will give an overview of basic assumptions from the **newsletter “Perspectives” of the theory section of the ASA from December 23, 2016**. I assume that this contribution includes doctrines that most adherents of CR accept because it is written by several well-known representatives of CR:

Margaret Archer, Claire Decoteau, Philip Gorski, Daniel Little, Doug Porpora, Timothy Rutzou, Christian Smith, George Steinmetz, Frédéric Vandenberghe

Emphases in the following texts are added.



## Doctrines of CR

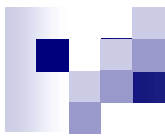
“Critical realism” refers to “ontology, causation, structure, persons, and forms of explanation.”

“... critical realism represents a broad alliance of social theorists and researchers trying to develop a properly **post-positivist social science**.”

## Comments

CR is thus a comprehensive research program that consists of a methodology for the social sciences.

It is not clear what **positivism** – the major target of CR – means. In philosophy this encompasses very different positions – from Auguste Comte to Rudolf Carnap and Karl Popper (who is also included in the critique but does not want to be labeled a positivist). The problem is that these authors have quite different positions. So what exactly are the positions that are attacked? This is not known.



## Doctrines of CR

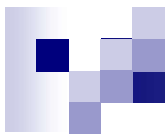
CR is an “**alternative paradigm** both to **scientific forms of positivism** concerned with **regularities**, regression-based **variables models**, and the **quest for law-like forms**;

and **also** to the **strong interpretivist or postmodern turn** which denied explanation in favor of interpretation.”

## Comments

All this is clearly a rejection of Analytical-Empirical Sociology (**AS** – such as „variable analysis“ – see further Danermark et al. 2019: 12)

These schools are also rejected by AS, in particular **constructivism** or **post-modernism** – see the critique by Koertge 1998; Sokal and Bricmont 1997.



Advocates of CR are further in particular

- against **strict falsificationism** (Gorski 2004, di Iorio and León-Medina 2021: 138; Bhaskar 2008, first 1975, writes that a goal of his book is “to show once-and-for-all why no return to positivism is possible.” This includes the rejection of fallibilism: **“Popperian theories of scientific rationality and criteria of falsification ... must all be totally discarded”** (Bhaskar 1998: 45).
- against **rational choice theory** (Archer und Titter 2000; Gorski 2004),
- against **experiments** in the social sciences (e.g. Archer 1998: 188; Colliere 2011; Danermark et al. 2019: 123-124 and passim; Lawson 1997: 199-226; Porter et al. 2017),
- against **Methodological Individualism** (Archer 1995; Bhaskar 1998; Gorski 2004; Elder-Vass 2010; Danermark et al 2019; Porpora 2015. For a critique of this position see Di Iorio and León-Medina 2021).

Additional claims will be discussed later.



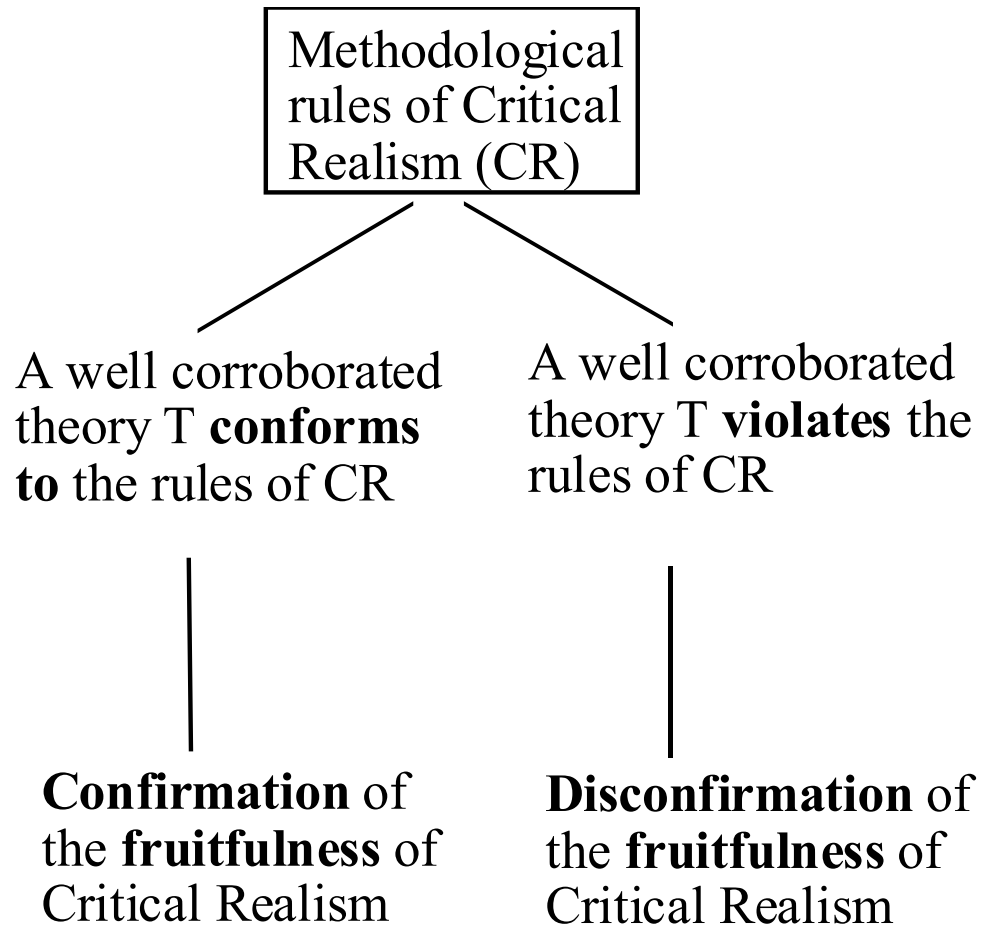


## Is There a Decisive Test – a Sort of „experimentum crucis“ – of Critical Realism?

Assume there is a **theory about human behavior that is well corroborated and generally accepted**. If the methodology of CR is theoretically fruitful, then such a generally accepted theory should be compatible with the methodological rules of CR and not with those of AS or Critical Rationalism.

But if CR implies that such a theory should be discarded because it is incompatible with CR, then this would be a **devastating critique of CR**. We should then give up CR in its present form.

## Here is the argument again:



**Is there such a generally accepted theory about human behavior?**

ON  
**THE ORIGIN OF SPECIES**

BY MEANS OF NATURAL SELECTION,

OR THE  
PRESERVATION OF FAVOURED RACES IN THE STRUGGLE  
FOR LIFE.

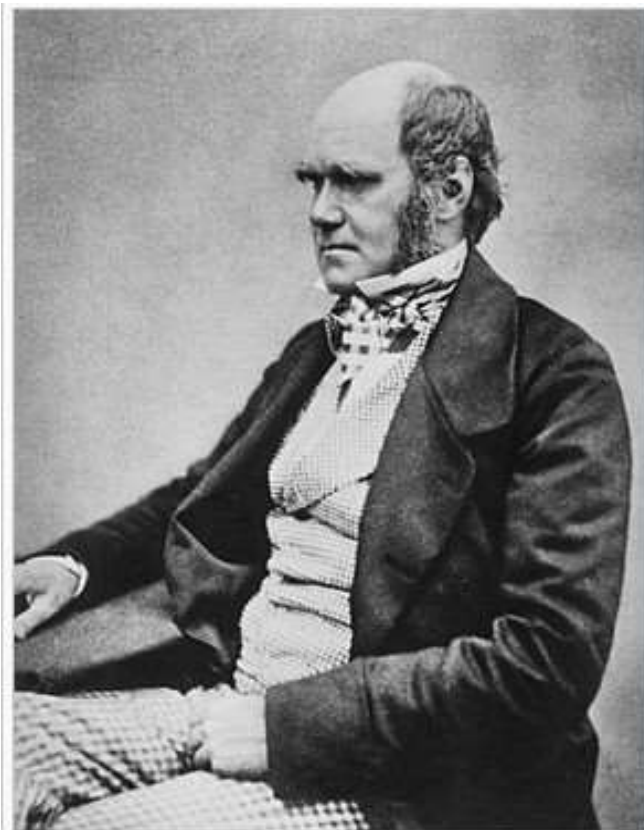
By CHARLES DARWIN, M.A.,

FELLOW OF THE ROYAL, GEOLOGICAL, LINNEAN, ETC., SOCIETIES;  
AUTHOR OF 'JOURNAL OF RESEARCHES DURING H. M. S. BEAGLE'S VOYAGE  
ROUND THE WORLD.'

LONDON:  
JOHN MURRAY, ALBEMARLE STREET.

1859.

*The right of Translation is reserved.*



Charles Darwin mit 51 Jahren



THE  
**DESCENT OF MAN,**

AND  
SELECTION IN RELATION TO SEX.

By CHARLES DARWIN, M.A., F.R.S., &c.

IN TWO VOLUMES.—Vol. I.

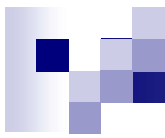
WITH ILLUSTRATIONS.

LONDON:  
JOHN MURRAY, ALBEMARLE STREET.

1871.

*[The right of Translation is reserved.]*





**Darwin's theory of evolution** is among the best theories about human behavior (and many other phenomena such as animals and plants). As one author puts it:

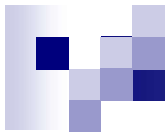
“What the theory of evolution offers us is the **greatest story ever told**: how we and all the other creatures with whom we share the planet came to be, why we are not all the same, and how and why we are all so interdependent.” (**Dunbar**, Robin. 2020. *Evolution. What Everyone Needs to Know*. Oxford University Press, p. 4, emphasis added).

On the state of the theory of evolution see in particular:

**Coyne**, Jerry A. 2009. *Why Evolution Is True*. Oxford: Oxford University Press.

**Mayr**, Ernst. 1994. ... *und Darwin hat doch recht. Charles Darwin, seine Lehre und die moderne Evolutionstheorie*. München: Piper. (Original 1994: **One Long Argument**). **SHORT BOOK**

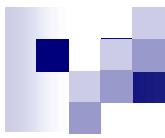
**Mayr**, Ernst 2003. *Das ist Evolution*. München: Bertelsmann. English: *What Evolution is*. 2002. **LONG BOOK**



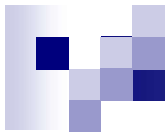
Note that **Darwin's theory is a general theory** referring, among other things, to humans and not only to plants and animals. Furthermore, the theory does not only refer to biological features but to all other features such as language or morality as well.

It is sometimes argued that the application of Darwin's hypotheses to humans is an **analogy** or a **generalization** of hypotheses about non-humans or plants. There is no „**transfer**“ of theories between disciplines (e.g. biology and social science) either (e.g. Reydon 2021). In fact, evolutionary theory is a set of general propositions that can be applied to quite diverse fields and phenomena.

Darwin himself formulated his theory in this general way, in particular in his book „The Descent of Man“ (1871). See Richards 1987: 185-242.



I have **not found any detailed analysis of advocates of CR** that examines the extent to which Darwin's theory is compatible with the methodology of CR. Note that CR exists since 1975 (Bhaskar's dissertation). **Why** do critical realists not themselves test the fruitfulness of their methodology by applying it to judge the best existing theory about a wide range of phenomena, including human behavior? It is difficult to understand that major advocates of CR **mention** evolutionary theory and **value it positively**, but they do **not analyze** its consistency with their methodology.



Darwin's contribution is sometimes misrepresented. In a textbook on CR Danermark et al. (2019: 114) mention Darwin only once and characterize his theory as a „redescription of the evolution of species"! Darwin's theory is definitely **not a “redescription”** of anything, it is a theory.

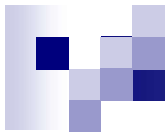
Outhwaite (1998: 270) mentions the „Darwinian tautology ,the fittest survive“ Without any further note on what this statement means in Darwin's theory.



## What leading CR scholars write about Darwin and evolutionary theory

**Bhaskar** mentions Darwin in his foundational work (1975) and asserts that Darwin „could not, at least if his theory is correct, have produced the process he described, the intransitive object of the knowledge he had produced: the mechanism of natural selection.” Detailed arguments for this thesis are missing. In **Collier**’s “Introduction to Bhaskar” (1994) “evolutionary biology” is mentioned, and it is claimed that it “has not experiments” (which is wrong, see below), but has “considerable explanatory power” (121). **Archer** (1995 “Realist Social Theory”) does not mention Darwin and evolutionary theory. **Lawson** (2015: 2001) recalls “the central and great Darwinian insight,” viz., the mechanism of natural selection – which is described later (also 223-229). But the compatibility with CR methodology is not analyzed.





## A VERY Short Outline of Darwin's Theory

The theory assumes that there is random heritable **variation** between organisms. There is further **natural selection**: the individuals with the most advantageous features (for survival and reproduction) in a given environment survive. Due to the heritable variation the successful organisms transmit their features to the next generation which, thus, resembles the more successful individuals of the former generation. Evolution thus is explained by the processes of **variation and selection**.

This evolutionary process often takes thousands or millions of years.




## **Darwin's Theory and Critical Realism**

In what follows I will first mention the doctrine of CR and then discuss its compatibility with evolutionary theory.



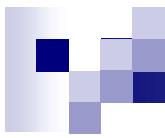
- **Rejection of the covering law model in CR.**

- **The model:** In order to explain singular phenomena regularities should be applied – no general deterministic laws are required (a frequent misunderstanding, e.g. Porpora 2015: 106 – see already Hempel and Oppenheim 1948). **Example:** to explain the increasing immigration one will apply a general proposition that suggests what in general causes of immigration are.
- The position of CR: „**the covering law model of causal explanation ... is simply and clearly untenable**” (Porpora 2015: 12, 35-37; Danermark et al. 2019: 96-134; Elder-Vass 2010: 41-43; Gorski 2004). “**The social world is characterized by the complete absence of laws**” (Archer et al. 1998: XV).
- Ernst Mayr (1994: 24; English 1991: 9) describes **Darwin’s method:** “He realized that one cannot make observations unless one has some hypothesis on the basis of which to make the appropriate observations.”

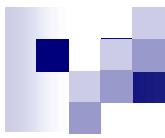
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- Ayala (2009: 10033 – Darwin and the Scientific Method) writes: "Between the return of the Beagle on October 2, 1836, and publication of *Origin of Species* in 1859 ... (and, indeed, until the end of his life), Darwin relentlessly pursued **empirical evidence** to corroborate the evolutionary origin of organisms and to **test his theory** of natural selection, which he saw as the explanatory process accounting for the adaptive organization of living beings and their diversification and change through time."

You might read Darwin, e.g.: 1859 – *The Origin of Species*: p. 49, or 1871 – *The Descent of Man*: 9.


**Darwin thus clearly applied the covering law model.**



- **Rejection of the search for general hypotheses in CR.** Darwin's goal was from the very beginning to formulate a general theory of evolution referring to a large class of phenomena such as animals, plants, and humans.
- **Skepticism toward or rejection of quantitative research in CR** (e.g. Bhaskar 1979: 50; Næss in Hartwig 2015: 495; Rutzow 2018a: 127, For a more open position see Mukumbang 2021). The subject matter of the social sciences are **meanings which "cannot be measured, only understood"** (Bhaskar 1979: 50). Darwin has conducted quantitative studies. There are numerous quantitative studies after Darwin (e.g. Dunbar 2020 and other textbooks about the theory of evolution).




- The rejection of Methodological Individualism and micro-macro modeling in CR. ... „in which society disappears and only individuals exist“ (Manicas 1998:319).
- The **theory of evolution** addresses the influence of natural and social environments (macro factors) on the evolution of properties of organisms (micro factors) that lead to change of other individual properties (micro factors), that aggregate (empirically or analytically) to macro properties. This is micro-macro modeling.

- 
- **Rejection of rational choice theory (RCT) in CR.** This is the theoretical archenemy of CR: „**RCT conflicts in just about all possible respects with CR and is a major object of critique and resistance by critical realists**” (Nielsen in Hartwig 2015: 395). But it is compatible with Darwin’s theory.


In his first major work „The Origin of Species“ (1859: 49) Darwin asks how different groups arise, and he argues that variations develop which are „**profitable**“ to the individuals of a species. Profitability depends on the relations to other „organic beings“ and the „physical conditions of life.“ These are social and natural **constraints**.

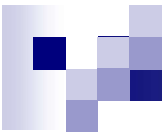
In „The Descent of Man“ (1871: 161) Darwin mentions goals such as „selfish interest“ or the motive of „approbation of ... fellow-men“ (p. 173). These are **preferences**. The theory thus consists of subjective utility maximization, constraints, and preferences – the major variables of the theory of rational action!



In **recent work** many authors follow this lead of Darwin and formulate the theory of evolution as a **general theory of human behavior in a wide sense** (see already Wilson 1975). Central hypotheses of such a general version strongly resemble the theory of rational action (for a summary see du Crest et al. 2023b). See further **Okasha und Binmore (Eds.). 2012: Evolution and Rationality**. See also **Schurz 2011. Evolution in Natur und Kultur**. Eine Einführung in die **verallgemeinerte** Evolutionstheorie. See most recently **du Crest et al. 2023: Evolutionary Thinking Across Disciplines. Problems and Perspectives in Generalized Darwinism** – see in particular the introductory article of the editors. See further the older handbook edited by Heams et al. 2015.



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- **Rejection of empirical theory comparisons in CR.** Darwin has repeatedly tested competing hypotheses by comparing them with data. He published the theory that in his opinion was best corroborated. Darwin thus applied empirical comparative theory testing.
  - **The rejection of experiments in CR.** „researchers have to produce their results, and the results they get build up scientific theories“ (Danermark et al. 2019: 24). Experiments thus lead to circularity.
    - There are numerous experiments that test hypotheses from evolutionary theory (Reznick et al. 2005). Darwin especially used breeding experiments (Dunbar 2020: 17-19). However, conducting experiments **with humans** to test biological evolution is **practically difficult** because of the long time biological evolution takes. There are also **ethical problems**. However, the formulation of Darwin’s ideas as **a general theory** – suggesting that people strive to satisfy their needs and adapt their behavior to the given environment – have led to numerous experimental tests of these hypotheses about attitudes, rewards etc.



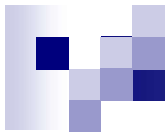
## Example for experiments with animals: sexual selection

A **puzzle** was the big and colorful open tails of male and not female peacocks and the burden of carrying the folded tail. Isn't this a falsification of Darwin's theory?



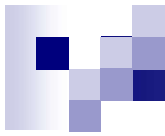
Wouldn't peacocks be much better off with small tails? See the bird below.





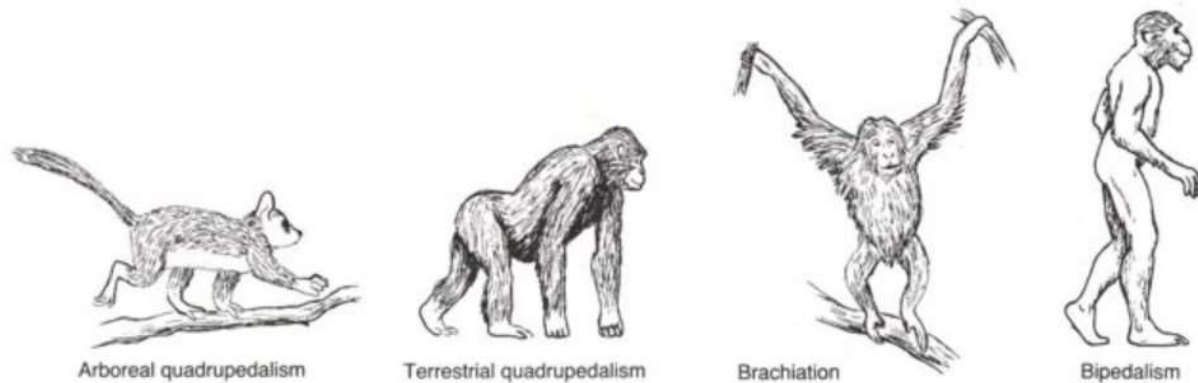
*This is the phenomenon of **sexual selection** that was already discussed by Darwin (1859: 62-105; Darwin 1871: 253-387; see any textbook on the theory of evolution such as Coyne 2009: 157-172; Charlesworth and Charlesworth 2003: 86-89). The assumption is that organisms perform actions that increase immediate survival as well as sexual reproduction.*

The **female peacocks choose** with a relatively high likelihood peacocks with a colorful tail. There is thus a trade-off: there are costs for immediate survival, but the benefit that seems to be larger than the costs is to find a mate. This is called sexual selection which is a type of natural selection.



Petrie and associates (Petrie 1994; Petrie and Halliday 1994) tested this explanation. They first conducted **quantitative observational studies**. They found a strong correlation of the number of eyespots in males' tails and the number of matings that were achieved. **Experiments** were conducted as well. One could select by chance two groups of peacocks. In the experimental group 20 eyespots were removed from each bird and their mating success was ascertained. As expected, in the next breeding season the males without eyespots got clearly fewer matings than the males of the control group. Incidentally, Coyne (2009: 165) notes that an experiment was already suggested by Alfred Russel Wallace (a competitor of Darwin).

## Example: bipedalism and the possibility of experiments with humans



This development took about 3.5 million years.

What could an experiment look like about the development of bipedalism with humans?




Take a probability sample of – say – 1000 **humans** and place half in an isolated wooden habitat (left), the other half in an isolated savannah (right).

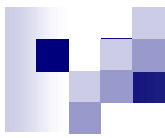


**Prediction** according to the evolutionary theory is that in the left habitat quadrupedalism will develop in more than three million years. You may make observations after 1000, 2000, 100.000, ..., 1 million years.

This suggests: “Artificial selection experiments are obviously out of the question for human beings” (Alcock 2002: 49).

- 
- **There are no universal or statistical laws in the social sciences according to CR** (e.g. Gorski 2004: 2; Porpora 2015:13). Darwin's theory is an example for a non-deterministic lawful statement. "Having a superior genotype does not guarantee survival and abundant reproduction; it only provides a higher probability. There are, however, so many accidents, catastrophes, and other stochastic perturbations that reproductive success is not automatic. **Natural selection is not deterministic**" (Mayr 1982: 490).
  - **Denial of the possibility to falsify non-deterministic theories in CR.** Darwin has repeatedly modified his theory although it is not deterministic. Falsification is assumed if some facts are not in line with a theory – this then violates the assumption of a high likelihood of occurrence of a phenomenon. In sociology multivariate statistics are applied to test non-deterministic hypotheses.





- **Rejection of a rigorous falsificationism in CR.** Darwin did not try to find confirmations, but examined whether there were facts that could falsify his theory. This seemed plausible from his perspective: otherwise his numerous adversaries had adduced falsifying evidence.
- **The importance of ontology for theory construction in CR.** Darwin's ideas contradicted the major ontological idea at his time: **creationism** (e.g. Coyne 2009; see also Schurz 2011: chapter 1 about the „metaphysisch-normative Entwicklungskonzeption“ – metaphysical-normative ideas of development – at the time of Darwin). Due to the incompatibility of his ideas with the prevailing ontology he hesitated for a long time until he published his theory. This is clearly at odds with the assumption of the importance of ontologies in CR: Had Darwin followed the prevailing ontology of his time he had not published his theory! **This is an example that following an ontology has devastating consequences for theory development.**



## Is Darwin's Theory Compatible with Critical Rationalism?

**Reichenbach** (1951: 191-214) answers this question clearly in the affirmative: "Darwin saw that the progress of evolution can be explained in terms of causality alone and does not require any teleological conceptions" (199). "**The problem of life does not involve contradictions to the principles of an empiricist philosophy – such is the result of the biology of the nineteenth century**" (202). **Poppers** later discussion of Darwin's theory of evolution holds **similar views** (Bradie 2016, see also Watkins 1995, 2007: 102-103). **Schurz** (2014: 4) too mentions Darwin's theory as a „**decisive breakthrough**“ of the „**scientific method**.“

**Darwin's theory is thus compatible with Analytic Philosophy and Critical Rationalism**





## How could CR be saved from Darwin's theory?

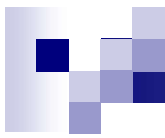
Assume that doctrines of CR are not compatible with the theory. One could apply an **immunization strategy**: it could be argued that CR is actually fruitful, and one would predict that there are **major flaws in the theory of evolution** that are not yet discovered. Future research will find those flaws. Perhaps there will be a new revolutionary „**critical realist theory of evolution**“? As a falsificationist one would never exclude such a possibility. However, as long as those falsifying instances are not found one will accept the theory and reject CR.

Another **immunization strategy** to save CR is to argue that Darwin's theory is a **theory of natural science**, namely biology. Therefore, CR does not apply. However, Darwin's theory has been applied to explain all kinds of human behavior, it is a general theory about human behavior. For example, it is about cultural evolution (e.g. Henrich and McElreath 2003; Henrich 2016; Schurz 2011). Here It is clear that ideas of Darwin are applied to explain human behavior in general.

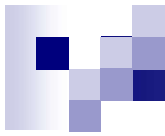


## General Conclusion

- Darwin's theory and methodology are incompatible with each of the central doctrines of CR. But both are clearly compatible with the central doctrines of Critical **Rationalism**.
- Applying CR **implies** that Darwin's theory should be discarded. This is certainly not acceptable and is a severe critique of the fruitfulness of CR.
- CR pretends to be a fruitful ontology for the formulation of theories that are inconsistent with AS. However, so far **no falsifications** of the numerous existing **theories of AS** exist, and there are **no clear and corroborated alternatives** to these theories. CR exists since **1975** (Bhaskar's dissertation).



- Much of the critique of AS is due to **false allegations about what AS is about**. What advocates of CR criticize is a **phantom science**. Existing theory and research in AS are completely ignored.
  - Example: **in central contributions to Methodological Individualism the Coleman model is not even mentioned** – see Archer 1995; Bhaskar 1998: 29-33. No example from the social sciences is analyzed. The position described by Bhaskar is probably not advanced by any proponent of AS. In addition, theories about individual behavior such as Bandura's cognitive learning theory are not discussed. Also in **discussions about causality** the procedure of social scientists – such as applying multivariate statistical methods – is not even mentioned.



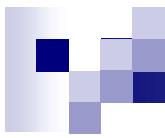
Thus: my **answer** to the **question** in the title of this talk

## **Should Critical Realism Become the Foundation of Analytical-Empirical Sociology?**

is clearly

**„no“!**

**Question:** Couldn't **YOU** say anything about CR that is positive (not „positivistic“)?



Overall, CR has strong **similarities to a qualitative or „multi-paradigmatic“ sociology**. To illustrate, in the textbook by Danermark et al. (2019) Habermas, Collins, and Garfinkel are discussed. Coleman and other advocates of AS are not even mentioned.

Compared to AS the **extreme ambiguity of the arguments of CR** is striking. Why are the arguments not formulated in a precise way?.

**Example:** Danermark et al. (2019: 118) formulates as a „fundamental question“: „What properties must exist for [a phenomenon – KDO] X to exist and to be what X is?“ In AS one would formulate specific explananda and ask what the causal factors are. Another example of extreme ambiguities is Gorski 2009.



## Some References About the Literature on CR

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Thanks  
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