

Dieter Wandschneider

## The Problem of Determinism – Freedom as Self-Determination

Published in: Psychotherapie Forum 18 (2010), 100–107

### Abstract

There are arguments for determinism. Admittedly, this is opposed by the fact of everyday experience of autonomy. In the following, it is argued for the *compatibility* of determinism and autonomy. Taking up considerations of Donald MacKay, a *fatalistic attitude* can be refuted as false. Repeatedly, attempts have been made to defend the possibility of autonomy with reference to *quantum physical indeterminacy*. But its statistical randomness clearly misses the meaning of autonomy. What is decisive, on the other hand, is the possibility of *knowledge*, which opens up opportunities for planning, freedom of choice and ultimately '*self-choice*'. Results of neurobiological research, especially Benjamin Libet's and more recently John-Dylan Haynes', seem to refute this: Actions are *unconsciously* initiated *before* conscious decision. But, as Libet has also shown, *consciousness* always has the possibility of a *veto* – and thus also of knowledge-driven action control. Ultimately, the idea of possible self-choice can thus become the *determining condition*. Only such a form of *rational self-determination* establishes a *spiritual identity* and at the same time represents the maximum of *autonomy* possible for human beings.

#### 1. Introduction

#### 2. Fatalistic Consequences?

#### 3. System Autonomy Under Laws of Nature

#### 4. Autonomy Through Knowledge – 'Self Choice'

#### 5. Determination by Unconscious Brain Processes? (Libet Experiments)

#### 6. Free Action – Determined by the Idea of Free Action

#### References

**Keywords:** determinism, autonomy, fatalism, quantum physical indeterminacy, Libet, self-choice, freedom qua self-determination

### 1. Introduction

The problem of freedom has been thought through again and again in the philosophical tradition, but is still unsolved today. 1980 a book has been published by Ulrich Pothast with the provocative title 'Die Unzulänglichkeit der Freiheitsbeweise' (The Insufficiency of Proofs of Freedom) (Pothast 1980). The merit of this work lies in the fact that it goes through – and refutes – all types of proofs of freedom known from the philosophical tradition. Pothast's arguments amount to *determinism*, i.e. the view that everything that happens, including our actions and thoughts, is *determined* by countless factors. This position is to be subjected to closer examination, which will lead to a more differentiated assessment.

This view is disturbing in two respects: On the one hand, we are convinced, according to our self-image, that freedom belongs to the essence of man. Secondly, philosophers believe they have excellent arguments against determinism.

In my opinion, the strongest objection against determinism is the following – it goes back to Heinrich Rickert (1921) and has been further elaborated and specified in the con-

text of Analytical Philosophy (e.g. Boyle/Grisez/Tollefsen 1976 – see also Pothast 1980, Chapter VII). The argument: Truth, i.e. the correct recognition of a fact, is only possible for me if in my recognising I can engage in the factual situation. The prerequisite for this is, however, that I am not determined by extraneous constraints – such as physical factors or my biological-genetic constitution, but also not by prejudices and hardened opinions. Because of such constraints, my recognition would be systematically distorted, not appropriate to the object. Objective cognition would be impossible. In a nutshell, this means: *truth requires freedom*.

Now determinism, as a philosophical theory, claims *truth* itself, which in turn, according to what has just been said, presupposes *freedom*. But determinism denies the possibility of freedom: a contradiction, it seems, which discredits determinism as a logically inconsistent, self-refuting position. The argument appears captivating. It seems to be an absolutely valid objection, which deals the deathblow to determinism. But this consideration does not stand up to closer scrutiny. Praise God, because we are indeed determined in many ways, but we still hope that true knowledge is not impossible, at least in principle (otherwise further considerations would be superfluous here).

In fact, rational thinking has conditions – both logical and empirical: first and foremost, it is subject to *logical rules*. But also the *ability* to follow these rules must obviously be trained. The scientist, too, does not fall from the sky, but is shaped by heredity, socialization, study, etc. He needs a minimum of intelligence, a good education, a lot of motivation, discipline and not to forget: also frustration tolerance and of course a little bit of luck. In short: Also the ability to recognize has its conditions.

But what is the consequence? Freedom for human beings – in traditional terms – is obviously only *freedom of choice*, not *freedom of will*: Freedom of choice refers to the possibility that I can do this or that *as I please*, so *autonomy*. This means, on the one hand, that circumstances do not prevent me from doing this or that; on the other hand, autonomy is rooted in my subject structure, which, as I have said, must be regarded as being determined in many ways: by character, needs, desires and goals, but also by intellectual competence, horizons of understanding, etc. Freedom of will, on the other hand, would mean that my actions are not only independent of external and internal constraints, but also that it would be *independent of myself*, so to speak – undoubtedly an absurd idea. So the only reasonable possibility is autonomy, understood as freedom of choice, which in an essential sense includes conditionality, determination. Is a deterministic conception thus inevitable? In the following I would like to show in several steps in which sense the determination of man, which cannot be denied, not only does not exclude autonomy, but only makes it possible at all – together with a rehabilitation of the above-mentioned argument 'truth requires freedom' (see ch. 6).

## 2. Fatalistic Consequences?

A central problem in this context concerns my *thinking and decision-making*. For if this is determined, this seems to suggest a *fatalistic* attitude: Determination appears as a fate from which I can no more escape than Oedipus can escape his. So didn't I just need to wait and see what happens to me? Because obviously whatever I do, that *must* happen – with all the ethically disastrous consequences.

I'm sitting in a café, for example, and outside in the lake a person is fighting against drowning. As a fatalist I would perhaps say: 'To save him: then I would have to get up and plunge into the water. But I think I am now determined to drink coffee'. I am trying to justify the failure to render help here with an alleged fate. As a fatalist I assume that my future decisions are already fixed now. So, basically, you could also *know them in advance*. Today, the idea that a brain researcher would be able to calculate my future actions based on his research data no longer seems absurd (critical to this Wetzel 2007; more detailed in chapter 5).

Well, a fatalism cannot be justified from there, as an interesting argument shows, which can be found, with different accentuation, for example with Henri Bergson (1911), Max Planck (1936), Karl R. Popper (1950) and Donald MacKay (1978). I would like to reproduce here the thought experiment discussed by MacKay: He starts from the assumption that a neuroscientist is able to precisely measure the state of my brain and to conclude from this on my subsequent actions. It is clear, I think, that this is a maximum assumption, perhaps a bit of science fiction, but we are dealing with a *thought experiment* (but see ch. 6!). So if my actions could be predicted in this way by a scientist, then two cases are possible: (1) He can hide his knowledge from me; then only he knows how I will act, I myself remain unaware of it. (2) Or he tells me his knowledge, and I may or may not believe him. Through the communication, however, my brain state changes and with it also my motivational state and disposition for action, in other words: If the knowledge about my brain state is communicated to me, this knowledge becomes *false* precisely because of this. In the first case, the observer could indeed know my future actions in advance, as long as he does not inform me; but then I myself do not have this knowledge in any case. But in the second case, when he communicates it to me, this knowledge becomes obsolete by the act of communication itself. Howsoever, so everyone himself is *always* in the situation that he basically is not fixed in his future actions by the knowledge of his present state of brain. (A supplement to this is made in chapter 6.) Pothast refers to this case of a knowledge-related non-determination as *epistemic indeterminism*, i.e. indeterminism on the epistemic level (Pothast 1978, 21).

From an *ethical* point of view, the stated matter of fact of an *epistemic indeterminism* is momentous. For the fatalistic argumentation is thereby deprived of the ground. All arguments with an alleged fate of having to do or not having to do something specific are wrong and are therefore in no way suitable for *justifying* actions or omissions. – Only so much here about the ethical aspect, which appears again and again in the context of the problem of freedom, but remains largely ignored here (enlightening on this Bieri 2005, esp. ch. 9).

Now, epistemic indeterminism is a *subjective* indeterminism; any *objective determination* remains unaffected. This would, of course, collide with the *fact of everyday experience of autonomy*, which consists, for example, in the evidence that we *lead* our lives – we plan the day, we work towards a distant goal, yes, with Sartre one could even say in a certain sense: we *design* ourselves. Sure, this is a big word, but compared to the absolute situational dependence of the animal – "close- tethered ... at the stake of the moment", as Nietzsche says (1874, 5) – not absurd. We have seen that there are also many determinants at play. Nevertheless, the possibility of planning one's life remains a fascinating fact that suggests *autonomy*, i.e. freedom of choice according to my subjective plan of action, and the question is then: Is autonomy conceivable in view of the multiple conditionalities in which we exist? Or in short: Is autonomy compatible with determination?

### 3. System Autonomy Under Laws of Nature

In this context at first the *physical aspect* is to be considered (instructive on this issue Earman 1986). The starting point is the consideration that human acts of will are inevitably linked to thought processes and thus brain processes. However, as physico-chemical processes, these are subject to the laws of nature and should thus – according to classical physical understanding – be strictly determined. In this perspective, there seems to be no freedom even in thinking. Physical determinism seems to determine the mind no less than the course of the stars – truly a vision of horror!

One way to escape this consequence seemed to open up with the development of *quantum theory*. If the network of cause and effect is absolutely tightly woven according to classical physics, this is no longer true from a quantum physics perspective. Quantum theory – at least in its established form – contains *indeterministic* elements. It seemed that this was the way to save freedom from the deterministic approach of classical physics.

According to the ideas of quantum physics, there are, so to speak, 'gaps' in the causal network, and it seemed that autonomy could be established in these gaps.

Such a proposal was already made by Pascual Jordan more than 60 years ago (Jordan 1956, 63 ff, 114 ff). A similar argument is still used in the book by Peter Rohs (Rohs 1996, ch. 20 f), who sees the fundamental compatibility of freedom and physics secured by this.

Here, of course, the question arises: What could the quantum-physical indeterminism thus occupied do for the concept of freedom? In quantum theory, strict causality has been replaced by statistical chance. A freedom of human action understood in this way would thus be nothing other than the randomness of roulette-like processes. Could we be satisfied with that? Should freedom be nothing but senseless chance? To save freedom in this way would probably mean sacrificing its meaning. Freedom is hardly to locate in a quantum physical 'gap' in the causal network.

Then however a further question becomes urgent: How can our thinking be subject to physical determination and same time be independent of coincidental environmental conditions (time of day, weather, moon phase etc.), e.g. when it comes to produce correct logical relations? The answer is: Because man, as a physical system, is primarily subject to specific *system laws* that are independent of environmental conditions – within a certain range of fluctuation. Even the television set functions *independently* of the state of the stars.

General: Systems are characterized by inherent laws. This gives them a certain *system-specific autonomy*, i.e. independence from the system environment, but in such a way – this is essential – that physically everything is done with right things. The laws of nature apply unchanged to the system. But it is a *system* precisely because it integrates its elements into the functional unit of the system. These so become *components* of the system, and as such they are not something that is external to the system. Rather, they constitute the system, which in turn depends primarily on *its* components and not on the system environment. In other words: System autonomy simply belongs to the *concept* of the system, it is constitutive for the system *by virtue* of the natural causal relationship constituted by its components. Other, non-classical laws of nature are not required for this, and certainly not a 'gap in the causal network' that would destroy system autonomy at all.

So much for the side of physical determination, which is clearly compatible with autonomy from the environment; I would like to speak briefly of *system autonomy*. With this, a further elementary aspect of autonomy has become visible in the deterministic context.

#### 4. Autonomy Through Knowledge – 'Self Choice'

Now, essential for the relationship between autonomy and determination in man is the possibility of *knowledge*, and that means that he can determine his actions by self-chosen *reasons*. Since reasons belong to knowledge, they have an *ideal* character. As such, they are to be strictly distinguished from *causes* that are *energetic* in character and thus act *causally* on the human physiological and drive system. It is not surprising that this distinction of causes and reasons is one of the central points of the current discussion about freedom of will. For this option of determining oneself through reasons is obviously a genuine human possibility. When in the following we speak briefly of 'knowledge', then this always means *reasons* originating from knowledge, i.e. ideal determinants of action, not energetic causes.

What is decisive here is that the horizon of knowledge extends far beyond the immediate present. Thus, the ability to think and to know represents, in comparison with the animal, a tremendous liberation from the ever factual circumstances. The already mentioned *everyday consciousness of autonomy*, which we have even without philosophy, has its origin in this. Through the detachment from the immediate situation and emotive state of mind, it is possible for me to *lead my life autonomously*, i.e. to plan, to orientate towards

distant goals and to hold this direction even against resistance. Surely, the formation of this autonomy also has determining conditions. But the result of such determination is a gigantically expanded perspective compared to the animal, which we therefore experience as *freedom* rather than determination. In this sense I would like to speak of an *autonomy through knowledge*.

But that is still too general: I have not only world knowledge, but also knowledge of my knowledge, knowledge of myself, *self-consciousness*. So I also know that I *can know*, and that also means that I can expand my ever limited knowledge, that I can shift my limits in this respect almost at will. With this, a further, quite essential aspect of the relationship between autonomy and determination becomes visible: In self-consciousness, in turning back to myself, I discover, *beyond* the possibilities that lie in the ever factual knowledge, that I can make such possibilities possible myself, or in other words: that I can overcome factual limitations and, as it were – à la Sartre – 'design' myself as the person I want to be – a further, unbelievable expansion of freedom of choice, which, with a Kierkegaardian term, has the character of *self-choice*. In the perspective of self-conscious self-choice, I see myself as a being that is not fixed on anything definitively and is therefore autonomous in a *fundamental* sense. This is briefly called *autonomy as self-choice*.

Despite my factual predisposition I am therefore sure that this does not bind me in the end. Certainly, my decisions on how to act are also determined by internalized social norms, but 'when it comes down to it' – that is also certain – I can also question them and, if necessary, replace them with others. In short, nothing is definitively fixed in the perspective of self-choice. It is precisely in this perspective that the consciousness of possibility, which is nevertheless ineradicable despite all undeniable determination, and in this sense a consciousness of freedom, finds its continuing confirmation (for details see Wand-schneider 1979).

## 5. Determination by Unconscious Brain Processes? (Libet Experiments)

Well, this optimism about freedom is now facing massive doubts on the part of brain research. The background to this is the research carried out more than 20 years ago by Benjamin Libet, which was later repeated and confirmed in modified form by Patrick Haggard and Martin Eimer (1999). John-Dylan Haynes has recently reviewed these results again and expanded them considerably (Haynes et al. 2008).

The central point of these experiments is the proof that a supposedly fully consciously executed action is actually initiated *unconsciously* and only becomes conscious *afterwards* – shortly before it is executed. The investigations of Libet and later of Haggard/Eimer showed that ca. 550 milliseconds before the action an action potential is built up, but the *decision* to act only becomes *conscious* ca. 200 milliseconds before the action. According to the consciousness does not *decide* anything, but only registers what has already been unconsciously decided. However, it has no knowledge of this itself. Rather, it is of the unwavering opinion that it has decided freely. Since this is actually not true, it appears from a brain physiological perspective that this supposed freedom is simply an *illusion*, a psychological-cultural construct of consciousness (e.g. Roth 1997, 303 ff; 2004, 218 ff; Singer 2003, 24 ff; Prinz 2004, 20 ff).

That the empirical findings are not artefacts has been confirmed by subsequently conducted extended experiments of John-Dylan Haynes' team and others (Haynes et al. 2008; Schnabel 2008). In the case of Libet and Haggard/Eimer, a button had to be pressed once. In Haynes' improved experiment design, the subject could also choose between right and left hand. The main results of these experiments were: (1) The action potential that initiates the action is built up much earlier than Libet had found, namely not only half a second before the action is executed, but – taking into account various corrections – up to 10 seconds before. (2) The trick was undoubtedly that the neurological measurement could *predict* with a probability far above random whether the action would be executed by the right or the left hand.

You rub your eyes. The thought experiment of Donald MacKay described above is beginning to lose its fictional character and become reality. The unconscious guides my actions. The brain researcher looks at the screen and predicts my decisions. While the argument against fatalism remains valid – if the brain researcher would tell *me* the result of his measurement, I would not be bound to it, but would possibly make new and different decisions – but isn't a human being's *self-choice* made possible by knowledge, as it was previously pretended, from a brain physiological point of view simply a vain illusion, as the neuro-protagonists already mentioned (Roth, Singer, Prinz) never tire of proclaiming?

A hint from Libet himself makes one sit up and take notice: Within the scope of his measurements, after the action is unconsciously initiated and then becomes conscious, there are still 100 to 200 milliseconds left until the action is carried out. This time span, according to Libet, can be used by the consciousness appearing on the neurological stage to *veto* the unconsciously initiated action if necessary (Libet 2007, 177 ff). Libet has also conducted experiments on this which seem to confirm this. In Haynes' project, this Libet hypothesis is also to be newly and comprehensively investigated, which is still pending.

If Libet's view were to be confirmed, I think that would be a fundamentally important point in the debate on determinism. We would then have a situation in which the action, although unconsciously initiated, is, as it were, first presented to the consciousness for 'ratification' before it is carried out. Its function is therefore by no means limited to merely 'nodding off' decisions that have long since been made unconsciously.

Perhaps a maximum of 200 milliseconds does not offer as much leisure as would be desirable for far-reaching decisions, and this is where criticism comes in: "A snap of the finger is not yet a choice of partner", reads the title of Bettina Walde (2004), for example. We all know decision-making processes that drag on for hours, days or even much longer. In such cases the consciousness sees itself called upon to mobilize or even expand its *knowledge* in order to come to a decision appropriate to it. And this is nothing other than the previously pointed process of *conscious self-choice*.

How then? One must remember that the unconscious decision to act as the phylogenetic heritage of all animal subjects is in fact the *normal case*. Consciousness is so to speak the last great invention of evolution. But even before that, animal subjects had to make behavioral decisions, i.e. unconscious decisions that were nevertheless adequate in terms of biological survival. This program is still effective within us; it forms the vital, and that also means: emotional basis for action. It remains – as the Libet experiments testify – also a prerequisite for conscious actions, because consciousness, as already mentioned, is based on it as an evolutionarily late achievement. However, it is essential, as Libet emphasizes, that the result of these unconscious decision-making processes is ultimately presented to consciousness for 'ratification'. Even Singer emphasizes that the human brain is able to "put reactions to stimuli on hold and weigh up decisions to act" in order to "check what the consequences of certain reactions would be" on the basis of "internal models" (Singer 2002, 71).

Well, this opens the window to the reasons of knowledge, which, as explained, can bring its enormous power to bear. More is not needed for the possibility of conscious self-choice. Brain research that seemed to reveal our autonomy consciousness as a cultural construct as an illusion, on the contrary only confirms that option, if understood properly.

## 6. Free Action – Determinated by the Idea of Free Action

With the consciousness of possible self-choice, a decisive novum has now occurred: This awareness of a principled non-fixedness, of an unlimited horizon of possibility itself now becomes a *determinant of my actions*. I act in this way, although in fact determined in many respects, in the awareness of basically unlimited possibilities, and this is an action of a completely different quality than without this awareness: The set of action-determining norms is here, as it were, augmented by a further norm; it reads: 'Choose freely, according to your ability to choose freely'; an attitude, therefore, that knows itself as

autonomy and wants itself as autonomy and is motivated in this way to transite boundaries and prove itself as autonomous (Wandschneider 1979).

The decisive point is therefore: The *autonomy-consciousness itself now belongs to the high-ranking determining factors of my actions* and thus develops a mighty 'determining' force: I will do everything to comply with this norm of autonomous self-choice, which determines my self-image as a human being from the ground up. The idea of freedom is thus not an empty, inconsequential thought, but determines the *real actions* of man, which in this form appears to be downright *determined to autonomy*. Kant's dictum: "Every being that cannot act otherwise than *under the idea of freedom* is really free in practical regard" (Kant GMS 448), touches upon this central point of the problem of freedom.

The possibility of self-choice is thus characterized by the fact that determination and freedom converge, as it were. The undifferentiated talk of 'determination' fails to recognize that determination in the form of self-choice turns into freedom. As long as this is not understood, the problem of freedom necessarily retains an aporetic character.

It should be noted that autonomy realized as self-choice also contains constitutive determination, and is thus freedom of choice, not freedom of will – but it comes hugely close to it. Or should we better say: It is, properly understood, exactly *the* freedom of will that we *actually* have in mind? For pure freedom of will, a will without a *specific* will, in which Schopenhauer is to be right, is an absurdity (Schopenhauer GE, Chap. II, esp. p. 60). But it is also clear that the abstract opposition of freedom and determination is a false alternative. The Pothast-option for determinism mentioned at the beginning, due to the considerations developed, I think, has been more differentiated stated and has thus also undergone a correction. This was here the recognition-leading interest.

So also in self-choice the will is determined, but now it is determined by self-chosen 'mental' determinants, i.e. ideas, principles, reasons, logical bonds etc: Thus, finally, another essential aspect of autonomy becomes visible. The real point here is that this *mental* form of determination can be so strong that I am – for others and for myself – *downright predictable*.

Admittedly, in view of the aforementioned MacKay thought experiment leading to the result that my actions cannot be taken as fixed by my respective brain state, *this* now seems paradoxical. Because the *information* concerning the prediction of my action, as had been argued, will *change* my brain state and thus lead to a changed behaviour. Well, this is apparently *only* true if I do not agree with the result of the prediction that was communicated to me, and that means: if it would contradict my behavioral principles. But for a 'person with principles' this is not to be expected: Certainly for him, too, it remains true that the state of his brain changes with every new piece of information. But telling an 'ethically stable' person: 'you will act ethically' does not contain *any essentially new* information for him; just that he has already known himself, so that his motivation does not change. Or, to put it another way: The 'principle-controlled brain states' – if I may express myself in this way – are, so to speak, characterized by a special constancy, because they are *highest-ranked principles* in the mental hierarchy and therefore cannot be 'swirled' by arbitrary, banal information. MacKay's thought experiment argues abstractly neurologically and is therefore blind to different mental attitudes and especially to the situation of conscious self-determination.

Epistemic indeterminism (see above) has been replaced here, so to speak, by epistemic determinism: By those mental-epistemic principles, action is maximally *fixed*. And at the same time this self-chosen determination means a maximum of *autonomy* – not only the *system autonomy* of the physical level, nor simply *autonomy through knowledge*, but *autonomy as self-choice*, so to speak a determination in the way of a *self-determination for freedom*.

Here it must be remembered that the *mental determinants* mentioned – following Kant, Hegel in particular saw this in all clarity – are in fact not a power foreign to man, who is *spirit* in an essential sense, but *his own being*. To submit to them is therefore not

alienation, but, and this is finally still a Hegelian point, *to be with oneself*. As a spiritual being, I am, so to speak, all the more with myself and in such a way self-determining, the more I orientate myself by the principles that are constitutive for spirit: by the principles of reason and thus of *logic*. Thus the doubts mentioned above (ch. 1) regarding the argument '*truth requires freedom*' are refuted.

This corresponds to the fact that logic itself represents the sphere of absolute autonomy, because and in so far as it cannot be grounded by an illogical instance, as grounding is itself an *innerlogical* relationship, with other words: Logic – logic in a fundamental sense – can only be thought of as *self-grounding, self-determining* – but that is a different issue (on this see Wandschneider 2013, chapters 1.1 and 6.3).

Yet so much is clear that true self-determination can never be *arbitrary*. Only by strict adherence to the principles of reason I can be truly autonomous. Therefore, true autonomy is just as much of a *commitment*: Commitment to the principles of reason and thus essentially reasonable self-determination. Only then, when I bind myself to rational principles, do I, on the one hand, realize the maximum possible autonomy for human beings, and, on the other hand, through this, I first of all gain a *spiritual profile* that is stable in the vicissitudes of life, a *spiritual identity*.

### References

- Bergson, Henri (1911) *Zeit und Freiheit*. Meisenheim am Glan 1949
- Bierie, Peter (2005) *Das Handwerk der Freiheit. Über die Entdeckung des eigenen Willens*. Frankfurt/M. <sup>4</sup>2005
- Boyle, Josef M., Jr./ Grisez, Germain/ Tollefsen, Olaf (1976) *Free Choice. A Self-Referential Argument*. London 1976
- Earman, John (1986) *A Primer on Determinism*. Dordrecht 1986
- Geyer, Christian (ed. 2004) *Hirnforschung und Willensfreiheit. Zur Deutung der neuesten Experimente*. Frankfurt/M. 2004
- Haggard, Patrick/ Eimer, Martin (1999) On the relation between brain potentials and conscious awareness, in: *Experimental Brain Research* 126, S. 128–133
- Haynes, John-Dylan et al. (2008) Unconscious determinants of free decisions in the human brain, in: *nature neuroscience – advance online publication* ([www.nature.com/natureneuroscience](http://www.nature.com/natureneuroscience))
- Hegel, Georg Wilhelm Friedrich (GPR) *Grundlinien der Philosophie des Rechts*. Suhrkamp-Werkausgabe, ed. Eva Moldenhauer und Karl Markus Michel, Bd. 7. Frankfurt/M. 1969 ff
- Hösle, Vittorio (1998) Rationalismus, Determinismus, Freiheit, in: Hösle, Vittorio/ Koslowski, Peter/ Schenk, Richard (ed. 1999) *Jahrbuch für Philosophie Hannover*, Bd. 10, 1999 (1998), 15–43
- Hume, David: *Eine Untersuchung über den menschlichen Verstand*. Leipzig <sup>9</sup>1928
- Jordan, Pascual (1956) *Der gescheiterte Aufstand. Betrachtungen zur Gegenwart*. Frankfurt/M. 1956
- Kant, Immanuel (GMS) *Grundlegung zur Metaphysik der Sitten*, Akademieausgabe Bd. IV
- Leibniz, Gottfried Wilhelm: *Metaphysische Abhandlung*, in: Krüger, Gerhardt (ed. <sup>3</sup>1949) *Leibniz, Die Hauptwerke*. Stuttgart <sup>3</sup>1949
- Libet, Benjamin (2007) *Mind Time. Wie das Gehirn Bewusstsein produziert*. Frankfurt/M. 2007
- MacKay, Donald (1978) Freiheit des Handelns in einem mechanistischen Universum, in: Pothast (ed. 1978), 303–321
- Nietzsche, Friedrich (1874) *Vom Nutzen und Nachteil der Historie für das Leben*. Stuttgart 1951
- Planck, Max (1936) *Vom Wesen der Willensfreiheit*, in: Planck, Max: *Vorträge und Erinnerungen*. Darmstadt 1973



- Popper, Karl R. (1950) Indeterminism in Quantum Physics and Classical Physics, in: British Journal for the Philosophy of Science I (1950)
- Pothast, Ulrich (ed. 1978) Seminar: Freies Handeln und Determinismus. Frankfurt/M. 1978
- Pothast, Ulrich (1978) Einleitung, in: Pothast (ed. 1978), 7–31
- Pothast, Ulrich (1980) Die Unzulänglichkeit der Freiheitsbeweise. Frankfurt/M. 1980
- Prinz, Wolfgang (2004) Der Mensch ist nicht frei. Ein Gespräch, in: Geyer (ed.2004), 20–26
- Rickert, Heinrich (1921) System der Philosophie. 1. Teil: Allgemeine Grundlegung der Philosophie. Tübingen 1921
- Rohs, Peter (1996) Feld – Zeit – Ich. Frankfurt/M. 1996
- Roth, Gerhard (1997) Das Gehirn und seine Wirklichkeit. Kognitive Neurobiologie und ihre philosophischen Konsequenzen. Frankfurt/M. 1997
- Roth, Gerhard (2004) Wir sind determiniert. Die Hirnforschung befreit von Illusionen, in: Geyer (ed. 2004), 218–222
- Schnabel, Ulrich (2008) Der unbewusste Wille, in: DIE ZEIT, 17/2008 S.37 [www.zeit.de/2008/17/Freier-Wille]
- Schopenhauer, Arthur (GE) Die beiden Grundprobleme der Ethik. Zürich 1977
- Singer, Wolf (2002) Der Beobachter im Gehirn. Essays zur Hirnforschung. Frankfurt/M. 2002
- Singer, Wolf (2003) Ein neues Menschenbild? Gespräche über Hirnforschung. Frankfurt/M. 2003
- Walde, Bettina (2004) Ein Fingerschnipsen ist noch keine Partnerwahl. Ein Gespräch., in: Geyer (ed. 2004), 148–152
- Wandschneider, Dieter (1979) Selbstbewusstsein als sich selbst erfüllender Entwurf, in: Zeitschrift für philosophische Forschung 33 (1979), 499–520
- Wandschneider, Dieter (2013) Grundzüge einer Theorie der Dialektik. Rekonstruktion und Revision dialektischer Kategorienentwicklung in Hegels ‘Wissenschaft der Logik’. Stuttgart 2013
- Wetzel, Manfred (2007) Sokratischer Dialog über Hirnforschung. Würzburg 2007