

## Preface

This present volume contains primarily the invited papers of the 28<sup>th</sup> International Wittgenstein Symposium that was held in Kirchberg am Wechsel (Lower Austria) in August 2005. It was dedicated to the topic *Time and History* (*Zeit und Geschichte*) in an interdisciplinary perspective, ranging from the philosophy of time, in the narrower sense, the approaches of the single scientific disciplines, in so far as they are informed by foundational and philosophical issues, to culture and art. As usual, the contributed papers (*Beiträge*) were already published prior to the symposium.<sup>1</sup> While the latter volume contains, in a special section, papers dedicated to all aspects of Wittgenstein's work, the present volume focuses on his views about time. The editors are well aware that both time and history are prominently discussed within the phenomenological and hermeneutic traditions in philosophy. This was well reflected in the contributed papers, as can be seen in the *Beiträge* volume, and in some papers dealing with time and history from a cultural perspective. For reasons of thematic coherence and as a consequence of the general orientation of this book series, however, the editors have given priority to philosophers belonging to the analytic tradition in the broad sense. The editors nonetheless hope to have succeeded in presenting an equally focused and comprehensive picture of the contemporary debates.

We have either too little or too much time. Time goes by either too quickly or too slowly, or simply stands still. Time is omnipresent: in everyday life, philosophy, the sciences, the humanities and the arts. We are presently witnessing a real plethora of popular books dealing with time in cosmology or with the arrow of time against the backdrop of chaos, entropy and com-

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1 *Zeit und Geschichte/Time and History*. Beiträge der Österreichischen Ludwig Wittgenstein Gesellschaft/Contributions of the Austrian Ludwig Wittgenstein Society. Ed. by Friedrich Stadler and Michael Stöltzner. Band XIII/Volume XIII. Kirchberg am Wechsel 2005.

plexity.<sup>2</sup> The fact that physics continues to be so influential on our picture of science in spite of the increasing dominance of the life sciences and of cognitive science indicates that issues of time are of high topicality on many fields of inquiry. Questions regarding the existence, reality or construction, origin and end, linearity and universality of time pervade all scientific disciplines and find manifold expressions in literature and the arts, among them the works of Marcel Proust and H.G. Wells.

Outside the domain of the natural sciences, time typically appears in the guise of history, be it as a moment of artistic perception or as a historical process in its entirety. History involves memory, be it the memory of individuals or of entire cultures. But how is the order of memory related to the order of time? Is memory episodic or is it composed of different time *Gestalten*? What is the role of particular events and historical dates for our conception of time? Today we have almost forgotten to what large extent the year 2000, or Y2K, had become a field of intersection between digital-technological and cultural-apocalyptic visions.<sup>3</sup>

The key role of time as history—as opposed to time as a measurable quantity—within the humanities does, however, not compel one to adopt the notorious methodological divide between *Geistes-* und *Naturwissenschaften*, or the alleged dualism between *Verstehen* and scientific explanation. Most prominently, the French school of the *Annales*, in the form of their concept of *longue durée des temps*, has laid new foundations for an interdisciplinary kind of historical scholarship that is applicable across different epochs.

At the last turn of the century, the so-called second scientific revolution brought the temporality of natural phenomena into the focus of physical

2 Here are just a few titles that indicate what metaphors or rhetoric strategies are used to circumscribe the puzzle of time. Stephen Hawking 1988 *A Brief History of Time: From the Big Bang to Black Holes*, London: Bantam; Julian Barbour 1999 *The End of Time: The Next Revolution in Our Understanding of the Universe*, London: Weidenfeld and Nicolson (with the new subtitle *The Next Revolution in Physics*, Oxford: Oxford University Press, 2001); Paul Davies 1996 *About Time: Einstein's Unfinished Revolution*, New York: Simon and Schuster; Igor D. Novikov 2001 *The River of Time*, Cambridge: Cambridge University Press; David S. Landes 2000 *Revolution in Time: Clocks and the Making of the Modern World*, Cambridge, MA: Harvard University Press; Peter Galison 2003 *Einstein's Clocks, Poincaré's Maps. Empires of Time*, New York: Norton; Huw Price 1996 *Time's Arrow and Archimedes' Point. New Directions for the Physics of Time*, New York: Oxford University Press.

3 „Das Jahr 2000 findet nicht statt“, *Österreichische Zeitschrift für Geschichtswissenschaften* 10 (no. 3), 1999.

science, thus abandoning the Kantian a priori conception of time and the Laplacian ideal of causal explanation according to which each moment of the Universe stood on equal footing. It had in fact been an important motivation for the advocates of the *Geisteswissenschaften* to distance themselves from the mechanistic paradigm expressed in Laplace's demon.

The second law of thermodynamics, the increase of entropy in all physical processes made it possible—at least in the statistical interpretation developed by Ludwig Boltzmann and James Clerk Maxwell during the last decades of the 19<sup>th</sup> century—to pinpoint a physical reason of the unidirectionality of natural processes. Taken at face value, statistical mechanics allowed for local violations of the second law, even in the form of spontaneously recombining glasses, and eventually ended in a global heat death. The new physics also paved the way for a physical cosmology that was starkly different from the Laplacian clockwork universe. As it had been the case with atomism, the physics of time entered the sphere of philosophy and culture. Already Boltzmann compared the lapse of time with a movie—as would do Wittgenstein in his *Philosophical Remarks*. Interestingly, Boltzmann gave an estimate for the number of temporal atoms (or pictures) in a second of this movie. He and many contemporaries emphatically embraced Darwin's theory of evolution, which neatly fitted into this dynamic picture—even though the precise nature of the hereditary mechanism remained open for half a century.

Since the emergence of general relativity and big bang cosmology we know that time itself has a history. But the chronology we are familiar with from our daily life may cease to hold on the large scale. In a year commemorating Albert Einstein's achievements this story has been told frequently, in brief or even briefer terms.<sup>4</sup> And Kurt Gödel's centenary in 2006 has given ample space to amuse oneself about, or contribute philosophical reflections on, the possibility of traveling into one's own past. Furthermore, in nearly all scientific disciplines and in experimental research, from the neurosciences to linguistics, we can today admire the sometimes puzzling aspects of the interdisciplinary and (sometimes even transdisciplinary) "Matter of Time".<sup>5</sup>

From a philosophical perspective, we should perhaps rather speak of a 'long history of time' that dates back to the pre-Socratics, to Plato and Aris-

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4 Cf. Hawking, Stephen and Mlodinow, Leonard 2005 *A Briefer History of Time*, New York: Bantam Dell.

5 "A Matter of Time" was the title of a special edition of the *Scientific American* (vol. 16, no. 1, 2006).

tote. The most frequently cited reference as to the nature of time, however, stems from Saint Augustine, who wrote in the 11<sup>th</sup> Book of his *Confessions*:

At no time then had You made anything, for itself You made. And no time is co-eternal with you, for You stand changeless; whereas if time stood changeless, it would not be time. What then is time? Is there any short and easy answer to that? Who can put the answer into words or even see it in his mind? Yet what commoner or more familiar word do we use in speech than time? Obviously when we use it, we know what we mean, just as when we hear another use it, we know what he means.

What this *is* time? If no one asks me, I know; if I want to explain it to a questioner, I do not know. But at any rate this much I dare affirm I know: that if nothing passed there would be no past time; if nothing were approaching, there would be no future time; if nothing were, there would be no present time.

But the two times, past and future, how can they *be*, since the past is no more and the future is not yet? On the other hand, if the present were always present and never flowed away into the past, it would not be time at all, but eternity. But if the present is only time, because it flows away into the past, how can we say that it *is*? For it is, only because it will cease to be. Thus we can affirm that time is only in that it tends towards not being.<sup>6</sup>

This classical passage leads straight to contemporary philosophy. Ludwig Wittgenstein deals with Augustine's puzzle about time in his *Blue Book*, where argues that the problem of time is primarily a problem of language.

Consider as an example the question "What is time?" as Saint Augustine and others have asked it. At first sight what this question asks for is a definition, but then immediately the question arises: "What should we gain by a definition, as it can only lead us to other undefined terms?" And why should one be puzzled just by the lack of a definition of time, and not by the lack of a definition of "chair"? Why shouldn't we be puzzled in all cases where we haven't got a definition? Now a definition often clears up the *grammar* of a word. And in fact it is the grammar of the word "time"

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6 Westphal, Jonathan and Levenson, Carl (Eds.) 1993 *Time*, Indianapolis: Hackett, 15.

which puzzles us. We are only expressing this puzzlement by asking a slightly misleading question, the question: “What is ...?” This question is an utterance of unclarity, of mental discomfort, and it is comparable with the question “Why?” as children so often ask it. This too is an expression of a mental discomfort, and doesn’t necessarily ask for either a cause or a reason. (Hertz, *Principles of Mechanics*.) Now the puzzlement about the grammar of the word “time” arises from what one might call apparent contradictions in that grammar.

It was such a “contradiction” which puzzled Saint Augustine when he argued: How is it possible that one should measure time? For the past can’t be measured, as it is gone by; and the future can’t be measured because it has not yet come. And the present can’t be measured for it has no extension.<sup>7</sup>

It was quite surprising for the editors that within the enormous and multifaceted body of Wittgenstein scholarship, there has been only little discussion of his views on the issue of time—even in comparison to other themes for which one finds only a small number of passages.<sup>8</sup> In order to enhance the interactions of the topical part of the Kirchberg symposium and the annual section dedicated to Wittgenstein, the editors encouraged the main speakers of the Wittgenstein section to focus on this hitherto neglected aspect of Wittgenstein’s work. Remarkably, also a bunch of contributed papers were dwelling upon this issue, so that the symposium provided for the first time a broader view on “Wittgenstein and time”. (Chapter VI)

Several core tenets of the present philosophical debates, as well as two important aspects of the physics of time, have emerged roughly a hundred years ago. In 1908, J. Ellis McTaggart set the philosophical stage by distinguishing an A-series, in which time actually flows and we have a clear sense of past, present, and future, and a B-series, in which these categories are unavailable and time resembles a spatial coordinate.<sup>9</sup> Although McTaggart’s conclusion that time was unreal has found little approval, a lot of ink has since been spilt in arguing for or against the A- or the B-series. As can

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7 Wittgenstein, Ludwig 1960 *The Blue and Brown Books*, New York: Harper, 26.

8 Two exceptions by prominent Wittgenstein scholars only confirm the rule; Hintikka, Jaakko 1996 “Wittgenstein on being and time”, *Theoria* 62 (1996), 3–18; Bouveresse, Jacques 2003 “L’énigme du temps”, in: *Essais III. Wittgenstein & les sortilèges du langage*, Paris: Agone, 189–234.

9 J. Ellis McTaggart 1908 “The Unreality of Time”, *Mind* 18, 457–474.

be seen from the contributions to Chapter I, present-day metaphysics of time has developed many nuances of the old classification and introduced important distinctions into the debate, among them David Lewis's concepts of perdurance and endurance, and elaborated the problem of identity over time. In this modified form, the alternative between an irreducible temporality of the world and its permanence, for which time is only a fourth dimension, remains on the agenda.

An important aspect of these genuinely philosophical debates is the relationship between a certain metaphysical stance and the results of modern science. This includes the attempts to provide a logical basis for the analysis of temporal phenomena. Chapter V shows that temporal logic is both influenced by game theory when modeling social actions and by special relativity as regards the temporal order of events.

Chapter III deals with the physics of time. Einstein's special theory of relativity in 1905 set out from a critical analysis of the concept of simultaneity. How could the simultaneity of distant events and of observers moving at high speed actually be established by real world instruments, that is, by clocks and by exchanging light signals? In the Minkowski diagram, time plays the role of a fourth coordinate almost on a par with the three spatial ones. When Einstein, ten years later, published his general theory of relativity, space-time became intimately linked to the material events in a certain region and, at least in principle, in the whole universe. The Newtonian concept of space and time, as a container and an absolute order of causal interactions, was shattered. Based on earlier debates concerning the relationship between geometry and physics, relativity theory was now seen as a proof for the conventionality of geometry and as the final farewell to any Kantian synthetic a priori. To a whole generation of physicist-philosophers, most notably the Logical Empiricists, relativity theory became the touchstone of epistemology. And absolute simultaneity served as a paradigm case of an in principle unverifiable and, accordingly, meaningless concept.

It took some time until relativistic cosmology really got off the ground. It began, on the one hand, after Hubble's observation of a red-shift in the spectra of almost all distant galaxies and the discovery of the cosmic microwave background radiation, developments which eventually led to big bang cosmology. On the other hand, in 1949 Gödel published a solution of Einstein's field equations that allowed one, at least in principle, to travel into one's own past. Since then, many other chronology-violating scenarios have been devised, and together with the subsequent discussions about singulari-

ties and black holes, we have come to realize how many possible worlds are consistent with Einstein's general theory of relativity. In a sense, we might perhaps never find compelling evidence for preferring one solution over the other without accepting some philosophical principles.<sup>10</sup> Interestingly, Gödel himself viewed his result as confirmation of a subjectivist notion of time in the Kantian sense.<sup>11</sup> This is quite in line with recent claims that time is unreal. But even if one disagrees at this point, one problem raised by Gödel remains. Must the concept of time and its basic properties be anchored in the basic laws (axioms) of physical theory or is time a property that emerges from these laws or within the evolution of the Universe? This issue becomes particularly pressing in the discussions about the arrow of time in the context of statistical physics.

After Planck in 1900 had applied Boltzmann's statistical mechanics for the derivation of his radiation formula, the discussions obtained a new twist. Did quantum theory and atomism force us to accept indeterminism at the very bottom? Did the second law, rather than being a stranger in the mechanical cosmos, in fact express the most primary property of all natural phenomena, the fact that they are all directed? Remarkably, this was almost two decades before the advent of quantum mechanics. Yet the aspect of quantum mechanics most relevant to the issue of time consists in the question as to whether it is the measurement process itself that breaks the time invariance of the underlying (deterministic) Schrödinger evolution. Quantum field theory, finally, has contributed a new feature to the debates about the arrow of time because in high energy particle physics an inversion of temporal order can be compensated by other symmetries.

The high topicality of the issue of time can be noted also in other areas of knowledge that refer, to a greater or lesser extent, to the philosophical traditions. The wide spectrum of inquiry covered in Chapters III and V includes the ethnography of time cultures, the different historical conceptions of time, the cultural constitution of time,<sup>12</sup> the different *Gestalten* temporality

10 Cf. Ellis, George F.R. 1991 „Major Themes in the Relation between Philosophy and Cosmology“, *Mem. Ital. Ast. Soc.* 62, 553–605.

11 See Chapter (G) in Buldt, Bernd et al. 2002 *Kurt Gödel: Wahrheit und Beweisbarkeit. Kompendium zum Werk* Wien: öbv&hpt. For a contemporary defense of Gödel's views, see Yourgrau, Palle 2005 *A World Without Time: The Forgotten Legacy of Gödel and Einstein*, New York: Basic Books.

12 For a broader discussion of time and history from the perspective of cultural studies, see Chvojka, Erhard et al. (eds.) 2002 *Zeit und Geschichte. Kulturgeschichtliche Perspektiven*, Wien/München: Oldenburg.

can assume, the role of time in the philosophy of history, biological versus script time, and temporality in the arts (including the media of time/time of the media). Among the social aspects of time are the problem of communication, the personal vs. social nature of time, the temporal index of ethical judgments, the emergence of values and the economic aspects of time. It is quite in line with Wittgenstein's approach to time—as exemplified in the above quotation—that two contributions address the issue from a linguistic perspective, both historically and systematically.

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