

One of the most fundamental functions of the mobile has become that of enabling recurrent programme rescheduling while on the move. Mobile communication coordinates people's movements not just in space, but also in time: within the overall framework of fixed public time, windows of personalized time are opening up. My thesis in the present paper is that not just our perception of time has changed thereby, nor indeed merely our way of talking about time. What has changed is, in fact, the *nature* of time. This is a thesis with philosophical import, and indeed in the second part of my paper I will borrow arguments from philosophy to underpin it. But let me first turn to the topic of the radical reordering of time relations as a consequence of mobile telephony.

Temporal versus Mobile Coordination

In his 1934 classic *Technics and Civilization*, Lewis Mumford made a distinction between what he called "mechanical time" and "organic time". As he explained: "[M]echanical time is strung out in a succession of mathematically isolated instants. ... [While] mechanical time can ... be speeded up or run backward, like the hands of a clock or the images of a moving picture, organic time moves in only one direction – through the cycle of birth, growth, development, decay, and death."¹ Later in the book, discussing the consequences of inventions such as the typewriter, the telephone, and the automobile, Mumford claimed that what is effected by "our closer time co-ordination and our instantaneous communication" is "broken time and broken attention".² One way to put what I am arguing for in the present paper is that the mobile phone, rather than breaking up time, gives rise to a new synthesis of "mechanical time" and "organic time".

¹ Lewis Mumford, *Technics and Civilization*, 2nd ed., New York: Harcourt Brace & Company, 1963, p. 16.

² *Ibid.*, p. 272.

At the very beginning of his book, Mumford gave a list of “the critical instruments of modern technology”³. The first two items on this list are the clock and the printing press. Now the two technical inventions whose significance is most plausibly paralleled by that of the mobile phone are the *portable book* and (as analyzed in a series of pioneering works by Rich Ling) the *portable clock*. The portable hand-held book was an innovation, in 1501, of publisher Aldus Manutius. What this innovation enabled was communication, albeit unidirectional, with the absent author, anytime, anywhere; and access to information anytime, anywhere, as long as that information was contained in the books one carried around. The emergence of the portable clock, and the beginnings of the transition from the portable clock to the watch, took place over the course of the fifteenth century. The mechanical clock itself was invented in the thirteenth century. At first, it had no dial but it did strike the hours – it was in fact, as Landes puts it, an “automated bell”⁴ – communicating time within the space of the monastery, or in the public space of the medieval town. The fourteenth century saw the spread of bell towers. Urban society increasingly depended on these; the “striking of the bells brought a new regularity into the life of the workman and the merchant”⁵. With the portable clock, public time could be kept privately, too.

By the nineteenth century, the regularity dictated by public time could no longer be experienced but as a tyranny of fixed schedules. As Georg Simmel wrote in his famous paper “Die Großstädte und das Geistesleben” in 1903 (translated into English as “The Metropolis and Mental Life”): “The relationships and affairs of the typical metropolitan usually are so varied and complex that without the strictest punctuality in promises and services the whole structure would break down into an inextricable chaos. ... If all clocks and watches in Berlin would suddenly go wrong in different ways”, Simmel continued, “all economic life and communication of the city would be disrupted for a long time. In addition, ... long distances ... make all waiting and broken appointments result in an ill-afforded waste of time. Thus, the technique of metropolitan life is unimaginable without the most punctual integration of all activities and mutual relations into a stable and impersonal time schedule.”⁶

³ *Ibid.*, p. 4.

⁴ David S. Landes, *Revolution in Time: Clocks and the Making of the Modern World*, 2nd ed., Cambridge, MA: Belknap Press, 2000, p. 81.

⁵ Mumford, *op. cit.*, p. 14.

⁶ Georg Simmel, “The Metropolis and Mental Life”, in David Frisby and Mike Featherstone (eds.), *Simmel on Culture: Selected Writings*, London: SAGE, 1997, pp. 177 f.

By the last decades of the twentieth century, the rule of the clock became simply impractical in many domains of decentralized mass society, i.e. postmodern society. Ling⁷, in reference to Beniger⁸, points out that the emergence of new transportation systems and the differentiation of social functions rendered the near-instant coordination of small, geographically dispersed groups an increasingly acute necessity. It appears that in the postmodern world, the need for the possibility of frequent rescheduling was there even before the mobile phone, the instrument *par excellence* for changing schedules while on the move, appeared on the scene. To a considerable degree, the mobile actually took over the functions of the clock. The co-ordination of social activity today relies, in no small measure, on mobile negotiation, rather than on keeping pre-defined schedules.⁹ As a consequence, writes Ling, “we move away from a type of linear conception of time in which meetings, social engagements ... are fixed points [in] time”.¹⁰ But let us then ask again: is our *conception* of time changing, or is time *itself*, before our very eyes, becoming something different? This is the question I pursue in the present paper.

Philosophy and the Concept of Time

A Nutshell History of the Philosophy of Time

The history of the philosophy of time begins with the negation of the reality of time by Parmenides and his pupil Zeno of Elea, in the 5th century BC. Zeno’s paradoxes of time – “the flying arrow” and “Achilles

In the sentence “In addition...” I had to modify the translation “would make all waiting” to “make all waiting”. Simmel here is not continuing the speculation about what would happen if clocks went wrong, but is making a straightforward observation to the effect that since in the metropolis one has to travel longish distances to keep appointments, non-punctuality is all the more unpleasant.

⁷ Richard Ling, *The Mobile Connection: The Cell Phone’s Impact on Society*, San Francisco: Morgan Kaufmann, 2004, p. 62.

⁸ James R. Beniger, *The Control Revolution: Technological and Economic Origins of the Information Society*, Cambridge, MA: Harvard University Press, 1986.

⁹ Richard Ling and Birgitte Yttri, “Hyper-Coordination via Mobile Phones in Norway”, in James E. Katz and Mark Aakhus (eds.), *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*, Cambridge: Cambridge University Press, 2002, pp. 143–144. See also Lyn-Yi Chung and Sun Sun Lim, “From Monochronic to Mobilechronic: Temporality in the Era of Mobile Communication”, in Kristóf Nyíri (ed.), *A Sense of Place: The Global and the Local in Mobile Communication*, Vienna: Passagen Verlag, 2005, pp. 267–280.

¹⁰ Richard Ling, *The Mobile Connection*, p. 76.

and the tortoise” are the most notorious – have to this very day not found a truly satisfactory philosophical solution. What these paradoxes strive to show is that regardless of whether time is assumed continuous or discrete, the idea of movement in time leads to impossible consequences. That Plato came to postulate a world of timeless ideas behind the mutable world of phenomena was not independent of Zeno’s arguments. Zeno’s writings have not been preserved, his arguments have been transmitted almost exclusively via the relevant passages in the Aristotelian *Lecture Notes on Physics*. And it is the *Physics* that formulates the first classic paradigm of the philosophy of time, while the second paradigm, a good seven hundred years later, is provided by Book XI of St. Augustine’s *Confessions*. For Aristotle, time is intimately connected to the movements of the heavenly bodies, it is not however identical with movement itself – time is the *measure* of movement, or, as he puts it, the number of movement in respect to the before and after. But can we think of numbers without counting, and of counting without a soul that counts? The question – and with it the question of the reality of time – is left open by Aristotle. In contrast, for Augustine, time in the everyday sense belongs wholly to the subjective inner world: “It is in thee, my mind, that I measure times.”¹¹ Time as something external, objective, is inexplicable, incomprehensible. As Augustine puts it in what is probably the most-quoted passage in the philosophy of time:

What then is time? If no one asks me, I know: if I wish to explain it to one that asketh, I know not: yet I say boldly that I know, that if nothing passed away, time past were not; and if nothing were coming, a time to come were not; and if nothing were, time present were not. Those two times then, past and to come, how are they, seeing the past now is not, and that to come is not yet? But the present, should it always be present, and never pass into time past, verily it should not be time, but eternity. If time present (if it is to be time) only cometh into existence, because it passeth into time past, how can we say that [it] is...¹²

And some paragraphs later: “If an instant of time be conceived, which cannot be divided into the smallest particles of moments, that alone is it, which may be called present. Which yet flies with such speed from future to past, as not to be lengthened out with the least stay. For if it be, it is

¹¹ *Augustine’s Confessions*, transl. E. B. Pusey, Book XI, Chapter XXVII.

¹² *Ibid.*, Chapter XIV.

divided into past and future. The present hath no space.”¹³

Beside the psychologizing philosophy of time in the *Confessions*, Augustine’s system of thought also includes the salvation-historical, eschatological philosophy of time of *The City of God*. Augustine takes issue with the cyclic views of time of the ancients; time lasts from Creation to the Last Judgment, is linear, and cannot repeat itself. During the centuries of the Middle Ages and the Early Modern Age, the Aristotelian and Augustinian paradigms reigned supreme. The first really new approach was that of Newton in his *Philosophiæ Naturalis Principia Mathematica* (1687). Although Newton’s famous formula – “Absolute, true, and mathematical time, of itself and from its own nature, flows equably without relation to anything external” – was meant as a definition, rather than as a statement in natural philosophy, the image of absolute space and absolute time became the world-view that defined thought for two and a half centuries. The alternative formulated by Leibniz in the Leibniz–Clarke correspondence (1715–16), namely that both space and time are entirely relative – space is nothing but the order of co-existent objects, time nothing but the order of successive events – did not have an impact prior to the twentieth century. And in both the nineteenth and twentieth centuries a strong influence is exerted by the Kantian paradigm of the philosophy of time and space, elaborated in *The Critique of Pure Reason* (1781) with the aim of explaining how human knowledge of the Newtonian world, regulated by the laws of nature, is possible. The laws of nature are, in Kant’s view, universal and necessary truths, undiscoverable by sense-perception directed at the particular and the contingent. Kant turned to a kind of Augustinian subjectivism: we can come to know the laws of nature, he insisted, only because it is we ourselves who project the fundamental ordering principles – such as the principle of causality, and specifically space and time as universal forms of intuition, onto the object of knowledge. “Time”, says Kant, “is a necessary representation, lying at the foundation of all our intuitions.” After Kant, the next great change comes with Henri Bergson. In his major works written between 1889 and 1907, he contrasts what he regards as the space-like time of the natural sciences with the innerly-lived flux of *duration* which cannot be divided into parts, but is as it were an unbroken act of the self. What Bergson wants to say becomes almost comprehensible, indeed convincing, in the passages where he turns his arguments against Zeno; Bergson is perhaps the first philosopher who was able to provide an alternative, even if a rather opaque one, to the conceptual presuppositions of Zeno’s paradoxes.

¹³ *Ibid.*, Chapter XV.

The problem of time was a central issue for arguably the two most influential philosophers of the 20th century, Martin Heidegger and Ludwig Wittgenstein. Indeed for the early Heidegger, who in 1927 published his famous *Sein und Zeit*, “Being and Time”, it was *the* central issue. Heidegger’s fundamental idea, that *to be is to be in time*, is best interpreted as a secular version of the Christian doctrine of fallen humanity’s temporal journey to eternity. Heidegger’s preoccupation with St. Augustine,¹⁴ in the years preceding the composition of *Being and Time*, is telling. There is a temporal end facing us humans, Heidegger stresses, namely *death*; for us, being is *being towards death*. Hence time is, essentially, finite, having meaning precisely because it is finite. To live meaningfully, authentically, is to live a life defined by one’s *future*, namely death. By contrast, the ordinary human being’s life is “a fleeing *in the face of death*”, with time construed as an infinite succession of “nows”; to the very end the inauthentic human being plays an act: “it always has more time”.¹⁵ The concept of time as emerging from philosophy and the natural sciences is, for Heidegger, of a piece with the ordinary human being’s inauthentic understanding of temporality. Heidegger again and again attempts to show that time is neither “objective”, as taken for granted by the natural sciences, nor “subjective”, as maintained, say, by Augustine and Kant. Time is not an illusion; on the contrary, it is the most basic reality there is. However, in the last analysis, Heidegger does ground time in the individual human being’s temporality. And his brilliant analyses certainly suggest that it does not make sense to assume that time has a kind of independent, unchanging nature.

Heidegger was not the only one upon whom Book XI of Augustine’s *Confessions* had a profound effect; it also engaged the later Wittgenstein. In Wittgenstein’s view, the problems philosophy traditionally deals with are spurious; so-called philosophical problems arise by misunderstanding the logic of everyday language. And the argument Augustine developed, seduced by the image of time as a continuous stream, Wittgenstein probably took to be an exemplary case of such misunderstanding. As he puts it:

It’s strange that in ordinary life we are not troubled by the feeling that the phenomenon is slipping away from us, the constant flux

¹⁴ See esp. Martin Heidegger, *Der Begriff der Zeit*, ed. by Friedrich-Wilhelm von Herrmann, Frankfurt/M.: Vittorio Klostermann, 2004.

¹⁵ Martin Heidegger, *Being and Time*, transl. by John Macquarrie and Edward Robinson, Oxford: Basil Blackwell, 1962, pp. 474 and 477.

of appearance, but only when we philosophize. This indicates that what is in question here is an idea suggested by a misapplication of our language. – The feeling we have is that the present disappears into the past without our being able to prevent it. And here we are obviously using the picture of a film strip remorselessly moving past us, that we are unable to stop. But it is of course just as clear that the picture is misapplied: that we cannot say “Time flows” if by time we mean the possibility of change.¹⁶

The basic case of misunderstanding the logic of language is of course when we are misled by the role of substantives as such – when we are led to believe that the given substantive, as a meaningful word, necessarily refers to a somehow existing *thing*, of which the substantive is the name. “Think how the substantive ‘time’”, writes Wittgenstein, “can delude us into imagining a medium; how it can lead us astray, so that we chase after a phantom. (‘But here *isn’t* anything! – But here is not *nothing!*’) – Or think of the problem: We can measure the duration of an event, and still it is not present.”¹⁷ All these problems are, Wittgenstein believed, just specious. As he put it to his students in 1935, proper philosophy consists in the recognition that, say, “there is no more difficulty about time than there is about this chair”¹⁸

Let us note in passing that although both Heidegger and Wittgenstein were deeply interested in the problem of human communication, their interest did not extend, it seems, to the particular topic of the telephone. With regard to Heidegger, I already noted in an earlier volume in this series¹⁹ that he would hardly have found the mobile phone to his

¹⁶ Ludwig Wittgenstein, *Philosophical Remarks*, transl. by R. Hargreaves and R. White, Chicago: The University of Chicago Press, 1975, p. 83. The remark was written on 23 Dec. 1929. In his lectures in 1932, this was how Wittgenstein formulated the matter: “Discussion of ‘the flow of time’ shows how philosophical problems arise. Philosophical troubles are caused by not using language practically... Once conscious of ‘time’ as a substantive, we ask then about the creation of time.” (*Wittgenstein’s Lectures, Cambridge, 1932–1935*, ed. by Alice Ambrose, Oxford: Basil Blackwell, 1979, p. 15.)

¹⁷ MS 142, see *Wittgenstein’s Nachlass: The Bergen Electronic Edition*, Oxford: Oxford University Press, 2000, the remark was written in 1936. An earlier, similar remark: “Seduced by substantives, we believe in Substance. ... What is time? – the error is already contained in the question, as if the question were: of what, of what material, is time made?” (Ludwig Wittgenstein, *The Big Typescript: TS 213*, ed. and transl. by C. Grant Luckhardt and Maximilian A. E. Aue, Malden, MA: Blackwell Publishing, 2005, p. 365e.)

¹⁸ *Wittgenstein’s Lectures, Cambridge, 1932–1935*, p. 119.

¹⁹ Kristóf Nyíri (ed.), *Mobile Communication: Essays on Cognition and Community*, Vienna:

liking. First, because the mobile phone is a high-tech machine, and Heidegger regarded machines as an outcome of instrumental-alienating thinking. Secondly, he had no time for mobility, especially for the mobile scientist accommodating himself to the technological age. “The scholar disappears”, writes Heidegger. “He is succeeded by the research man... The research man no longer needs a library at home. Moreover, he is constantly on the move. He negotiates at meetings and collects information at congresses.”²⁰ Wittgenstein, too, was disgusted by the type of the negotiating philosopher, but he felt at home with machines – originally he wanted to become an engineer. The telephone, however, clearly did not catch his fancy. In World War I he served with the artillery, and was often sent up to the observation-post. In retrospect he complained bitterly about “the constant shouting into the field-telephone”.²¹ In the over ten thousand pages of his manuscripts there is almost no trace of the telephone. All one finds are two remarks. The first, written in early 1930, an odd observation to the effect that “one can transmit talk, but not measles, by telephone”, to illustrate the point that thought cannot be used as it were “to make an extension of experience”.²² The second, written some two to four years later, is more interesting: “Where does the significance of language come from? Can one say: ‘Without language we could not communicate with each other’? No. This case is not analogous to: Without the telephone we could not talk from Europe to America. ... The concept of language is *included* in the concept of communication.”²³

Passagen Verlag, 2003, pp. 11 f. See also the reference there to Alexander Roesler’s excellent essay “Das Telefon in der Philosophie: Sokrates, Heidegger, Derrida”, in Stefan Münker and Alexander Roesler (ed.), *Telefonbuch: Beiträge zu einer Kulturgeschichte des Telefons*, Frankfurt/M.: Suhrkamp, 2000.

²⁰ Martin Heidegger, “The Age of the World Picture” (1938), in Heidegger, *The Question Concerning Technology and Other Essays*, New York: Garland Publishing, 1977, p. 125.

²¹ Brian McGuinness, *Wittgenstein: A Life. Young Ludwig, 1889–1921*, London: Duckworth, 1988, p. 240.

²² The remark in full: “Philosophers who think that one can as it were use thought to make an extension of experience, should think about the fact that one can transmit talk, but not measles, by telephone. – Nor can I experience time as limited, when I want to...” (MS 107, see *Wittgenstein’s Nachlass*; the remark is repeated in TS 209 [1930], and found its way also into the bunch of typescript clippings that was eventually published by Wittgenstein’s literary executors under the title *Zettel* [§ 256].)

²³ *Wittgenstein’s Nachlass*, MS 114, p. 173.

Time as a Theoretical Entity

How can one avoid making time seem a “*queer thing*”,²⁴ and still build up meaningful discourse about what time *is*? The philosophical strategy I believe to be the most promising here is to regard time as a kind of *theoretical entity*, in the specific sense the important American philosopher Wilfrid Sellars gave to this term. The point where Sellars’ view of the nature of theories differs most significantly from that of, say, Carnap, Reichenbach, and Hempel, is his conviction that science is “continuous with common sense”. As he puts it: “the ways in which the scientist seeks to explain empirical phenomena are refinements of the ways in which plain men, however crudely and schematically, have attempted to understand their environment ... since the dawn of intelligence”.²⁵ It is within the framework of everyday observational discourse that certain unobservable entities are first postulated, entities in terms of which certain properties of observable events become explainable. According to Sellars, time is just such a postulated entity, with “events in Time (or Space-Time) as metrical abstractions grounded in the reality of changing substances”.²⁶ There emerge “rules for coordinating statements concerning empirically ascertainable metrical relations between episodes pertaining to the things of everyday life and science, with statements locating these episodes, relatively to other episodes, in time, that is, with statements having the characteristic syntax of statements ‘about time’”.²⁷ The advance of science, the physical theory of time, will tell us *what* time is,²⁸ but this advance has been underway all through the cultural evolution of humanity, from primitive thought through Plato, Aristotle, and Augustine, to modern and contemporary philosophy and physics.²⁹

A great advantage of the specifically Sellarsian interpretation of time

²⁴ Ludwig Wittgenstein, *The Blue and Brown Books*, Oxford: Basil Blackwell, 1958, p. 6.

²⁵ Wilfrid Sellars, *Science, Perception and Reality*, London: Routledge & Kegan Paul, 1963, pp. 181–183.

²⁶ Wilfrid Sellars, “Autobiographical Reflections”, in Hector-Neri Castañeda (ed.), *Action, Knowledge and Reality: Critical Studies in Honor of Wilfrid Sellars*, Indianapolis: Bobbs-Merrill, 1975, p. 282.

²⁷ Wilfrid Sellars, “Time and the World Order”, in Herbert Feigl and Grover Maxwell (eds.), *Minnesota Studies in the Philosophy of Science*, vol. III, Minneapolis: University of Minnesota Press, 1962, pp. 551 ff.

²⁸ *Ibid.*, p. 593.

²⁹ As Whitrow puts it: “out of man’s primeval awareness of rhythm and periodicity there eventually emerged the abstract idea of world-wide uniform time” (G. J. Whitrow, *The Natural Philosophy of Time*, London: Thomas Nelson, 1961, p. 58).

as a theoretical entity is that it allows for an amalgamation of social time, or time as a social construct, with astronomical time, or time as a construct of the physical sciences. The classic statement as to the originally social nature of time of course comes from Durkheim. It is clear, Durkheim wrote, that those indispensable fixed points with respect to which all things are temporally organized are the products of social life; it is the periodicity of rites, feasts, public ceremonies, to which the division into days, weeks, months, years, etc. corresponds. Time, as opposed to duration, is time as lived by the group – *social time*; it is time, as Durkheim puts it, “tel qu’il est objectivement pensé par tous les hommes d’une même civilisation”.³⁰ *One and the same civilization* – it should be stressed that this is a dynamic, rather than static, notion. Let me quote at some length the decisive sequel to Durkheim’s argument, by Sorokin and Merton:

The local time system varies in accordance with the differences in the extent, functions, and activities of different groups. With the spread of interaction between groups, a common or extended time system must be evolved to supersede or at least to augment the local time systems. ... The final common basis was found in astronomical phenomena... Thus, the social function of time reckoning and designation as a necessary means of coordinating social activity was the very stimulus to astronomical time systems...³¹

Scientific experiences and deliberations on the one hand, and experiences pertaining to time economy in everyday social and individual life on the other, all play a role in the constitution of time as a theoretical entity. The latter experiences are increasingly defined by the phenomenon of mobile coordination – the emergence of personalized time. This phenomenon is, to my mind, more decisive than the one Castells calls *timeless time*. As he puts it:

[L]inear, irreversible, measurable, predictable time is being shattered in the network society... we are not just witnessing a relativization of time according to social contexts or alternatively the

³⁰ Emile Durkheim, *Les formes élémentaires de la vie religieuse*, Paris: Alcan, 1912, Intr., sect. II.

³¹ Pitirim A. Sorokin and Robert K. Merton, “Social Time: A Methodological and Functional Analysis”, *American Journal of Sociology* 42 (1937), in Pitirim A. Sorokin, *On the Practice of Sociology*, ed. by Barry V. Johnston, Chicago: University of Chicago Press, 1998, p. 204.

³² Manuel Castells, *The Information Age: Economy, Society and Culture*, vol. I: *The Rise of the Network Society*, Oxford: Blackwell, 1996, p. 433.

return to time reversibility... The transformation is more profound: it is the mixing of tenses to create a forever universe ..., timeless time, using technology to escape the contexts of its existence...³²

However, the truly fundamental transformation in the world of communications today is the triumphant progress of the mobile phone. It seems that this is also the conclusion Castells arrives at in his new book, *Mobile Communication and Society*.³³ And the position Castells has apparently come to embrace is that mobile communication does not further aggravate, but much rather *alleviates* the condition of timeless time.

³³ Manuel Castells, Mireia Fernández-Ardèvol, Jack Linchuan Qiu and Araba Sey, *Mobile Communication and Society: A Global Perspective*, Cambridge, MA: MIT Press, 2007.