



The Mediatization of Third-Time Tools: Culturalizing and Historicizing Temporality

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Time and media have multiple interfaces as media shape temporalities while changing through history. In three steps, this article explores how cultural time is mediated and how it changes through history. First, Paul Ricoeur's hermeneutics is presented as a fruitful way to understand cultural time as "third time," mediating between lived, subjective time and cosmic, objective time. Clocks, calendars, generational successions, archives, and documents are third-time tools linking internal to external time flows and producing text-based intersubjective temporality. Second, Ricoeur's analysis needs to be historicized. After discussing mediatization and its temporal development, the concept of waves is proposed to bridge the concepts of leap and growth. Particular attention is then paid to the latest, digital wave of mediatization. Referring to John Durham Peters and other media historians, some characteristics of this phase of time remediation are listed. Finally, critical, and political aspects are discussed, concluding that, although new technologies may threaten third time, this threat is counteracted by remediation that links digital time back to inherited modes of temporal representation.

Keywords: media, mediatization, temporality, cultural time, history, Paul Ricoeur

Time and media have multiple interfaces as media shape temporalities while changing through history. Cultural time is intrinsically mediated by communication technologies that evolve and thereby transform temporality. The main goal here is to explore some crucial aspects of that process, paying attention to the media that make cultural time and suggesting a provisional inventory of such media. This is done by weaving together the literature on cultural time and mediatization.

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The double movement of culturalizing and historicizing temporality is traced in three steps. The first, culturalizing step involves acknowledging what Paul Ricoeur has called "third time," which bridges subjective and objective time. Ricoeur's critical hermeneutics provides a promising cultural perspective on time, being a philosophy of communication centered on mediation. It is also in form a communicative philosophy, evolving in dialogue with others rather than through radical exclusion. Therefore, arguing for the relevance of Ricoeur's work is an introductory side theme here. The medium concept itself also needs to be discussed in this context to justify the idea that cultural time rests on media practices.

The second, historicizing step then considers how to put this cultural time in motion by confronting Ricoeur's ideas with those of media historians such as John Durham Peters. I discuss the relevance and problems of the concept of mediatization in this respect. The final section discusses how third time has been affected by digitalization, and is where I will again defend a hermeneutic perspective and insist that even the most abstract digital machinery is susceptible to being narrativized, mediatized, and culturalized.

Introducing Third Time

Temporality is often theorized as either subjective experience of transient flow or objective physical processes of change, or as a polarity between the two. Ricoeur likewise first opposes subjective, personal, or lived time to objective, universal, or cosmic time. On one hand is "phenomenological time" or "the time of the soul," which is "lived as centered-decentered around the living present"; on the other hand is physical or "cosmological time" or "the time of the world," which can be represented in terms of "points and intervals and physical movement" (Ricoeur, 1986/2008, p. 207).

Ricoeur then adds historical or cultural time as a third dimension that dialectically combines and bridges the other two. Lived and cosmic time becomes meaningful by using communication practices that construct a *third time*: intersubjectively shared or *cultural time*. Narrations make time meaningful by elaborating "a third time—properly historical time—which mediates between lived time and cosmic time" (Ricoeur, 1986/2008, p. 99), linking but also transcending them (Ricoeur, 1985/1988; see also Fornäs, Becker, Bjurström, & Ganetz, 2007).

This focus on symbolic mediation unites hermeneutics, semiotics, and cultural studies—for instance, when David Harvey (1990), referring to Dilthey and Durkheim, argues for recognizing "the multiplicity of the objective qualities which space and time can express, and the role of human practices in their construction" (p. 203). In *The Philosophy of Symbolic Forms*, Ernst Cassirer (1923/1955) argued that symbolic forms of culture let subjective emotions and objective forms "merge with one another and so gain a new permanence and a new content," thereby questioning any "rigid dogmatic distinction between the subjective and the objective" (p. 93). In addition:

Cognition, language, myth and art: none of them is a mere mirror, simply reflecting images of inward or outward data; they are not indifferent media, but rather the true sources of light, the prerequisite of vision, and the wellsprings of all formation. (Cassirer, 1923/1955, p. 93)

The wish to go beyond the subject/object dualism has a long trajectory, including Kant, but in the 20th century, the wish is crystallized into cultural theories that effectively deconstruct such traditional binaries. Susanne K. Langer (1953), in *Feeling and Form*, discussed the "virtuality" of "signifying forms," including music's sonorous forms that move in relation to one another, creating virtual time that simulates experiential time.

The capacity to make something absent symbolically present defines human meaning making and thus culture. Ricoeur (1983/1984) emphasizes the role of *narrative* as a genre dedicated to organizing events into comprehensible temporal forms, arguing that "time becomes human time to the extent that it is organized after the manner of narrative; narrative, in turn, is meaningful to the extent that it portrays the features of temporal existence" (p. 3). Narratives bridge lived and cosmic time through "emplotment," organizing dispersed events into ordered discourse. Through poetic configuration, individual events are linked to one another, making temporal flows meaningful. Through narrative mediation, virtual time connects temporal experience with physical change, transforming the past into history.

Historically, cultural time is the third level of temporality, assuming that cosmic and inner times existed before human culture evolved. Logically, however, cultural time is primary: Once humans have entered the symbolic order of culture (phylogenetically in the history of humankind or ontogenetically in each individual life), including third time, then the first and second orders of time can be only approximated as liminal or hypothetical constructions, interpretable only through the third, which problematizes any "rigid dogmatic distinction between the subjective and the objective" (Cassirer, 1923/1955, p. 93).

Third-Time Tools

Cultural processes such as narration use specific material *tools* for constructing third time: clocks, calendars, generational successions, archives, documents, monuments, and traces.

History initially reveals its creative capacity as regards the refiguration of time through its invention and use of certain reflective instruments such as the calendar; the idea of the succession of generations . . . ; finally, and above all, in its recourse to archives, documents, and traces. These reflective instruments are noteworthy in that they play the role of connectors between lived time and universal time. (Ricoeur, 1985/1988, p. 104)

These intersubjective mediators for socializing experienced time and humanizing cosmic time synchronize temporal moments of subjective and objective temporal rhythms and flows—for instance, the experience of day/night or seasonal shifts with precise physical measurements of light or temperature. They rely on media technologies that make time meaningful by identifying homologies between the two other temporal registers. They differ in how they construct third time and in which sense they may be regarded as media of communication.

The *clock* combines a regular pulse generator with a visual or audial interface. Its representation of time derives from night/day rhythms that link experienced to cosmic time (Ricoeur, 1980). Cultural time combines flows and breaks in rhythmically pulsating progressions, dividing flows into units and linking moments into sequences. Already Aristotle associated time to movement, cosmic rhythms to the human soul, and physical to lived time. Third time emerges from combinations of internal and external pulsating flows, whereby cosmos is experienced from a human horizon through shared symbolic representations. Organizing successive moments into units of 12 or 60, projected onto a circular interface, clocks reconstruct and make meaningful the flow aspect of time, balancing cyclical with linear aspects on different scales; representing processes that lived and cosmic time have in common; and combining flows and pulses in a more abstract, regular, and rational way than in experience or nature.

John Durham Peters argues that calendars and clocks belong to a class of "logistical media" (2013, p. 33) that deeply structure human life. They establish cultural "zero points" (2015, p. 37) of orientation and organization, which, by appearing neutral and given, become even more powerful, as they supplement "more obvious media that overcome time (recording) and space (transmission) and produce messages and texts" (2015, p. 176): In fact, all media "record, transmit, and organize" (2013, p. 42, thus filling "the three main functions of recording, transmission, and logistics" (2013, p. 42). The clock is therefore a power machine coordinating people's actions. Peters builds on Lewis Mumford (1934), who described how medieval monasteries used clocks to synchronize actions of individuals and enforce a collective order:

The clock . . . is a piece of power-machinery whose "product" is seconds and minutes: by its essential nature it dissociated time from human events and helped to create the belief in an independent world of mathematically measurable sequences: the special world of science. (p. 15)

Edward P. Thompson (1967) described similarly disciplining uses of clocks at work on a mass scale some centuries later in early industrialism and urban culture.

However, by themselves, clocks are too abstract for third-time formation. Langer (1953) criticizes the clock for being "metaphysically a very problematical instrument" since it makes "a special abstraction from temporal experience, namely *time as pure sequence*" (p. 111, emphasis in original). Clocks are necessary for "synchronizing practical affairs, dating past events, and constructing some perspective of future ones" (p. 111), but they simulate time experience in an abstract way as a "one-dimensional, infinite succession of moments" (p. 111). They remain caught in circular abstraction, calling for supplementing tools to differentiate successive instances of specific times.

Next, Ricoeur regards the *calendar* as the most important third-time maker: "The time of the calendar is the first bridge constructed by historical practice between lived time and universal time," and its institution therefore "constitutes the invention of a third form of time" (1985/1988, p. 105). Calendars add an institutionalized political force that synthesizes social and astronomical aspects. "A calendar is a grid, but a clock is a pointer," and they work on different scales: "A calendar deals with temporal units from the day on up; a clock deals with units smaller than the day," writes Peters (2015, pp. 213, 215).

For Ricoeur (1985/1988), both involve "an interpretation of signs" (p. 183) linking the individually lived present to collective, dated sequences. However, calendars have a stronger culturalizing force by enabling temporal narration.

This third time finds its privileged expression in the invention of the calendar, upon which rests what has been called calendar time. The calendar originated, in fact, at the juncture of astronomical time, based on the motion of the stars, and the unfolding of daily life or festive occasions, based upon biological and social rhythms. It harmonizes labors with days, holidays with seasons and years. It integrates the community and its customs into the cosmic order. (Ricoeur, 1986/2008, p. 209)

Calendars make three things, according to Ricoeur (following Benveniste, 1966/1971): (1) Unlike clocks, calendars start with marking out a "founding event" (Ricoeur, 1985/1988, p. 106) as a beginning that makes it possible to date every other event, serving as "the zero point for computing chronicle time" (p. 233–234). (2) Calendars add a moment of inscription or writing that distances and spatializes the representation of time and makes it possible to move forward and backward between past, present, and future. This is impossible in physical time but is made possible in cultural time, where calendar texts make the real absent symbolically present through remembrance of the past and imaginative projection of the future. (3) Calendars integrate clock-based divisions, offering "a repertoire of units of measurement" (Ricoeur, 1986/2008, p. 209) based on recurrent cosmic phenomena and thus further linking phenomenological and physical time modes.

[Dating makes] an anonymous instant coincide with a quasi present, that is to say, with a virtual today in which we can transport ourselves in imagination. The date also confers a position in time to all possible events in relation to their distance from the axial moment. . . . By the date, finally, we can situate ourselves in the immensity of history. . . . This is the median position of calendar time; it cosmologizes lived time, it humanizes cosmic time. (Ricoeur, 1986/2008, p. 209–210)

These three features combine "an explicit relationship to physical time" in the use of astronomical observations with "implicit borrowings from lived time" (Ricoeur, 1985/1988, p. 107). Calendars mark a decisive step in the mediatization of time, enabling both distanciation and reflexivity. Chronicle time is a signifying device for coordinating periodic astronomical events with human modes of experience, thereby synchronizing and mediating between individual subjectivities, collective sociocultural institutions, and physical nature, which "surpasses the resources of both physical and psychological time" (Ricoeur, 1985/1988, p. 108). It develops through a series of compromises between astronomic and biological cycles, mathematical abstraction, and embodied human experience.

Calendars thus narrate and culturalize time by identifying beginnings and directions, constituting the triad of past, present, and future. However, this narrative order is not as uniform as Ricoeur's formulations may sometimes suggest but are contested and contradictory. Walter Benjamin (1950/1969) contrasted the concept of history as "progression through a homogeneous, empty time" (p. 261) with that of "time filled by the presence of the now [*Jetztzeit*]" (p. 261), which does not just mean the present in

general, but a “time of the now” (p. 261) that evokes the past, just like fashion “is a tiger’s leap into the past” (p. 261)—a dialectical “leap in the open air of history” (p. 261). Benjamin argued that “calendars do not measure time as clocks do; they are monuments of a historical consciousness” (pp. 261–262) by having an “initial day” that, like a holiday, is a day of remembrance. To Benjamin, calendars are instruments of power that also enable critique and change by the window they open up for “a present which is not a transition, but in which time stands still and has come to a stop” (p. 262), which can “blast open the continuum of history” (p. 262)—“the ‘time of the now’ which is shot through with chips of Messianic time” (p. 263).

Clocks can be incorporated into various media, but are they really media of communication? Though media historians expand the concept of medium to include all these, this goes beyond standard media studies’ definitions (this is further discussed in Fornäs et al., 2007, chap. 7). If a medium is an artifact that mediates, this can apply to almost anything, because all human communication is mediated in a double sense: by material carriers (light, sound, etc.) and symbolic coding (languages, genres, etc.). Whereas anything can be used for communication, media add a third level of mediation: through institutionalized technologies primarily used for communicating.

If culture is signifying practice, media are dedicated technologies of culture or “machineries of meaning” (Hannerz, 1992, p. 26). Clocks and calendars are technologies for communicating cultural time; hence, they are institutionalized technologies for communication—that is, media. They are just specialized on one narrow type of content: time flows (clocks) or historical events (calendars). They are too limited and narrow to attract attention from media scholars, in a similar way as with, for instance, queue tickets or number plates.²

Calendars are texts that form a media genre, but clocks, too, may be counted as media, used for measuring time. Ricoeur explains that this is no binary exchange between a subject and an object; rather, it is based on communicative and cultural processes coordinating multiple interactions. Emily Keightley (2012) argues that “time is not only mediated; our experience of it is always in some way *intermediate*, or produced in our active engagement with these temporal articulations in a given social context,” resulting in an “intermediate time” (p. 221; emphasis in original), which is not private but shared by interacting subjects.

Ricoeur’s third tool for culturalizing time is the succession of *generations*. This is a mode of social organization of people and artifacts whereby, for instance, media users, texts, and machines are grouped into generational units based on the “relationship between contemporaries, predecessors, and successors”: “It is this replacement of the dead by the living that constitutes the third-time characteristic of the notion of a succession of generations” (Ricoeur, 1985/1988, p. 109). It implies the coexistence of living people with memories of no-longer living people and plans for not-yet living people, but also the coexistence among living people by cohorts born in different periods and therefore with different

² Whether money can be defined as medium is a complicated issue of how to balance communicative with resource-allocating functions.

experiences and histories, in a kind of “uncontemporaneous contemporaneity.”³ There are, of course, generations of media, and generational cohorts can be shaped by media uses, but generations in general hardly qualify as media and are less relevant here than in Ricoeur’s argument.

Calendars and generations finally interact with *archives of documents* and *monuments* that formally order and organize material things.⁴ Archives are institutionally organized sets of documents aiming to preserve and store but also label, order, and interpret them as *traces* of the past, transforming temporal sequences into history. Ricoeur (1985/1988) writes:

If archives can be said to be instituted, and their documents are collected and conserved, this is so on the basis of the presupposition that the past has left a trace, which has become the monuments and documents that bear witness to the past. (p. 119)

“People pass, their works remain. But they remain as things among other things. . . . So the trace combines a relation of significance . . . and a relation of causality. . . . The trace is a sign-effect. These two systems of relations are interwoven,” and it is this “double alliance of the trace” that enables it to connect the two perspectives on time, enabling it to be conserved as “a dated document” (p. 120). There is a crucial connection between trace and dating, because following a trace means reconstructing its significance by synthesizing “the print left here and now” with “the event that occurred” (p. 124).

Like calendars, documents are mediated texts in archives. Hence, they are tools for communicating, representing, and narrating time. Such processes take place in most cultural practices—literature, drama, film, and music—that internalize cosmological temporalities in subjective experience while externalizing experiential flows in material audiovisual structures shared with others. However, the tools Ricoeur lists are specialized on this particular function.

Detour Through Space

Time is intrinsically linked to *space*. In 1937, Mikhail Bakhtin (1937/1981) coined the term *chronotope* to indicate “the intrinsic connectedness of temporal and spatial relationships” (p. 84). They are not opposites; rather, they are both involved in dialectics of internal, external, and culturally shared dimensions (elaborated in Fornäs et al., 2007, chap. 9, relating to Massey, 2005). Ricoeur (2000/2004) explains that, where cultural time mediates cosmic and experiential time, cultural space is “a geometrical checkering of lived space, like a superimposition of ‘places’ on the grid of localities” (p. 150). “Third space” mediates between abstract, geometric space and the concrete, experiential or lived spatiality of “places.” Locating and inhabiting space to make it a meaningful place is parallel to dating and narrating time.⁵ Through mapping, naming, inscriptions, architecture, landscaping, and other modes of localization and

³ See Benjamin (1950/1969), Bloch (1954–1959/1986), and Koselleck (1979/1985). Hepp (2013) discusses how communicative figurations can be studied by comparing media generations.

⁴ The material aspect is emphasized by Ernst (2013), the structural one by Foucault (1969/2002).

⁵ Bieger (2015) argues that narrative is crucial not only for temporality but also for spatial dwelling.

inhabiting, people link nodes in space to memories and imagination, symbolizing them in representations that signify space as an open set of networked places linking individual experiences to geometric coordinates.

Ricoeur (2000/2004; see also Fornäs et al., 2007) describes a "kinship between memories and places" (p. 41), an "inseparable tie between the problematics of time and space" (p. 41) indicated by the linked phenomena of dating (calendars) and localization (maps). The act of inhabiting is "the strongest human tie between the date and the place" (p. 42), one culturalizing temporality, the other culturalizing spatiality. Historical time bridges lived and cosmic time, geographic space develops in the crossroads of lived and geometrical space, resulting in a chronotopic "system of places and dates" (p. 148).

To the dialectic of lived space, geometrical space and inhabited space corresponds a similar dialectic of lived time, cosmic time and historical time. To the critical moment of localization within the order of space corresponds that of dating within the order of time. (p. 153)

"As compass is to map, so clock is to calendar" (Peters, 2015, p. 214). The *compass* needs to be combined with a *ruler* to correspond to the clock's ability to not only define the direction of time but provide a scale of measurement. The *map* fixes the relative measurements of a compass in a way slightly similar to the way that the calendar stabilizes the relativity of the clock, with again three basic traits: (1) Unlike compasses, maps mark out fixed points of orientation in space, making it possible to locate oneself in relation to the surrounding world. Map coordinates construct a focal zero point in relation to which each other position can be compared. (2) Maps add distancing inscription that makes it possible to visually confront the landscape as a separate object and move virtually in all directions from place to place across it. Maps make distant sites symbolically present through virtual representations of the absent. (3) Based on compass and ruler, maps enable divisions into units, offering a scale and a repertoire of measurement units, making it possible to estimate distances in objective space and translate them into bodily experiences of movement across space.

To the temporal concept of generation can be suggested the spatial concept of *cohabitants* in geographical spaces, grouping people and things according to their relative positions within mapped frames. Archives, documents, and monuments also have spatial parallels, where, for instance, *signposts* name and point toward places. The concept of *trace* is finally a key connector between time and space, because traces are spatial results of past events.

Hence, tools for time and space management form a double series of mediating, communicative artifacts that are either themselves media of communication or closely linked to media machines, texts, or institutions. Dating and placing use communicative technologies to organize symbolic orders of narration and of inhabitation, culturalizing time and space, connecting subjective experience with physical externality and meaning with materiality.

Introducing Mediatization

The mediation of time has thus far been regarded as a “timeless” cultural practice of all human civilization. Key aspects of temporality certainly have deep roots going back to the origin of human societies and linked to basic functions of signifying practice. Still, if cultural time is a mediator between external and internal time and socially constructed by means of technological tools for communication, then it must also change due to media developments. Third-time tools evolve over centuries as a result of social and technological transformations. This demands a double effort to acknowledge, on one hand, the centrality of mediation for historicity and, on the other, the historicity of such mediating practices (Schwarz, 2004). The communicative tools for mediating time need to be *historicized* in terms of not just the momentary *mediation* of time in each instant but the historically transforming *mediatization* of time.

The concept of mediatization targets how changes in mediated communication interrelate with changes in culture and society, indicating that media are increasingly influential (Hepp & Krotz, 2014; Lundby, 2014). It is a more precise term than media history, which does not imply any specific temporal direction. Mediatization indicates a cumulative *increase* in the embeddedness of society by communication media. The concept has given rise to interdisciplinary debate on media-related social transformations, but it also been problematized, not least for too-grand claims of being a unified metatheory or paradigm. It appears more fruitful to regard it as an open agenda, inviting further specification in various directions (Ekström, Fornäs, Jansson, & Jerslev, in press), such as: (1) Which are the causes and effects of mediatization? Rather than assuming a unified “media logic,” comparative specification is needed. (2) Which areas and aspects of levels of society does mediatization mainly affect? This requires interdisciplinary and non-media-centric research. (3) Is mediatization global or regionally specific? Geographical comparisons need to be made. (4) Finally, how does mediatization develop over time—and in turn affect time? When does mediatization arise or peak, and along which historical contour does it develop? Which are the key decades? Is there a gradual transformation or a datable historical shift from a premediatized to a mediatized world? Can there also be periods of demediatization? Historicization is required, comparing different moments and tracing long-term changes. How should such complex patterns of change be understood? How might we map the temporal form or *time of mediatization*?⁶

Two extremes clash in the current debate. Some describe mediatization as a sharp epochal shift, others as a long-term evolutionary process (Fornäs, 2014a, 2014b; Lundby, 2014). Leaning toward the former, Stig Hjarvard (2013) defines mediatization as “a *condition or phase* in the overall development of society and culture, in which the media exert a *particularly dominant influence* on other social institutions” (p. 13; emphasis in original), finding it confusing to use the same term for other epochs and preferring to link it to “a particular period of history” (p. 155). Here, mediatization is a 20th-century shift from a premediatized to a media world. This relates to the concept of media logic, introduced by Altheide and Snow in 1979 but later criticized for collapsing diverse media functions into one single determining logic. At the opposite side of the spectrum, Friedrich Krotz (2014) sees mediatization as “a *meta process, that*

⁶ Otherwise divergent authors such as Hepp (2013) and Deacon and Stanyer (2014) have called for empirical studies of mediatization history.

has accompanied humanity since the invention of communication" (p. 148; emphasis in original), where instead of supporting a singular media logic, different media are multiple and dynamic constructions.

After mutual debate, the proponents tend to converge or open up to each other, as Andreas Hepp (2013) has noted. The Bremen scholars accept that there may be certain crucial steps or leaps in the long-term historical curve of mediatization, while Hjarvard (2013) recognizes long-term processes, suggesting there may be moments of "de-mediatization of particular social institutions, making them less influenced by the media and more dominated by other types of steering logic" (p. 155). This problematizes the idea of linear growth and that of an irreversible epochal leap. Can, then, mediatization at all be described as a quantitative growth of media influence, or is it rather a set of qualitative shifts in how media relate to other spheres, in which case it might make more sense to talk of media history than of mediatization? Theories of modernization, individualization, globalization, and other concepts for complex sociocultural transformations have encountered similar dilemmas: Do they form datable historical breaks or long-term cumulative processes? Are they unitary processes or complex pluralities of subprocesses? This discussion continues.

A third metaphor can be suggested for the time of mediatization, different from both *leap* and *growth* but linking them into one conceptual arc. This is the metaphor of an open-ended chain of *waves*.⁷ Through such a lens, writing, print, audiovisual media, and finally digital networks are emblematic for consecutive waves of mediatization, each affecting wide social and cultural spheres. Like cultural time in general, waves combine linear and cyclical traits and may mediate historical breaks with long-term continuities. Waves come and go, never exactly similar but contributing to the long-term erosion that subtly transforms the coastline. By their spiral movement, repetitive circles interlink and gradually transform reality. Strong waves of mediatization induce quantitative and qualitative shifts on many different levels. In between, minor shifts sometimes strengthen the role of media and at other times challenge them or integrate them into other sociocultural configurations. However, thinking in terms of waves is nothing original or new, and it cannot solve all problems arising from metaphors of leaps and growth. One should, for instance, avoid any dichotomization of media (as water) and society (as shoreline) or regard the latter as rigid. It also remains an open question what is the wind that propels these waves. Media practices of communication may belong to the more flexible strata of social life, but all aspects of society are in fact transient. Each metaphoric model offers affordances that make certain aspects visible while hiding or distorting others. Further research and theorizing is needed to better understand the temporal dimension of mediatization processes.

Mediatization is complicated by what Jay Bolter and Richard Grusin (1999) called *remediation*, forcing each new medium to not only supersede its predecessors but reuse many of their functions and forms to make itself recognizable for its users, thus keeping some of inherited aspects alive in new settings and new formats. Each wave of mediatization affects many levels of economy, politics, culture, and everyday life but is simultaneously shaped by those social institutions. The ordinary everyday

⁷ Applied in Fornäs (2014b). Aquatic or liquid metaphors are often used in modern cultural theory, for instance in Fornäs (1995).

practices in particular have a stubborn capacity to reintegrate challenging new media forms, which may be interpreted as a form of demediatization (Löfgren, 2009).

Mediatizing Time

There is a vast literature on the history of time-making tools, from Edward P. Thompson's to John Durham Peters' research on clocks and calendars in social history; yet few explicitly talk of a *mediatization* of time.⁸ All third-time tools have long histories, emerging at different times and changing with each new mediatizing wave. Peters dwells longer than Ricoeur on the material aspects of media, but whereas this would problematize earlier, "romantic" hermeneutics, Ricoeur's critical version is potentially only enriched by such phenomenological analysis, because he recognizes the need for making detours through various modes of explanation, including structural and material analysis, as a means of reaching a deeper understanding of textual meanings (Fornäs, 2012a). However, creatively combining critical hermeneutics with mediatization history demands some mutual adjustment. Ricoeur's focus on writing and print media calls for further discussion, but here primarily his historically unspecific accounts invite revision.

Ricoeur rarely dates his examples, but narrative, writing, and third-time tools are not historically invariable. Clocks, calendars, and archives evolved from basic modes of inscription that developed gradually, with the first human symbolic artifacts and graphic cave inscriptions appearing around 70,000 years ago and evolving into numbers, figurative images, and other symbolic systems. Images and pictorial and finally alphabetical writing (combining visual signs with oral talk) installed moments of externalization into human communication in a series of interrelated mediatizing waves that expanded the capacity for (and inescapability of) distanciation between previously inseparable communicative elements such as sender, receiver, text, and context.

The most ancient calendar known is some 10,000 years old. More than 5,000 years ago, writing enabled the transition from prehistorical to historical time. Sundials and water clocks were invented at roughly that time. Though today essential to human existence and society, they result from early forms of protomediatization. There is some directionality in this process, implying a successive growth in the complex richness of these inherited tools for temporal mediation. Time consciousness was affected when clocks got second pointers or were synchronized nationally and globally; when calendars were rationalized according to new astronomic knowledge; or when generations were translocally linked by radio, TV, film, and music events. In modern mass societies, coordination was increasingly needed, and mechanical clocks became key symbols of modernity. Clocks, calendars, and archives have since been numerically multiplied, widely disseminated, and increasingly precise.

Time Effects of Digitalization

The most recent mediatizing wave—that of digitalization—has vastly increased the compression and convergence of information (Fornäs, Klein, Ladendorf, Sundén, & Sveningsson, 2002). Compression

⁸ For examples of such histories, see Thompson (1967), Johansen (2001), Rösen (2007), Glennie and Thrift (2009), Rosenberg and Grafton (2010), and Peters (2015).

expands capacities for storage over time and speed of transmission, both of which affect third time. Convergence makes intermedial interaction denser between technologies and between genres. This made clocks *miniaturized, precise, integrated* in other devices, *globalized*, and more *abstract*. Many such changes in time management have historically long gone in the same direction, as noted by scholars from Harold A. Innis to John Durham Peters. However, digitalization has made possible considerably higher levels of compression and convergence, resulting in intensified efforts to reculturalize today's increasingly complex machine times. There are today clocks in every device, whether visible or hidden. They are omnipresent rather than autonomous machines. This development has been made possible by the switch from mechanical to atomic processes as the basis for pulse generation and on the use of numerical (digital) rather than graphic (analog) interfaces. Lance Strate (1996) has discussed "cybertime" as the most recent mode of "virtual time," with the computer acting as both clock and medium, while Anna Reading (2012) argues that digital clocks take part in globalization by disembedding and disconnecting lived experience from specific contexts.

There is a temptation to let the digital universe erase traces of cultural time's combined experiential and cosmic pulses. Ricoeur (1980) warns that the manner in which traditional clocks represent time is derived from the night/day rhythms that link cosmic to experienced time, "but when the machines used to measure time are cut off from this primary reference to natural measures, saying 'now' is turned into a form of the abstract representation of time" (p. 174). Similar to Langer's above-mentioned critique of abstract machine time, Vivian Sobchack (2004) expresses nostalgia for "a unique historical experience" (p. 325) that gets lost when digital technologies such as QuickTime through compression and fragmentation cut up continuity and undermine human agency. Mark Davis (2013) fears that "interpassive" behavior undermines human capacities. This reminds us of Nick Couldry's (2014) warning that the compression and acceleration of Big Data may erode people's capacities of understanding time.

In 1998, the Swiss clock firm introduced Swatch Internet Time as a decimal time concept, dividing the mean solar day into 1,000 "beats" and discarding time zones, cutting all links back to experiential day/night shifts. However, this abstract construction remained a short-lived marketing gadget that was never widely used. The traditional division into time units (365 days and 12 months per year, 12 plus 12 hours per day, 60 minutes per hour, 60 seconds per minute, etc.) as well as the circular clock face have stubbornly remained in use, testifying to the need for a link to the compromise between cosmic and lived time that was the original basis of clocks, serving as technological infrastructure for cultural third time. The decontextualizing and deculturalizing push from digital abstraction feeds a *reculturalizing* response that remediates previous time formats and inherited signifying practices, thereby continuing to make mediatized temporality socially meaningful. The laptop interface continues to be a virtual writing desk, where clock time is symbolized digitally and analogically. Waiting for a computation, the screen displays a nervous pendulum, sand running down an hourglass, a circular movement, or pointers ticking clockwise—symbolic images to make users understand that time is supposed to pass by remediating images of old-time clocks. The pendulum and the second hand resonate with embodied memories of breathing and walking rhythms while simultaneously marking physical units subdividing the solar day and year. In this way, time continues to be interpreted through symbols that link atomic pulses with human experiences, and thus integrate new time tools into the continuous flow of culture.

Digital mediatization has transformed *calendars* from the fixed material form of print media into more fluid Internet logs and time lines. They have been automatized, compressed, precise, integrated, globalized, and abstracted. Euro banknotes, for instance, exemplify calendars incorporated into other cultural artifacts, as each currency value has motifs of cultural epochs from Roman Classical to modern 20th-century style, forming a typically European “money story” that emerged as a synchronizing synthesis of corresponding national histories (currency symbols are analyzed in Fornäs, 2012b, chap. 8). Whereas traditional calendars mixed local with universal aspects, current ones are rationalized to focus on globally relevant events, such as the annual solar cycle. Increasing abstractness decontextualizes time from particular local situations, which can undermine the capacity for mediating lived experience with cosmic processes, but there are again stubborn counteracting factors that testify to the continued relevance of third-time practices.

José van Dijck (2013) mentions how Facebook’s Timeline was introduced in autumn 2011 in response to a need to construct coherent stories out of the abstract digital archive of postings in a vast database. These time lines certainly make temporal processes more flexible than in print media, but they continue to uphold the three central functions of classical calendars: providing orientating zero points, allowing spatialized movement in both directions between past and future, and suggesting measuring units for dating any online event. This exemplifies how machine time is renarrativized, answering to deep needs to not only live but understand time. Time lines narrativize what would otherwise appear as an antinarrative and antihermeneutic development of spatial-structural digital archives that could risk cutting off links back to the bridging of cosmic and experiential time. Atomic clocks and computer logs first seem to cut off roots in human experience, but narrativizing media practices continue to culturalize these seemingly nonembodied and abstract technological temporalities and make them meaningful.

Recent mediatization processes have transformed *archives* from dusty storehouses into searchable databases. Andrew Hoskins (2014) argues that, in the current phase of mediatization, “archives have become networked—part of a new accessible and hyperconnected memory” (p. 671) with “a new networked ‘coevalness,’ of connectivity and data transfer” (p. 673), resulting in a radical transformation of “the very condition of ‘memory’” (p. 675). Lev Manovich (2001) describes database and narrative as “natural enemies” (p. 199) in opposition to each other. They are “two competing imaginations, two basic creative impulses, two essential responses to the world” (p. 205). He argues that their interrelation changes in computer culture, where they can interact in new ways, and he admits that both strive for meaning: “Competing to make meaning out of the world, database and narrative produce endless hybrids” (p. 206).

Documents preserved in today’s archives are likewise digitized, even though the links back to other kinds of material artifacts such as papers or physical things often remain a frame of reference and source of legitimacy. Minimizing the material form of information has multiplied storage capacity. The omnipresence of digital representation and the acceleration of transmission speed makes the passage from ordinary usage to archive faster, which—combined with expanded information storage capacity—results in a fast-growing ability to document the world. This massiveness of digital documentation is supplemented with an increasing fragility of preservation as old information systems age and become obsolete at an alarmingly fast pace. This is a situation where “everything durable wears down and

everything transient leaves a trace" (Peters, in press; see also Hoskins, 2014). On one hand, humanity leaves more and more traces of its activities; on the other hand, the means for reading them tend to pass into oblivion with ever denser generational shifts in media technology that make it difficult to reassure that they will be readable in the future. Stone tablets, parchment rolls, or printed books survived thousands of years, while tapes, discs, and other forms of digital memory techniques are more vulnerable to physical deterioration and also rely on deciphering tools that are increasingly often replaced by new models that cannot read older formats. These difficulties—and the intense exploration of means to solve them—testify to the continued need for making archives and documents accessible and interpretable. Ricoeur (1985/1988) argues that digitalized documents remain bound to traces and to collective memory: "The scientific use of data stored in and manipulated by a computer . . . constitutes only a long methodological detour destined to lead to an enlargement of our collective memory" (p. 118).

Digital convergence not least opens up for chronotopic crossings of time and space, realizing in everyday practices the time-space imagined by relativity theory. Online communicative events are placed in a virtual Internet space and dated by their occurrence relative to a fixed scale of time. To organize the imaginative universe of such events demands a series of space-mapping and time-logging activities—for instance, by mobile GPS systems that tend to fuse the two dimensions. People inhabit online territories by naming and ordering them according to recognizable logics, which fuels processes of remediation. By designing interfaces between users and media technologies, and by choosing metaphors by which to name and describe them, space and time are being culturalized and made meaningful. Jay David Bolter and Diane Gromala (2003) have explained how talking about online universes in terms of windows, mirrors, or frames open up different options for how to understand online-off-line relations. *Window* is the metaphor for immediacy, where the medium makes itself transparent and invisible. *Mirror* emphasizes how online technologies reflect their users and their off-line worlds. *Frame* puts the delimiting functions in focus and highlights that what is done in any technology is a construction of a virtual space, not a transparent window to external reality behind the screen, nor an undistorted reflection of the world in front of it. This is just an example of how naming, localization, mapping, and virtual landscaping inhabit and culturalize cyberspace (Fornäs et al., 2002).

Mediatizing processes relate to new communication technologies, but not as a simple accommodation of local idiosyncrasies to rational measure standards. They also involve new social relations that involve struggles and negotiations. For instance, the national, international, and finally global synchronization of local clock time implied a rationalization and standardization of cultural temporality that threatened to disconnect it from lived experience but still through the system of time zones retained that link enough to continue to make time meaningful. This was not smoothly accomplished in technocratic consensus, but rather through social conflicts in each step. The mediatization of time by communication technologies such as clocks and calendars is always a political issue. Different social groups and institutions have different relations to different technologies as well as to time and history. Historical shifts from one clock time or calendar to another are accompanied by power struggles within and between societies. One contemporary example is when extremist terrorists eradicate cultural heritage that precedes their own preferred historical calendar. Cultural time thus leans on media technologies that are always embedded in social relations of power: "A medium of communication has an

important influence on the dissemination of knowledge over space and over time" (Innis, 1949/1950, p. 33), and the control over space and time has always been central to state authorities (see Innis, 1950).

Three Conclusions

Through time-space compression (Harvey, 1990) and intermedial convergence, digital media subtly restructure time consciousness, in what Emily Keightley (2012) calls "zones of intermediacy" in which different temporalities are combined. They add new instruments for culturalization, but also risk creating overload and breakdown of the cultural tools for interpreting time and space under a double pressure. Objectivizing megasystems of time-space management creates an overload of storable information, which, together with an overload of overwhelming subjective experience, squeezes the intersubjective cultural tools of interpretation into a shrinking middle zone of mediating signifying practice that needs to be defended. Handing decision power over to Big Data processing may lead to a loss of meaning—a *time-space flattening* that shrinks the hermeneutic significance of any sequence of events. Often-mentioned examples are the instantaneous digital availability of old news items and documents, which may erode users' awareness of historical processes, or the presence of all clock times at once in global interactivity on the Web.

However, there are counteracting factors: tenacious everyday routines and forms of resistance to such technologically flattening or designifying time regimes. The talk of an imminent "end of history" is premature.⁹ It makes little sense to squeeze late-modern transformations into any simple formula, though this is a temptation for those who prefer all-explaining keywords such as *acceleration* or *denarrativization*. Instead, there are increasingly many parallel temporalities that not only synchronize but intersect and *pluralize* time, as intellectual historians Reinhart Koselleck (1979/1985) and Helge Jordheim (2014) have argued. Computer screens culturalize atomic processes into recognizable shapes according to the combined circular and linear logics of clock and calendar. The whole narrative of new media refers to successive generations of users, texts, and technologies, making processes of change meaningful by ordering them into chronological phases. The online world is full of archives, documents, and other traces that mark the pace of time; signify abstract time flows; and help users connect individual experiences with cosmic rhythms and thus construct a shared, cultural time narrative. Likewise, tools for spatial culturalization—such as those of mapping, naming, and landscaping—have online versions that widen the scope of those existing off-line rather than erasing them. Through dating and narrating, mapping and inhabiting, people culturalize online time-spaces, mediating between technical materiality and cultural meaning, physical objects and individual experience. If anything characterizes recent times of mediatization, it is the coexistence of a widened set of time tools and temporal representations rather than any more specific single trend.

Three conclusions may be drawn. First, there is not just one coherent time flow. Nor does it suffice to consider two parallel times, one lived and experienced and one cosmic and measurable. They are linked and transgressed by what Ricoeur usefully defines as *third time*: the intersubjective, narrative,

⁹ See Leccardi (2003) and Keightley's (2012) critique of Rosa (2005/2013).

historical, cultural time that has meaning. This *cultural time* is based on communicative mediation through a series of *time tools*: clocks, calendars, generational shifts, archives, and documents.

Second, consecutive *mediatization waves* have interacted with corresponding transformations of temporal consciousness, calling for historical investigations of how the third time has developed, which goes beyond Ricoeur's work. Some tendencies have been particularly prominent in the latest wave of mediatization, which is based on digitalization and computer networks: compression, precision, convergence, integration, globalization, and abstraction.

Third, the intensified push toward decontextualizing abstraction threatens the reproduction of third time, which is crucial to human societies. However, it also gives rise to strong counterforces that by *remediation* and *reculturalization* refine and strengthen those media-cultural tools that third time uses to bridge lived time with cosmic time and thereby make them meaningful. Therefore, the temporal effects of the late-modern mediatizing wave cannot be reduced to any simple formula, except perhaps as a third-time *pluralization* that could lead to eroding fragmentation but is more likely to strengthen people's reflexive consciousness.

I have applied but also historicized ideas from Paul Ricoeur's critical hermeneutics in relation to the temporal coordinates of media-related social change. Mediatization processes serve as a testing ground for understanding the two-way traffic between time and media. The calendar of historical time is crisscrossed by mediatizing waves, which induce technosocial changes that in turn subtly transform the formation and mediation of cultural time and the understanding of temporality itself.

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