1am–5am: Tokyo, Urban Rhythms and The Politics of Train Schedules[1]

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TEMPORAL VOID

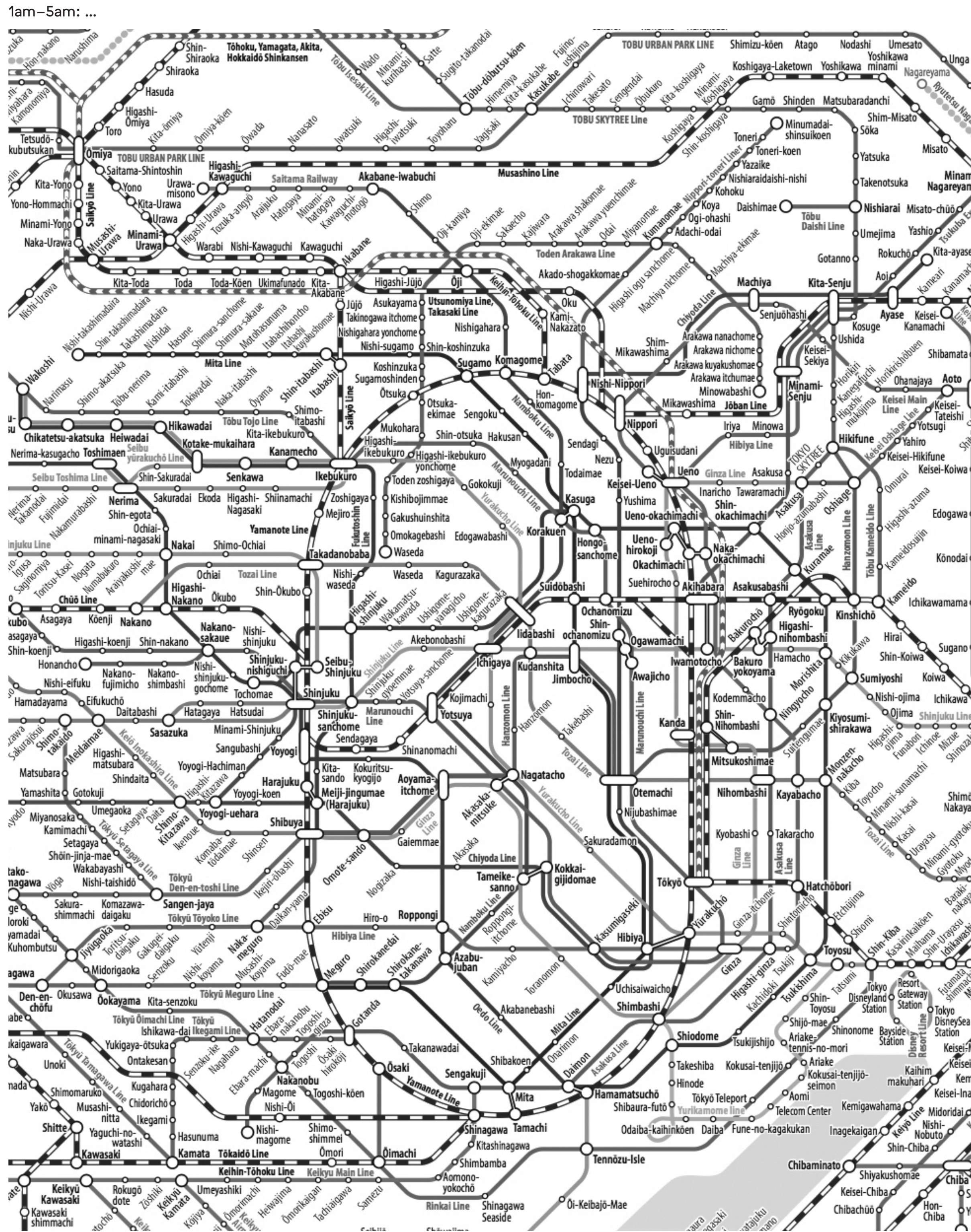
At the centre of our discussion is arguably one of the most significant yet underexplored voids at the heart of the major cities in Japan: the temporal void of approximately four hours, which occurs between the last train on any day and the first train of the following one. Many cities, including Tokyo, have witnessed debates in recent years about their competitiveness as "always on" 24-hour global cities. In these debates "night" is often characterized as a temporal void, a comparatively unproductive urban time that might be better utilized to improve the city's economic position as well as urban experience. This article argues that such a view is institutionally biased, as it marginalizes or ignores the everyday experiences of city inhabitants and is also a misunderstanding of the broader temporal and spatial context of "night" and the apparent void it creates.

In urban studies, planning, and architecture, the void is a central trope, yet it is typically understood in primarily spatial terms. Empty spaces, gaps, fissures in the urban fabric, and fragments of nature frequently offer the potential for instigating new, often subversive, critical interventions into lived environments.[2] However, in limiting attention to primarily spatial notions of the void, a more significant and influential aspect of major Japanese cities—the temporal rhythms that structure and inform urban activity—is problematically underplayed.

As a solution to this theoretical impasse we draw on Henri Lefebvre's concept of "rhythmanalysis" and Thrift and May on "timespace" to specifically examine the void produced every twenty-four hours by the regular cessation of train service in Tokyo. Doing so enables us to generate an alternate political conception of that nightly void not as a spatio-temporal "other," but instead as a productive instance of the dense polyrhythms of city living.

INTRODUCTION

> If one attentively observes a crowd during peak times, and especially if one listens to its rumour, one discerns flows in the apparent disorder and an order which is signaled by the rhythms: chance or predetermined encounters,



Greater Tokyo railway system, detail. Adapted from JR's 'Suica/ Pasmo Network Map'.

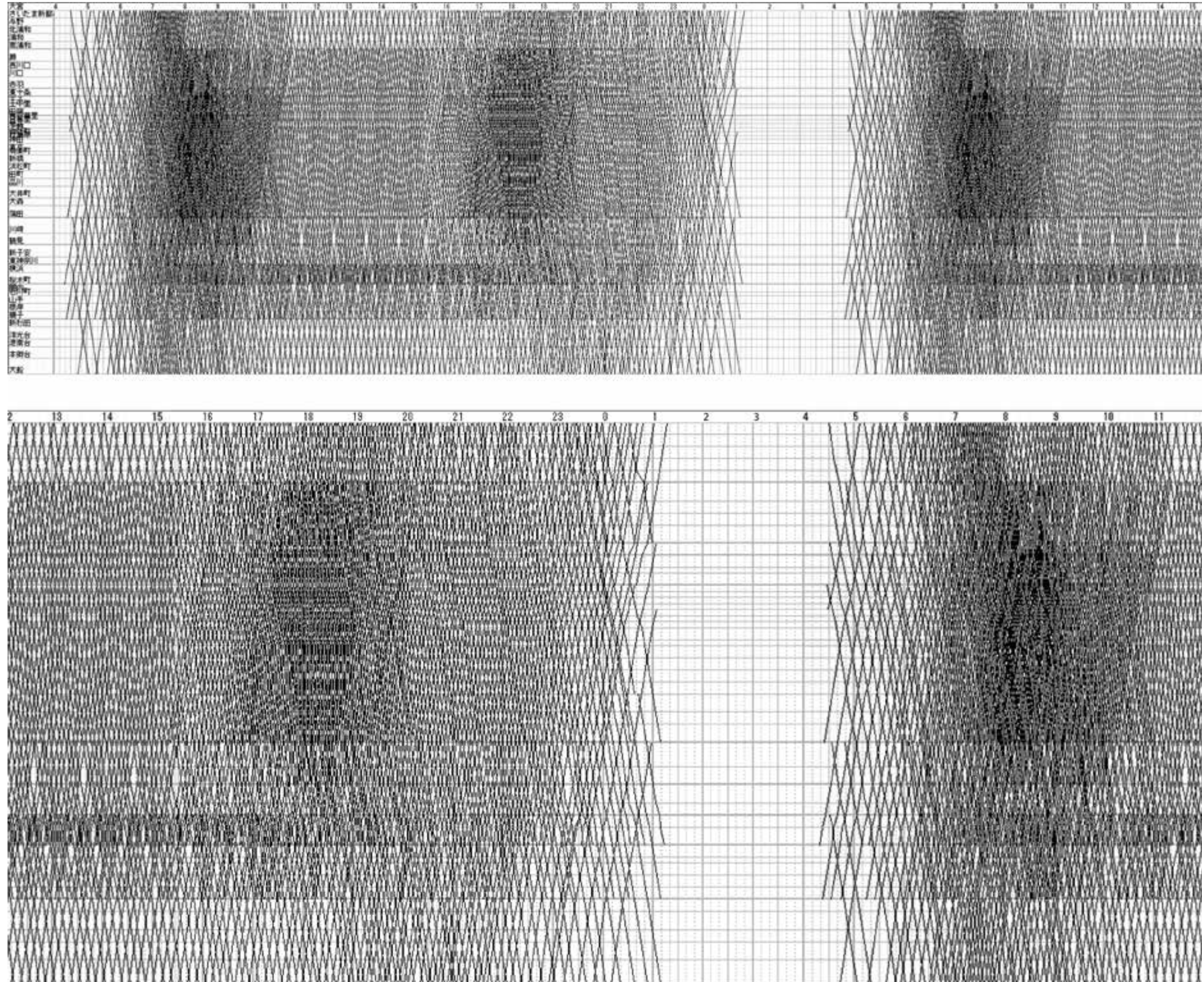
> hurried carryings or nonchalant meanderings of people going home to withdraw from the outside, or leaving their homes to make contact with the outside, business people and vacant people—so many elements which make up a polyrhythmy. [...] Every rhythm implies the relation of a time with a space, a localized time, or if one wishes, a temporalised place. Rhythm is always linked to such and such a place, to its place, whether it be to the heart, the fluttering of the eyelids, the movements of the street, or the tempo of a waltz. This does not prevent it from being a time, that is an aspect of a movement and a becoming.
> —Henri Lefebvre[3]

Every 24 hours in Tokyo, around midnight, a familiar ritual is enacted. As train services cease for a period of approximately four hours during the night, the city experiences a fundamental shift in its patterns of commuter circulations. The earliest indications of this larger transformation start indoors: a collective rustle begins in homes, offices, and bars, and moves outward onto the streets. Some must rush to finish their work duties before leaving, to quickly walk to the station, while others have made the necessary calculations to allow them to first grab a quick meal at a nearby restaurant. At sites of urban activity and transit, a cyclic peak occurs in terms of the density of bodies, as well as the intensity of their movements across city space. Next to station entrance gates dotted streams of commuters hurry inwards, as train employees use megaphones to shout out updates concerning which train is leaving in which direction, and how many minutes are left before it goes. Couples perform the intimate parting moments of their date in the public eye on the crowded stage of the station entrance.

The stimulus for this flurry of activity, movement of people and individuals, no matter their social differences, are Tokyo's train timetables. These schedules unite the disparate inhabitants of the city by constructing temporary mobile collectivities defined by the particular line travelled by each. Whether sober or drunk, nearly everyone in Tokyo knows the departure time for his or her last train, or can quickly summon the information by pressing a few buttons on their keitai (mobile telephone).[4] With minute precision the final stages of an evening are arranged so the last train can be caught. These individual micro-practices contribute to an assembled whole which cleaves the circadian cycle into two distinct though uneven segments.

On one side of the last train divide is the dominant, artificially stretched "day," with its associations of work, everydayness, productivity, moral propriety, urban circulation, and routine. On the other side of the threshold is the equally complex but qualitatively different experience of the night: in the popular imagination, a realm of more marginal activities and urban experiences.[5] The negative moral connotations of night, symbolically acknowledged in the city by the lack of train services, help distinguish this time and space as a potentially transgressive event, one that punctures the completeness of the "day." This void between 1am and 5am, which temporarily seems to halt or at least slow down the machinic rhythms and relentless drive of Tokyo, brings into play a host of liminal activities and places.

The last train, of course, does not necessarily mark a sudden and unequivocal cessation of urban activity for those who do and don't ride it. Following that last train ride and one's exit from the station a whole range of services are on offer: taxis, mobile food stands, convenience shops, clubs, and more continue to function and compete for the customer surge heralded by the last trains. It is also the time for the recovery of the city's stressed infrastructure, with temporary construction sites springing up and quickly disappearing just before the diurnal rhythm resumes. Nonetheless, the cessation of the trains can be seen as producing a temporal and spatial void, a boundary or threshold that is central to understanding the lived experience



The train scheduling void as represented in the operational diagram of the Keihin Tohoku Line which crosses Tokyo on its way between Omiya and Yokohama. 36- and 24-hours' views.

and urban imaginaries of Tokyo's inhabitants. That imaginary guides conceptions of what is possible (and when) in the city, while also both producing and constraining an assemblage of rituals and everyday routines.

In what follows, we seek to explore the character and effects of that approximately four-hour night void—not so much in terms of what it "contains," but in terms of what urban possibilities and understandings it brings into being, in relation to the wider socio-spatial realities that constitute the urban experience of Tokyo. What are the multiple vested interests at stake here in what we describe as the "timespace" of this nocturnal void?

POLITICS OF THE VOID AND EVERYDAY CONCERNS

Framing Tokyo's four-hour cessation of train services as a void in many ways invites a functionalist response to this issue. That is, what might happen if the void were to be removed and trains ran 24 hours? Who would be affected—or how would "the city" be affected—if this spatio-temporal void was to be filled and the trains were to run around the clock? Would it assist in the revitalization of aspects of Tokyo's urban life, or its economy? These types of questions and ways of thinking about the revitalization of particular cities,

and/or specific urban areas within them, became popular in urban studies and city marketing in the 1990s, in debates about the notion of (and trend towards) the "24-hour city."[6] For the most part, these were "top-down" questions; that is, they were motivated by larger public and private institutions with specific interests in the operations of the city, its comparative and competitive edge in a global economy that doesn't ever go to sleep. In Tokyo these issues had also been discussed but became more prominent on the urban agenda in the early 2010s, with efforts to reposition Tokyo amongst the preeminent global cities following a slip in annual rankings of the city's livability.

There is currently a noticeable pressure on the Tokyo railway void, in the form of local, national, and international efforts to capitalize upon and normalize the night economy. For instance, in 2013 night buses were introduced between Tokyo's traffic hub Shibuya and business centre Roppongi Hills, in an effort by then-governor Naoki Ichinose, whose vision was to transform Tokyo into a "24-hour city." However, due to a recalculation of costs and dismally low demand, this isolated experiment was discontinued only one year later. Since 2014 there have been gradual attempts in the "rival" city of Nagoya to extend train operations further into the late night and early morning, but here problems also emerged when trying to alter long-established spatio-temporal practices. Internationally, the London Underground began a 24-hour weekend service on five lines in 2015, and with that joined other major cities in the world that now run similar extended services. London is an important touchstone for Tokyo, given its hosting of the 2012 Olympics and attendant urban regeneration, and given the latter's aspirations to host that same event in 2020.

However, we are concerned not only with political and economic meta-analyses, but also the "bottom-up" implications, and the perspectives of ordinary users of the city. Not intending to offer an exhaustive or scientifically rigorous survey of such views, in this section we present some anecdotal insights into the perceptions of ordinary urbanites about the role the train system plays in the wider social and economic networks that bind the city.

In public debates about a 24-hour train service, environmental concerns figure prominently. First, for residents living close to tracks, noise and vibrations—though currently regulated—would become an even bigger problem. Second, the additional service would be an economic burden for train companies. For instance, there would be increased labour costs due to higher wages paid at night. And would there be enough demand to justify such extra costs? At the same time, certain types of maintenance, which must be carried out at night in order to minimize problems during the busy regular running hours, would no longer be possible. The increased traffic and stress on rolling stock and the track infrastructure might also be an economic disincentive. Third, businesses dependent on the traffic generated by the rail system would also be affected. Large-scale businesses—for instance, those located at the already popular entertainment districts at major rail junctions might stay open later, resulting in a decline in popularity and profitability of those small local businesses who depend on customers being "captive" in their home districts during certain periods. Finally, for taxis and other competing transport businesses that benefit from the void, running the trains continuously might significantly reduce their profits.

Another frequently expressed concern about filling the train void is its role in delineating a protected space outside of work. There is, for example, a strong tendency to see these four hours as a last bulwark against the erosion of particular rights, especially those linked to working time. For many, the last train is the point when they simply have to leave their place of employment. To open up a round-the-clock service has the potential to lengthen the already exceptionally long Japanese work day. Accordingly, the removal of the four-hour void might further infringe upon private domestic life and its relationships, often already secondary to work life.

All these concerns, then, suggest a largely negative response to the notion of a 24-hour city. In discussing these issues, however, our concern is not so much with building a case for or against a continuous train service. Rather, we are interested in the way these views are indicators of the degree to which the train timetable, with its dualistic, "running/not running" structure impacts the life of the city and the mental perceptions of its inhabitants. Our aim is to theorize the ways in which the void plays a crucial role in the production of the urban and social imaginary of Tokyo and its residents.

JAPANESE RAIL URBANISM AND THE TOKYO IMAGINARY

Railways have played an integral role in the constitution of Japanese modernity and its associated forms of everyday life, as they did elsewhere for European modernities. Already in the early decades of the twentieth century, according to James A. Fujii, when private railway companies in Japan intensely colonized metropolitan space, daily use of railways "proved to be a form of subjection to a social space defined by the logic of capital." These railways, he adds:

> dramatically redefined the way time and space were experienced by urban Japanese, and in displacing agrarian rhythms with the iterative repetition of railway commuting, the private-run commuter rail—one part of a larger nexus of residential development, amusement center construction, electricity provision, and many other rail company efforts to integrate people into new orders of daily living—served not only the instrumental function of transportation, but also as a Lefebvrian space of cultural production.[7]

Indeed, as Fujii previously argued, "the railway stamped Japan's experience of modern urban life as no other single innovation has done."[8] Furthermore, Nakamura has suggested that Japan's new train system not only colonized urban space from the late nineteenth century on, but also profoundly changed the time consciousness of the country, as the train schedule quickly led to the spread of a fixed time and incorporation into Coordinated Universal Time. It replaced the pre-modern variable-hour, or seasonal-hour, time system of the Edo Period, which divided each 24-hour cycle into day and night and then partitioned each of these into six equal parts, called koku.[9] Thus the cycle consisted of twelve unequal temporal sections: six daytime units from local sunrise to local sunset, and six nighttime units from sunset to sunrise. Since the length of days and nights varies over the seasons, the lengths of the partitioned time units changed accordingly with daylight hours: longer in summer and shorter in winter.

The centrality of the rail commuter system to Tokyo today is apparent in 2016 census figures, which show that within the metropolitan transportation area (defined as within a fifty kilometre radius of Tokyo Station), an average of approximately 63.5 million commuter train journeys are made daily with the Japan Railway (JR) companies, other private railway companies, and subway companies.[10] However, it is not just that the rail transport system is used by a high proportion of the population and is extraordinarily efficient; it is also historically crucial to the distinctive urban form of Tokyo and other sizeable Japanese cities.

The rail system has become central to its inhabitants' and visitors' cognitive maps of the sprawling metropolis. Even more significant to Tokyo than the Imperial Palace in Chiyoda—spatial figure for the centre of Tokyo—is the JR Yamanote loop line. The patterns of urban form and activity that have established themselves around the nodes of major and minor stations also highlights the historical influence of rail on the city's form. This pattern typically consists of a central railway station acting as a hub to a cluster of retail areas, amusement quarters, business office blocks, and a love hotel district, surrounded by a peripheral belt of residential apartment housing. In many cases the large corporations

owning and running the railway lines have also developed major retail complexes that are physically part of the station complex, often with a flagship department store as a hub. The urban form surrounding major stations is also intimately related to the idea of the sakariba, loosely defined as a place where crowds and excitement come together. As Waley notes, the sakariba has been difficult for urban historians to precisely define, as it encompasses spaces and specific activities but also, for some, a strong sense of passing time.[11] The department stores of large suburban railway and land development corporations like Hankyu, Tokyu, or Seibu, in turn, have played a central role in the development of Japan's legendarily differentiated and highly refined consumer culture.[12]

If the urban imaginaries of Tokyo's residents are strongly informed by the spatial arrangements of the rail system, then its temporal dimensions must also provide sources of meaning for these inhabitants' understanding of "the city," its rules and possibilities, its structures and meanings.

TIMESPACE AND THE VOID

This section draws on work done by Jon May and Nigel Thrift, which outlines a theoretical conceptualization that might successfully draw together analytical approaches to both space and time when examining this void. Considering the cessation of Tokyo commuter train services for approximately four hours each night as a void is to employ a primarily temporal understanding of the city. This runs against the grain of the common-sense use of the word "void" that dominates urban studies and planning, in which it is often treated as a merely spatial phenomenon. Likewise, the urban semiotician Roland Barthes famously characterized the void in Tokyo in spatial terms. Tokyo's Imperial Palace was for him an example of Japanese difference, as it represented an "empty" centre, "both forbidden and indifferent."[13] That centre separates its royal residents and those who circle it on their way to work through the lack of knowledge the latter possess about the former. It also operates as a void in the potential economic redevelopment of the downtown core. Empty spaces in the urban fabric, as well as being sites for the instigation of new, often subversive, critical interventions into the lived environment, also offer insights into the dynamics of capitalist urban renewal in which spaces characterized as "empty" can in fact be reconceived as productive, through mechanisms of land-value maximization. However, in limiting attention to a primarily spatial notion of the void, we contend that a more significant and influential aspect of major Japanese cities—their temporal rhythms, which mutually constitute spatial practices and sites—is problematically underplayed.

As May and Thrift have noted, much urban, social, and cultural theory of the past two decades has been characterized by an unhelpful dualism around the foundational categories of space and time.[14] This dualism has seen each category reified in critical analyses (in the form, for instance, of the much heralded "spatial turn,"[15] but also in work on time) across disciplines ranging from architecture to geography and cultural studies. Such an approach, they argue, fails to produce a conceptual framework that might begin to account for the "multiplicity of space-times" that have been a fundamental feature of modernity. Their response to this conceptual deficit is to elaborate a critical notion of "TimeSpace." We take up this generative framework in considering the void that occurs during the daily, cyclic break in Tokyo train services.

Most crucially, May and Thrift identify four interrelated domains of social practice that are essential to such a framework and which we will employ here in our analysis.[16] While the domains inevitably overlap, their separation for analytic purposes provides us with insights into the timespaces of the Tokyo train commuter system, and the affordances it provides city institutions and inhabitants.

i) Timetables and rhythms

Our sense of time is produced in relation to the "natural universe, ranging from the diurnal cycle to the rhythms of the seasons, the rhythms of the body to the turning of the tides."[17] As May and Thrift note, the degree to which different societies and cultures remain connected to these rhythms varies considerably (and historically). In relation to contemporary Tokyo (and to some degree contemporary Japanese) life, we could say that the diurnal cycle, which relates back to the body's necessity for periodic rest, is still a powerful determinant in the urban forms that the daily 24-hour timespace takes. This imperative is spatialized in Tokyo through the large numbers of workers making their daily commute between sites of urban workplaces and the outlying "dormitory suburbs," where many corporate employees only return for a short sleep (five hours and forty-four minutes, on average[18]) and a quick bath. We thus understand these timetables as shaping senses of being in the city, as the city is in turn also shaped by the bodily rituals of its inhabitants.

ii) Systems of social discipline

The train service void inscribes everyday life in Japan in a doubled form: it registers the disciplining demands of the city—whether capitalistic, machinic, or behavioural—in an amplified form, and articulates them to personal frames and customs. For example, acceptable behaviours within Japanese public space are regulated within the train system context through the ubiquitous official addresses to commuters via declarative graphics and instructions. More specifically, the scourge of groping and sexual assault of female passengers has been responded to by separating male and female commuters on some lines into different carriages during rush hour. The inscription of social discipline more broadly is enabled through what Lefebvre identified as the mechanism of "dressage," the habitual and ritualized training of individual's bodily gestures through rhythmic repetition.[19] A different example of this can be witnessed in the strong demands of a culture of long working hours, where social events are delicately "spaced out" into the little time that remains in between the end of work and the cessation of train services. The standard (social, academic, private) event has emerged with a fixed length of two hours and is, if continued, renewed as another two-hour event that often takes place at a different location. These rigid time increments allow people to leave without painful questions asked. As we have seen earlier, this doubling also represents the meeting point between "day" and "night," "work" and "rest," or even "authorized" and "independent" sets of practices; it can be seen as generating a balance, where work time can only be produced via the construction of its other—family or leisure time.

iii) Instruments and devices

May and Thrift also discuss those technologies that are "devised to either mark the passage of time or work to alter our conception as to the nature and direction of its duration and passing."[20] Within the Tokyo context, the keitai (mobile telephone) is for commuters the most crucial contemporary device, central among various technologies for the remediation of older urban technologies such as the watch and the train schedule. As well as replacing and assuming the functionality of the watch, the keitai substantively integrates the user into "rail time" through its instantaneous internet access to programs that advise users about the next available train and best connections, coupled with maps of the wider train and bus system, and plans of stations with the locations of nearest exits, elevators, and escalators. The far-reaching integration and use of location-aware services through the keitai also make it a space-manipulating device that efficiently articulates Tokyoites into the structured flows of the city, while also enabling them to negate any anxiety resulting from the sense of rhythmic disruption created by this particular void.[21] It allows for a temporal and spatial connectivity extending beyond the

last train, which might otherwise separate unities like the dating couple; these individuals now continue to text/email back and forth as they scatter themselves to different parts of Tokyo's vast urban territory.

iv) Texts

This fourth dimension of social practices of time refers to those texts that narrate specific understandings of time in order to "regulate that which we would codify."[22] The Book of Hours provides an historical example of such a regulatory text in relation to early modern Western cities: a system of time organized around church ritual and prayer.[23] In terms of the contemporary Tokyo train system, the timetable can similarly be seen as a codifying text. However, we might also consider other "texts" as elaborating the codification of train timespace, such as the wealth of accumulated stories about the rail system itself—the collection of urban legends or mythologies that have built over the years and now form part of the collective shared imaginary of the city. Such stories are practiced along individuals' daily pathways; they are communicated and circulated by word of mouth, as well as through their reiterations in newspaper stories, films, literature, and websites (blogs, forums). A relevant example is Seicho Matsumoto's contemporary classic mystery tale, Points and Lines, published in 1970. In this slice of Japanese culture and everyday life, a Tokyo-based detective skillfully navigates, "reads" and connects stations, lines and timetables in order to solve a political double-murder case. The narrative reveals the intense involvement of governmental authority in the lives of individuals and in the private sector; as well as the different roles that the railway system plays when used by different interests. Such texts can be seen to supplement, disentangle, and challenge the official inscriptions and definitions of train travel.

CONCLUSION

In our discussion of Tokyo's train scheduling specificity we have explored the ways in which common conceptualizations of night as an urban void or spatio-temporal "other" might be reimagined as a productive instance of the dense polyrhythms of city living. The discussion has shown how the four-hour void is a fundamental component of the temporal topology of the Japanese urban everyday. We have also identified the significance of the void's boundaries as a mechanism for establishing and maintaining the relations between everything on its inside and outside—from practices to concepts and from institutions to devices. This analysis has attempted to demonstrate how the complex and particular structures of individual cities, as well as the everyday experiences of their inhabitants, can become tangible and revealing at sites or moments of liminality. In Tokyo's case, a richly embedded and heterogeneous assemblage is revealed through the nightly cessation of commuter train travel. There we witness a "spatialization of time and temporalization of space"[24] essential to the deepest structures of the city.

Both among the public and in the academic imagination, the night void has come to be seen as inscribing a multiplicity of dualisms (work/leisure, full/empty, good/bad, public/private, etc.) that form the basis of urban life and which are marked by cyclic activities and performances. While useful as a starting point, our study suggests that it is not enough to see the day/night difference as either a binary opposition or a dialectical force. Instead, the particular void engendered by the operations of the Tokyo train schedule contributes to the organization of individual and collective life through its spatialization of urban activities from the outset—it is not simply an unproductive emptiness that must be filled, as many 24-hour city advocates suggest, nor is it a duality in which one side is emancipatory and the other side repressive. Relations between the void and its other, the particular configuration of their meetings, are

transformed over time and depend on forms of creativity.

As our epigraph from Lefebvre suggests, there is a complex urban "polyrhythmy" at work here, and his identification of "urban rhythms" as a generative framework through which time and space in the city might be analyzed has assisted us in examining the relationships between night and day, trains and no trains, and urban time and space. The discussion has showed that the void is part of an urban everyday in which repetition figures as a key ontological element. While the train timetable defines the start and end points of daily itineraries in the city, the actual practices of Tokyoites challenges the linear constructions of daily timespace as defined by the railway system. Individual train commuters, as well as other actors such as work unions, commercial entrepreneurs, and local governments, are adept at remediating and manipulating the constraints of the void thresholds so that they serve other purposes besides being mere markers of starting and finishing. This negotiation of the void is always in process, always an opportunity in relation to things and actions: to entrepreneurial innovations and technological progress, to urbanites' rights and collective labour bargaining, and so on. To intervene in this way into the cyclical structure of the everyday, which includes the void, confirms a deep engagement with train time in Japan, validating a further repetition of its founding modern rhythms.

NOTES

1 An earlier version of this article was written for and presented at the mAAN International conference at Tokyo University in 2006, and the A+P conference at the Technion – Israel Institute of Technology in 2007.

2 See also, Maireluise Jonas and Heike Rahmann, Tokyo Void: Possibilities in Absence (Berlin: Jovis, 2015), a recent book about the social and ecological life of small empty plots in Tokyo.

3 Henri Lefebvre, "Elements of Rhythmanalysis," in Henri Lefebvre: Writings on Cities, ed. Elanore Kofman and Elizabeth Lebas (Oxford: Blackwell, 1996), 230.

4 See Mizuko Ito, Misa Matsuda and Daisuke Okabe, Personal, Portable, Pedestrian: Mobile Phones in Japanese Life, (Boston: The MIT Press, 1996).

5 As Wolfgang Schivelbusch puts it in his study of the industrialization of light in nineteenth-century Europe: "Nightfall brings forces very different from those that rule the day. In the symbols and myths of most cultures, night is chaos, the realm of dreams, teeming with ghosts and demons as the oceans teem with fish and sea monsters." Disenchanted Night: The Industrialization of Light in the Nineteenth Century (Berkeley: The University of California Press, 1995), 81. See also Joachim Schlör, Nights in the Big City: Paris, Berlin, London, 1840–1930 (London: Reaktion, 1998).

6 See Leon Kreitzman, The 24-hour Society (London, Profile Books, 1999), and J. Schlor, Nights in the Big City: Paris, Berlin, London, 1840–1930 (London, Reaktion Books, 1998), and R. Smith, "World City Topologies," Progress in Human Geography 25, no. 5 (2003): 561–582.

7 James A. Fujii, "Intimate Alienation: Japanese Urban Rail and the Commodification of Urban Subjects," Differences: A Journal of Feminist Cultural Studies 11 (1999): 108.

8 James A. Fujii, "Networks of Modernity: Rail Transport and Modern Japanese Literature," Japan Railway & Transport Review 13 (September 1997): 12.

9 Naofumi Nakamura, "Railway Systems and Time Consciousness in Modern Japan," Japan Review 14 (2002): 13–38. See also T. Hashimoto, Historical Essays on Japanese Technology (Tokyo: UTCP, 2009).

10 Japan Statistical Yearbook 2016, Statistics Bureau of Japan, Ministry of Internal Affairs and Communication, http://www.stat.go.jp/english/data/nenkan/1431-13.htm (drawn from the Institution for Transport Policy Studies).

11 Paul Waley, "Re-scripting the City: Tokyo from Ugly Duckling to Cool Cat," Japan Forum 18 (2006): 361–380.

12 See Thomas Havens, Architects of Affluence: The Tsutsumi Family and the Seibu Enterprises in Twentieth-Century Japan (Cambridge, Harvard University Asia Center, 1996).

13 Roland Barthes, Empire of Signs, trans. Richard Howard (New York: Hill and Wang, 1982), 30. This characterization, while still generative in terms of our discussion, has since been extended as well as critiqued (see, for example, Joy Hendry's commentary on the "spatial wrapping" of the Palace in Wrapping Culture: Politeness, Presentation and Power in Japan and Other Societies (Oxford, Oxford University Press, 1993), 104–109.

14 Jon May and Nigel Thrift (eds.), TimeSpace: Geographies of Temporality (London: Routledge, 2001), 1.

15 See Edward Soja, Postmodern Geographies: The Reassertion of Space in Critical Social Theory (London: Verso, 1989).

16 May and Thrift, TimeSpace, 3.

17 Ibid.

18 Stuart Thompson, "Which Cities Get the Most Sleep?" Wall Street Journal, 15 August 2014, http://blogs.wsj.com/numbers/which-cities-get-the-most-sleep-1662.

19 Henri Lefebvre, Rhythmanalysis: Space, Time and Everyday Life, trans. S. Elden and G. Moore (London: Continuum, 2004), 19.

20 May and Thrift (eds.), TimeSpace, 4. Here they are referring to Barbara Adam, "Modern Times: The Technology Connection and Its Implications for Social Theory," Time & Society 1 (1992): 175–92.

21 See, for example, Christian Licoppe and Yorika Inada, "Emergent Uses of a Location-aware Multiplayer Game: The Interactional Consequences of Mediated Encounters," Mobilities 1, no. 1 (2006): 39–61.

22 May and Thrift, TimeSpace, 5.

23 Ibid.

24 Harry Harootunian, Overcome by Modernity: History, Culture and Community in Interwar Japan (Princeton, N.J.: Princeton University Press, 2000), 114.