It's All about Timing:

Toward a relational understanding of time in routine performance

Paper to be presented at the 32nd EGOS Colloquium, Naples 2016

Subtheme 03: The entrepreneurial origins of organizational routines and their impact on the development of organizations.

Daniel Geiger

University of Hamburg, Germany

daniel.geiger@wiso.uni-hamburg.de

Anja Danner-Schröder

University of Kaiserslautern, Germany

anja.danner-schroeder@wiwi.uni-kl.de

It's All about Timing:

Toward a relational understanding of time in routine performance

Abstract

The present paper examines the role of time in routine performance. We argue that time is a central actor shaping the dynamics of organizational routines, whilst at the same time, time only becomes constituted in relation to routines. Emerging research on temporal structuring has pointed to the active role of people in shaping time, whereas research on routine dynamics explores how routines unfold over time and contribute to stability and change. Yet little is known how actors build on routines for shaping time and how time shapes the dynamics of routines on a micro-level. Drawing on an ethnographic study conducted at a firefighting unit operating in an urban environment, we elaborate on how routine participants actively make time by enacting specific routines and how time drives the pace and rhythm of routines. We find that actors enact specific routines for slowing down or speeding up the pace of routine performances whilst specific triggers mediate the switch between a fast or slow pace of routines. Thereby actors enact time and shape how they actually experience time. Our study contributes to the understanding of time and routines in three main areas: the way time is translated within and through routines, the different temporal structures involved in shaping pattering work (the temporality of routines), and the understanding of time as a relational concept overcoming the traditional objective and subjective dualism.

Keywords: Routine dynamics, time, pacing, structuring

Introduction

At 06:34 p.m. the light in the fire-brigade station turned on, a loud bell started ringing and three indicator lights on the wall of the dining room began to flash. Instantly, the ten fire-fighters who were just about to have diner immediately stopped eating, got up, left their food untouched on the table and started to run down the stairway to the garage where the fire trucks are parked. Each of them jumped into their protective gear, swung into the car which then left the fire station with a blue flashlight and a loud signaling horn, paving its way through the congested roads to arrive at the site as fast as possible. 7 minutes after the initial alarm the lead car arrived at the scene. The official target of the fire-fighters is to arrive at the incident within 8 minutes after being alarmed with at least 10 men; after 13 minutes 6 additional men have to be at the incident in order to be able to effectively rescue victims and start fighting the fire.

This brief vignette, which we have extracted from our fieldwork at a firefighting unit, illustrates how time is central to the practice of firefighting. Critical, time-related tasks in the practice of firefighting are: first to act as fast and effective as possible under safety constraints and second to meet the organizational targets which are defined through the means of time: 10 men within 8 minutes and so on. These two tasks identified at the firefighters both relate to time: acting as fast as possible relates to a notion of time which has been characterized as event time (Patriottta & Gruber, 2015); that is time as experienced in event based or cyclical work processes. The organizational tasks the firefighters have to meet refer to time as clock time which is time as objectified and commoditized in schedules or deadlines (Orlikowski & Yates, 2002). In responding to both of these tasks firefighters rely on a set of well-rehearsed routines which they enact in order to respond in a fast and effective way (Bechky & Okhuysen, 2011; Bigley & Roberts, 2001; Faraj & Xiao, 2006).

As the example from the vignette illustrates, enacting routines in a timely fashion is a central concern in the practice of firefighting. However, research on time and research interested in the dynamics of organizational routines has only occasionally been combined (Turner, 2014).

Traditionally routines have been conceptualized as fixed entities which ensure the efficient and reliable performance for ex-ante defined tasks (March & Olsen, 1979; March, Schulz, & Zhou, 2000). Following this perspective, it is a central characteristic of routines that they do not change over time; quite the contrary, as stable entities routines were conceptualized as 'genes' of an organization (Nelson & Winter, 1982). As such routines were theorized in a timeless manner. Recent studies in routine dynamics have, however, focused on the question of how routine patterns form and change over time. By taking a longitudinal perspective, a growing number of studies aim at exploring how and why routines change over time. In all of these studies, time plays a major role in understanding routine dynamics, but has mostly been used to explain how routines change from one moment in time to another (Farjoun, Ansell, & Boin, 2015; Turner, 2014). Accordingly, time is equated with a longitudinal perspective. As such, time is conceptualized as existing 'outside' of routines.

Following recent practice-based notions (Orlikowski and Yates 2002), time and temporal structures are actually both, the medium and the outcome of people's recurrent activities. Such a practice-based notion of time allows us to look beyond time as a longitudinal phenomenon existing outside of routines and to move the study of time and temporal structuring to the center of the routine debate. Our study is therefore interested in taking a closer look at the mutual interrelationship between time and routines by elaborating how time shapes routines and how routines are shaped by time. We aim at investigating how time on the one hand time drives the pace and rhythm of routines, whilst on the other hand we want to explore how routines construct and enact time. We examine these dynamics in the context of firefighting, a fast response setting in which time and reliability based on routines are central concerns (Bigley & Roberts, 2001; Faraj & Xiao, 2006; Schakel, Fenema, & Faraj, 2016). Our findings demonstrate that routines have their own temporality by showing how time

4

drives the rhythm of routines and how routines construct the notion of time. In addition the study allows us to identify specific types of temporal structures used for slowing down or speeding up the pace of routines and we show how routine participants switch between event and clock based notions of time in routine performance (Czarniawska, 2004). Thereby our study contributes to research on routine dynamics in three main areas: (1) we introduce the concept of rhythm and pace of routines; (2) we conceptualize the temporality of routines and time as a central actor in routine performance; (3) we argue that time only becomes meaningful within and through its enactment in routine performances.

Organizational Routines and Time

For long, time has not been a central concern in routine theory. Routines have been conceptualized as fixed entities that are defined by management to ensure the efficient and reliable performance of ex-ante defined tasks. From this perspective it is a central characteristic of routines that they remain stable over time; or, put differently: it is simply assumed that routines as genes of an organization are not subject to change. A central assumption of such a conceptualization is that both, the task the routine is meant to address and the way the task should be executed can be defined ahead of time for all times. It is at least implicitly assumed that through thorough analysis and detailed planning the work processes can be defined in a timeless manner. Seen this way time is not considered as a specific problem in this conception of routines; they are conceptualized in a timeless manner.

This assumption of routines as timeless, trivial machines that remain unchanged over time (Alvesson & Sandberg, 2011) has been significantly challenged by the studies on routine dynamics. This practice-perspective which is interested how routines are actually performed

in practice (Farjoun, 2010; Feldman & Pentland, 2003; Geiger, 2009; Ortmann, 2010; Parmigiani & Howard-Grenville, 2011; D'Adderio, 2014; Feldman, Pentland, D'Adderio, & Lazaric, 2016; Geiger & Schröder, 2014) opened up novel ways for studying the dynamics of routines, shedding light on their fluid, temporal and open-ended nature. Such a performative notion of routines as "…repetitive, recognizable patterns of interdependent action" (Feldman & Pentland, 2003: XXX) has put the question how these patterns form and change over time at central stage. Seen this way, time has, at least implicitly, become a central concern in routine studies. By taking a longitudinal perspective, a growing number of studies aims at exploring factors that contribute to the ever changing nature of organizational routines such as the organizational context (Howard-Grenville, 2005), artifacts (D'Adderio, 2008), technology (Orlikowski & Scott, 2008), the perception of routine participants and their knowing (Danner-Schröder & Geiger, 2016), the connection amongst routines (Feldman & Rafaeli, 2002) or the role of actors (Pentland, Haerem, & Hillison, 2011). This research has convincingly shown that routines can at the same time contribute to stability as well as change (Feldman, 2003; Feldman & Pentland, 2003). Hence, time builds the indicator that routines have changed from one iteration to the next, or put differently from one point in time to a later point in time (Turner, 2014). Only taking time into account enables us to understand the dynamic nature of organizational routines. In all of these studies, time plays a major role in understanding routine dynamics. Here time as a concept is necessary to explain how routines change *over time* (Farjoun et al., 2015). Seen this way, current routine studies opened up new perspectives to study the temporal dynamics of organizational routines.

However, the temporal dynamics of routines have so far not fully been explored (Howard-Grenville & Rerup, 2016). Current studies – with their focus on how routines change over time – at least implicitly equated time with taking a longitudinal perspective (Langley,

Smallman, Tsoukas, & Van de Ven, 2013). As such time as a construct is existing outside of routines: the studies explore how time effects the course of routines, but how routines affect the construction of time has received less attention so far. However, research on time has pointed out that time has at least two dimensions: an objective dimension of time as independent of our social practices, and a subjective dimension that shows how our understanding of time as experienced is constructed through the enacted practices itself (Czarniawska, 2004). As Orlikowski and Yates (2002) have pointed out, a practice-based understanding of time may enable us to transcend the subjective or objective dualism of time as it has traditionally been used. Accordingly, time is neither just an objective, abstract, absolute, unitary, invariant and linear phenomenon independent of man (Jaques, 1982), nor is it just subjective, as constructed by organizational members, relative, contextual and organic (Nowotny, 1992). This dichotomy is often presented as the contrast between clock and event time (Orlikowski & Yates, 2002; Antonacopoulou & Tsoukas, 2001; Patriotta & Gruber, 2015). Whilst clock time represents a linear notion of machine time, event time is constituted in events and defined by and through events. The pattern of these events is thereby neither fixed nor regular, but it is a dynamic, constantly shifting and changing understanding of time which varies with conventions and norms (Orlikowski & Yates, 2002: 686). A practice-perspective on time suggests that people in organizations experience time through the shared temporal structures they enact in their daily practices (Orlikowski & Yates, 2002: 686). That implies that even mechanical, objective measures of time such as calendars, clocks, schedules only become meaningful through their enactment in practice. As such, time is realized through recurrent practices that produce temporal structures that are both the medium and the outcome of those practices. This perspective enables us to understand time neither as clock time or event time, but instead it has the potential to reveal how and why people experience time as clock or event based (Orlikowski & Yates, 2002: 690). Time may appear to be external because people treat it as such, but it also may appear to be subjective because people

7

knowingly produce or alter the temporal structures they are engaged in. As we argue, such a perspective on time opens up fresh ways to explore the dynamics of organizational routines.

Whilst research on routine dynamics has explored how time drives routine dynamics, the question how these dynamics produce an understanding of temporal structures for routine participants has not received much attention in the recent debate. As Turner (2014: 2) notes: "[T]he temporal dimension has received only limited attention in existing reviews of routines scholarship. … [T]his is a function of the limited body of empirical work that has explored the temporal aspects of routines … and we are only beginning to develop the common understandings and frameworks about time". Our paper therefore aims at responding to these calls in addressing the question how time affects routine dynamics and, how routines produce an understanding of temporal structures. This moves time at the center of our analysis of routine performance.

Methods

The paper will address these research questions by an ethnographic case study (van Maanen, 2011) aiming at theory building (Eisenhardt & Graebner, 2007; Strauss & Corbin, 1990) exploring how firefighters in an urban environment use routines to structure time and how time structures the performance of routines. Our primary source of data builds the participant observation of firefighters in real firefighting operations where fire fighters could be studied in action. This was supplemented by the observation of training sessions in which fire fighters learned how to deal with unexpected, complex scenarios. The case study was conducted with the Hamburg firefighters, a public organizations which employees nearly 3000 professional firefighters. They are called in to a total of around 250,000 operations each year, ranging from

medical emergencies, to car and truck accidents, technical assistance and of course any kinds of fires. As part of the research project the authors had the opportunity to observe twelve complete 24h shifts of 15 firefighters in a fire station and accompanied them to 37 different real deployments. In addition the authors participated in ten training days during which 44 different scenarios of firefighting were practiced. The training sessions were important to familiarize with the firefighting routines and to understand how firefighters learn how to not get overwhelmed and act calm in chaotic environments. In addition 54 formal and informal interviews with coaches, firefighters from all levels and degrees of experiences were held during which they reported how they prepare for and how they act in complex firefighting operations. In addition we held past-event reflections with the squad leaders who recapitulated for us their actions and decisions just post the actual event the authors had observed them in action.

Our analysis of data unfolded in 4 consecutive steps: At first we aimed at identifying routines in our data set which we operationalized as recurring action patterns (Feldman & Pentland, 2003). Since routines built the central unit of analysis, it was impertinent to first identify and understand the different routines firefighters carried out regularly. In a second step we described the performances of these routines which we could observe in detail in the form of a vignette. Each vignette describes a singular performance of an observed routine (e.g. driving to the incident) and we aimed at a very detailed description of the performances following our field notes. Third, we then coded these vignettes following the procedures of open coding as suggested by grounded theory (Strauss & Corbin, 1990). We developed open codes which were in a second step categorized into second order concepts based on similarities and differences. The coding was discussed between both authors and differences in interpretations could be mitigated. In a last step these second order themes were then clustered into aggregate

dimensions following our emerging ideas on the role of time and timing. Guided by our ideas on the role of time in routine performance which emerged from our coding of data, we – in a fourth step – used a narrative network analysis for each of the identified routines (Pentland & Feldman, 2007; Danner-Schröder & Geiger, 2016) in an attempt to analyze and compare, how many action steps were carried out in routine performance per time (clock time). This enabled us to compare different performances of the same routine with regards to the question how many action steps were performed per time.

Findings

Our findings show how routine participants enact specific routines for slowing down or speeding up event time and how time drives the pace and rhythm of routines. This allows us to theorize on the relationship between routines and timing and puts time at the center of a processual notion of routines.

Clock time as structuring artifact

Clock time builds the actual objective and formal measure for structuring firefighting routines.

The official guidelines issued by the ministry of the interior of the state of Hamburg list the so called protection targets for the city of Hamburg. These targets formulate that 10 firefighters have to be at the incident 8 minutes after being alarmed. After an additional 5 minutes 15 men have to have arrived at the scene in at least 85% of all alarms. Here, time is a very powerful structuring principle since it determines the number and location of firefighting stations within the city of Hamburg. Stations have to be placed and staffed in such a way that it is

possible to reach any place within the radius of a particular station at the designated time. Here clock time has the characteristic of an artifact, providing the formal structure for the firefighting routines (Pentland & Feldman, 2008). This clock time as artifact, however, did not become enacted as such in the actual performance of the observed firefighting routines. Instead it was referred to clock time in the ex-post evaluation of the firefighting routines, as illustrated in Vignette 1.

Vignette 1: At 06.21 p.m., after returning to the fire station from a fire alarm at an elderly care unit, which turned out to be a false alarm, the driver of the fire engine noted informally to the researcher: 'this was a classic example for illustrating that the new protection targets are a political illusion. We arrived almost 5 minutes too late with our first trucks and it took the volunteer firefighters even longer to be at the site. And this is critical. Imagine it would have been a real incident in an elderly care home with many immobile people who cannot flee from fire and smoke, here literally every second counts. But a simple look at the map explains the case. In times of rush hour just as it was right now it is simply impossible to arrive there within the designated time, we are located too far away. But the ministry is not accepting the case that we need an additional fire station. So the problem remains and no one really cares or actually takes notice'.

As the brief example shows, clock time was used for evaluating and legitimizing the performance of the firefighting routines (Orlikowski & Yates, 2002). The question how many fire stations would be needed in the growing city of Hamburg is a long-standing public discussion. The foundation of this discussion always builds the protection target which uses clock time as its central reference point. As the chief of operations at the Hamburg firefighters explained in an interview: "Of course it is a discussion around time. If we would extend the protection target from let's say 8 minutes to 12 minutes we could theoretically get rid of at least two out of the 21 fire stations we are currently operating. This would be a significant

cost reduction so you can understand that the 8 minutes are a highly debated number….Funnily enough, these 8 minutes are based on a study conducted in the 70s which would not hold any scientific replication these days I guess. This study has shown that people who get exposed to smoke in a standard fire within a condo lose consciousness after 10 minutes and are likely to die after 15 minutes. So this is the foundation. If it is true or not, honestly, I do not know. But we are happy that no one of the politicians who finally make the decisions has questioned the study as of yet."

This shows that there is a debate around clock time since clock time is equated with costs and interests: the firefighters, having an interest in more fire stations and the city council that aims at minimizing the costs of firefighting. Here time builds the structure within which firefighters actually operate. Clock time becomes a socio-political artifact (D'Adderio, 2011) of the firefighters but it has no immediate implication on the actual performance of their routines, as our further findings show.

Event time: Routines for slowing down

Analyzing our data revealed that firefighters enacted specific routines in order to slow down event time, paradoxically in an effort to at the same time gain event time. Routines we identified for slowing down were: active waiting and pausing.

Active waiting routine: Active waiting describes a routine which is usually performed once a team arrives at an incident. Vignette 2 provides an example of such an active waiting routine.

Vignette 2: At 04.13 p.m. a fire engine received an alarm to a so called Fire 1 incident which indicates small fires in apartment buildings with no suspicion of potential human casualties. Whilst the 6 firefighters drove to the incident with signaling lights and horn switched on to make their way through traffic, they already heard radio messages from other trucks that had

just arrived at the scene which indicated that heavy smoke and fire was visible on the second floor of an apartment building. Upon hearing this the team leader said to his men: 'Oh, it's getting serious, I count on you guys'. Once could feel an immediate tension in the car as the two members of the attack team started putting on their respiratory device, all others became quite which was unusual since usually firefighters made lots of jokes and continued normal conversation whilst driving to the incident. Our car was the third car to arrive at the scene and the firefighting operation had already started. From the car one could see heavy smoke coming out of a window in the second floor of an apartment building and the turntable ladder operators were about to place the ladder. After having arrived just the team leader left the car, whilst all other 5 men remained in the car actually doing nothing. Firefighters remained on their seats, not talking, most of them not even looking at the scene, just waiting for the team leader to return. With all the action going on outside the time felt to pass by very slowly. After about 4 minutes which – at least for the observer - felt much longer, the team leader returned to the car instructing the men to leave the car. All men then gathered behind the car and the team leader – in a calm voice – started to talk. He first gave them a small heads up what has happened (looming fire in an apartment on the second floor, attack has already started, no missing persons) and then gave his orders: Mike and Jim, you function as a security team and wait with your respiratory gear on at the hose distributor in front of the building. Marc, you monitor the respirator device whilst Jo and Till, you prepare the hoses.' Only after this the men actually started acting.

We called this routine 'active waiting' since firefighters did not have to wait for e.g. material to arrive or any other thing which were beyond their own disposition, but in those cases waiting was actively and effortful enacted. During the training sessions we observed firefighters sometimes left the car immediately without waiting to get called in an attempt to start operating in a fast and timely fashion. In all those cases these efforts were actively

discouraged by the team leader who intervened immediately. They had to learn to suppress the immediate impulse to start acting. In the post mission interview the team leader explained it the following: "First I need to assess the situation and know what's going on. Only then I can give informed orders. Of course you seem to lose time in the beginning, but without knowing what is going on you also cannot start acting. The squad leader who was at the scene already had to know that we were there first and build us in into his operation, so we could not have started before."

The leadership instructor of the firefighting academy explained this active waiting routine: "The first thing is always a sound triage performed by the team leader. From the alarm you only have a rough idea what is going on, you need to assess the situation yourself. This takes time, but it is good investment. After the triage you can start with a structured approach and deal with your forces [the men] in an efficient way. If you start just doing something and then you realize that you have to re-build your operation you would lose out far more time." Seen this way, not acting and waiting on the one hand consumes event time since the event is unfolding whilst waiting, but on the other hand firefighters gain event time because they have an overview that allows them to act more efficient, set priorities and thereby act also more time efficient. Slowing down on event time thereby paradoxically allows gaining event time later on. Active waiting routines thereby shape event time since they allow firefighters to act upon their own discretion and not to be driven by the event. Here time was actively structured through the waiting routine. This routine made the event seem less pressing and overwhelming and actively took the pace and rush out of the situation.

Pausing routine: Pausing was enacted in an effort to slow down event time. Pausing routines were enacted by team leaders at almost any point of the operation, particularly after the first

attack had started and further decisions had to be made. Vignette 3 describes such a pausing routine.

Vignette 3: At 07.32 p.m. the entire unit consisting of three fire trucks got alarmed to a potential gas leak emanating from a private swimming pool in a residential area. After the team had arrived the first attack unit started to assess the situation with their special protective gears and respiratory device on. They reported via radio to the squad leader that they see gas leaking from behind a door and electric sparkles coming out of wires. Upon receiving tis information, Logan, the squad leader reported to the control center that probably chlorine gas is leaking and an attack team is assessing the situation. After these initial actions, Logan distanced himself from the scene by deliberately walking away from all the fire trucks and the noise for about twenty meters. He stood there alone, not performing any visible action for quite some time. Bystanders witnessing this scenario called Logan to come and do something but he did not respond and instead kept for himself. After this pause, he called his remaining men via radio to gather in front of the car and started to give orders.

In the post mission interview Logan explained this as follows: "Once I got the initial report from the attack team I realized that this is serious. Chlorine gas is actually dangerous and in combination with sparkling electricity you know….So I took myself out of the situation for a while to think carefully what to do now. You have to think about a lot of things and set priorities right to avoid too much danger. So I had to get my thinking straight and think it through first. For example the next thing is to cordon off the area to avoid bystanders coming but also to protect the next fire trucks that arrive from coming too close. Therefore you need to check wind direction and so on."

Performing the pausing routine was perceived as very important since it relieved from the immediate pressure of acting and deciding. It provided the squad leader with additional time needed to calm down and reflect on the scene which otherwise would not have been available.

15

Pausing helped in significantly slowing down the perceived complexity of the event and to refrain from acting instantaneously. This way time was shaped following the performance of the pausing routine. Routines for slowing down therefore helped the firefighters to reduce complexity. Here slowing down routines were enacted to provide time which enabled to buffer against the pressures from the environment. Enacting slowing down routines allowed firefighters to decouple from the environmental demands and to shape the situation according to their own pace.

Routines performed in order to slow down event time were performed by firefighters in order to reach a position they described as "coming ahead of the situation". This notion describes that performing slowing down routines aims at putting them in a situation in which they do not simply respond to an immediate environmental need, but puts them in a position to act in anticipation what might come next, or as described by a firefighter: "we need to know what might happen in the next 20 minutes and act accordingly".

Event time: Speeding up routines

Our analysis of data, however, did not only reveal routines used to slow down event time, but also routines that were enacted to speed up event time. Routines we identified for speeding up were "Rescuing" and "paralleling" which we introduce below.

Rescuing routine: The rescuing routine describes the performances firefighters enact in order to rescue people from life-threatening situations. Vignette 4 is an exemplary description of the performance of such a rescuing routine.

Vignette 4: As part of their training, instructors were simulating a fire in a warehouse which was rebuild in full scale on the training ground of the firefighters and which could be filled with smoke to simulate fires. The team called in to the fire did not know what to expect before they arrived at the scene since the scenario was practiced as close to real cases as possible. At 08.24 a.m. the instructor Mike send out the following alarm message via radio: 'Feuer 2' (indication of a medium fire without any suspected casualties) in a large warehouse building on Alsterfleet number 2.' The squad leader Sven confirmed that he received the message and instructed his unit consisting of three fire trucks and a turntable ladder to drive to the incident. Upon arrival Sven performed a triage and instructed his team members to start fighting the fire, one team from the front entrance, the other team from the rear door. Following this order the operations unfolded and the two attack teams entered the building to extinguish the fire, one team consisting of two from the front, one team of two from the rear entrance. Since both teams entering the building were using a respiratory device and no casualties were suspected, for each team another team of two was waiting outside the building as a security team with the task to rescue the attack team in case of emergency. After quite some time whilst the operation was unfolding in a pretty normal and safe fashion, out of a sudden a man ran out of the front door of the burning warehouse, coughing and shouting for help. Sven immediately noticed the man and instructed his assistant Joe to approach the man and take care of him. The man, a worker who had been working inside the warehouse as the fire broke out, asked Joe if they had seen his colleague Steve who was working with him in the same area. Joe denied and reported to Sven: 'Another man is suspected to be inside the warehouse and is missing'. Following this Sven started to act immediately and gave the following order via radio: 'There is a missing person inside the building. We switch from fire extinguishing to rescuing. All attack teams start searching for the missing person. Security teams, enter the building and assist in search efforts'. Upon this command, the entire scene changed dramatically: Team members who were observing the scene without any immediate task started to run to their

vehicles and prepared a so called patient area to treat possibly wounded victims. Others quickly prepared two additional water hoses for the security teams that were about to enter the building and which they could carry with them to protect themselves. All other ongoing activities such as cordoning off the area, coordinating with the arriving police and setting up the turntable ladder were immediately stopped and all members turned towards rescuing performances. Sven reported to the central command that another man is missing and that an additional ambulance and emergency staff is needed on the scene and then nervously started to monitor the ongoing actions by running from team to team, checking what they are doing.

As illustrated above, rescuing routines trigger an immediate speeding up of all actions towards rescuing the victim. If the rescue routine is performed, all other not immediately necessary activities are sidelined and all efforts are directed towards finding and getting the victims out of the dangerous situation. This speeding up is enabled through a clear priority: focus on rescuing, ignore all other, non-central routines. As Sven explained later in an interview: "Once we have to rescue victims we compromise on our own safety. We do not have the security team any longer which releases more manpower for searching and rescuing. In these situations every second counts; you want to get them out as fast as possible, that's actually our job to take risks here." Enacting the rescuing routine triggers a significant increase in the pace of routine performances. Firefighters, for example, compromised on their own safety and acted faster, thereby taking a higher risk. This way, event time becomes accelerated: less precautious measures were taken which enabled firefighters to focus on one specific task in their routine performance to complete this task faster. Once the order "rescuing" is released, firefighters are trained to switch practices (Schakel et al., 2016) and reorganize their routines accordingly (Bechky & Okhuysen, 2011). This switching of practices allowed for a significant increase in event time: by prioritizing actions (Danner-

Schröder & Geiger, 2016) non-central performances designated to ensure the safety of the firefighters were omitted which at the same time enabled them to perform the central activities (searching and rescuing victims) faster since more manpower could be assigned to these tasks. Prioritizing thereby triggered an increase of event time.

Paralleling routine: From our data analysis we could identify another routine that led to increase of event time, the routine we labeled paralleling and which will be exemplified in vignette 5.

Vignette 5: As part of their training, instructors simulated that an unknown fluid was spilled out of a cargo container in the Hamburg Harbor container terminal. The simulation took place on the grounds of the actual container terminal to ensure a realistic environment. At 09.14 a.m. the unit was alarmed to a so called Technical Assistance X alarm (THX), indicating that an emergency with biological, chemical or nuclear substances had occurred. Because the alarm indicated the involvement of dangerous substances, the squad leader Stefan instructed the attack team to put their protective gear on already whilst driving to the incident. Upon arrival Stefan and the two attack team members in protective gear left the car and got approached by a harbor worker who directed them to the suspicious container that was leaking an unknown substance as he explained. Further questioning of the men by Stefan revealed that he had got in touch with the substance and felt somewhat dizzy and that his co-worker was still lying next to the container. Stefan immediately issued the following order: "Attack team, rescue the person by the container. Team turntable ladder, you are assigned to truck no. 2. Truck No. 1 set up an emergency decontamination unit, truck 2 set up a medical unit, cordon-off the area". Following this order all teams started to enact the tasks in parallel in an autonomous way, not in need of any further instructions. Stefan reported back to the control center that two victims have been found and are currently getting rescued, that an

unknown fluid is spilling out of a cargo container and that he is in need of the ABC-unit, an additional ambulance and that he needs more information on the fluid with the ID-No. 28-10. After he had completed his report, the teams had already rescued the two persons and started to decontaminate their bodies with water. Stefan then started to chat with the safety officer of the Hamburg Harbor who had arrived at the scene. They were discussing how they could protect the container to avoid that any chemicals spill into the nearby river. Other team members were going back to their trucks and waited for new orders. After some time, the special ABC unit arrived at the scene and Stefan gave the squad leader a heads up on what has happened and what actions he had performed so far. The incident command (Bigley & Roberts, 2001) then switched from Stefan to the leader of the ABC unit Paul who was now in charge of the operation. Whilst Paul started giving order to his staff, Stefan discussed with his team members what to do next. They concluded that one team could assist the ABC unit, one team should serve as an additional safety team, one team should get in touch with the customs to get more information on the container and the freight, and one team should increase the radius of the cordon-off area. The entire operation then unfolded in a quite normal, non-hectic and patient manner.

The vignette reveals several occasions during which paralleling routines were enacted in an effort to safe time: first, the team members put on their protective gear whilst being on route to the incident. At the incident, the squad leader divided the situation into separate, partly independent tasks like decontamination, rescuing, cordoning-off. The paralleling routine refers to the actions of dividing complex situations into sub-tasks and delegating these sub-tasks to team leaders that have the ability to perform these tasks independently. This significantly speeded up event time since more activities could be performed to address the situation in question. Hence, time was perceived as running much faster since more activities

could be performed by acting simultaneously. Following Stefan, the most difficult task of the paralleling routine is to subdivide complex settings into meaningful and manageable sub-tasks, as he explained: "In complex settings, when time is critical we always aim at doing different jobs in parallel in order to get ahead of the situation as fast as possible. My job as squad leader is to decide how to best subdivide and allocate my team which is always a scarce resource. And this is sometimes really difficult because you first have to make sense out of what is going on and then to combine that with the capabilities of your team. But once it is working it relaxes quite some tension." As a result, paralleling routines help to speed up event time and reduce the complexity of the situation.

Switching pace: Duality of event and clock time

Our analysis of data, however, not only shows that routine performances construct event time, but also that routines themselves were performed with a different pace, depending on the circumstances. A switch in the pacing of routines was triggered through sensing urgencies and steading practices. The "alarming routine" for example, which describes the pattern how firefighters get dressed and make their way into the trucks after being alarmed shows that depending on the specific alarm, the routine was performed with a faster or slower pace. Vignette 6 provides a brief example of the sensing of urgency practice from our observations.

Vignette 6a: At 06.25 p.m., as the team of 10 firefighters had just sat down in their common room for dinner, the alarm went off. Alarms were indicated by flashing headlights in the common room, a short horn signal and by indicator lights which were installed in each room in the fire station. The indicated lights showed the firefighters which trucks were actually alarmed; each truck had a specific light and once this light went on the truck and its crew were alarmed. All trucks were alarmed simultaneously, meaning that the entire unit was called

in for an incident. However, the full extent of the incident is at the time of the alarm yet unknown to the firefighters. Once this alarm went off all ten men immediately dropped their cutleries, jumped off their seats, leaving the diner untouched, running down the stairs to the garage where the trucks are parked. In the garage they all jumped into their protective gear which is hanging next to the cars, and mounted on their vehicles. On his way down the squad leader passed by a computer terminal in the stairway since the computer provided him with information on the cause of the alarm and where the incident is located. He took the alarm message which was printed automatically out of the printer, quickly read over it, put on his gear as well and jumped into the lead car saying to his driver and into the radio simultaneously: 'we are alarmed to a technical emergency with potential casualties in Ferbacher Straße 34'. The doors of the garage opened an the entire unit consisting of 4 firefighting trucks left the station at 06.27 p.m. with their alarm signals turned on.

Vignette 6b: At 03.24 p.m., whilst the firefighters were jointly playing futsal, the alarm went off. The indicator lights signaled that only one truck and the crew were alarmed. All men briefly looked at the indicator lights in the soccer room and the men who were not alarmed simply continued the match. The crew that did get alarmed still continued passing the ball to their team mates and just by then left the soccer room, walking into the garage. The squad leader passed by the computer terminal and took the alarm message out of the printer. After having read the message he said to his men: 'it is animal rescue alarm'. The men then started to undress, taking their sweaty sports-shirts off and putting fresh shirts on. They then put on their protective gear whilst continuing to talk about the match and making fun with each other. After all men were properly dressed they mounted in the truck, the garage door opened and they left the station without the alarm signal turned on at 03.31 p.m.

Comparing the two vignettes reveals that the alarming routine (getting ready and leaving the station) was performed with a faster or slower pace, depending on the cause of the alarm.

Here, faster or slower pace refers to clock time since it specifies the number of activities performed per minute, here the time it took to complete the routine. Whilst in the first case it took the entire team less than 2 minutes to leave the station, in the latter example it took the crew of only one truck 7 minutes. In an interview, a firefighter said the following: "From the indicator lights you already get an idea of how urgent the case might be. If all trucks are alarmed it is a more serious issue as if only one is alarmed which is usually the case in situations of technical assistance. In those cases time is not really critical and oftentimes we even do not use our alarm signals when driving." Seen this way the indicator lights triggered a specific response by the firefighters since it provided them with a sense of urgency even without knowing the precise cause of the alarm. A squad leader told us: "Contrary to conventional wisdom, and you might have learned that by now yourself, firefighting is not always emergency and rush, it of course depends… Once I have seen the alarm message I have a good sense how urgent it actually is. We all have some sort of checklist in our mind like are there potential casualties, is the entire unit alarmed, is it an automatic fire alarm system in a building from which we know that it often causes false alarms and so on. And this of course influences how fast we act and how much risk we take in driving to the incident. In non-urgent cases you avoid endangering the public. And this you learn from experience since the alarm does not say fast or slow, but we all know."

In another instance we observed the pace of the routine was slowed down through a steading signal the team leader gave. Here the team was alarmed to a small fire in a public park and upon arrival the team leader immediately realized that just some smoke was coming out of a garbage bin. After the team had left the car the team leader took off his helmet and his team mates did the same before they slowly walked to the garbage bin equipped with a small handheld extinguisher. In this case, taking the helmet off was intended as a clear sign that the situation is not of urgency or dangerous and that the team should approach it in a relaxed way.

Furthermore, as the team leader Tim told us, taking the helmets off is also done to signal to public bystanders that it is an easy, non-dangerous situation since it immediately looks more casual and thereby takes the tension out. Here, a specific sign (helmet off) trigged by event time, slowed down the pace of the routine (here extinguishing the fire).

In those cases, the pace of routines, measured in clock-time, got slowed down, but this clock-time is triggered by event time – the feeling of the firefighters how urgent the alarm actually might be. The alarm does not give an indication of clock time – the official expectation is always the same, 8 minutes after being alarmed they need to be at the incident – firefighters develop an understanding of urgency from experience which is based on event-time. Different events trigger different paces of the same routine. This shows, how in the performance of routines, time is not only constructed in the sense of event time, but also how routines performances differs according to clock time. Seen this way, routines exhibit their own temporality which is driven by event time but performed through clock time. It shows, how clock time and event time are actual dualities, both independent but influencing each other. Whilst event time refers to the situation specific experience of firefighters, clock time refers to the observable pace with which routines are performed. This finding sheds new light on the duality of clock and event time in routine performances and goes beyond traditional notions of time as being either subjective or objective phenomenon (Patriotta & Gruber, 2015).

Discussion

Motivated by the question how time affects routine dynamics and how routines enact temporal structures, our study sets out to explore the duality of time and routines. Our findings contribute to routine dynamics research (Feldman et al., 2016) in two main areas: we

discuss how time drives the performance of routines by introducing the concepts of pace and rhythm. Furthermore, by building on a relational epistemology (Emirbayer, 1997; Schatzki, 2005; Seidl & Whittington, 2014) our findings show how time constitutes patterns and how patterning constitutes time as mutually interdependent processes.

Temporality of routines: Rhythm and pace

In their original conceptualization, routines are timeless 'things' that remain over time (Nelson & Winter, 1982). Routines themselves are trivial machines that process predefined task in a predefined time (e.g. set by calendars and clocks). Seen this way time was only understood as clock time since one can measure and define how long it takes to complete the ex-ante specified task (see for example the early motion studies of Gilbreth and Kent (1911) that used clock time to structure work processes). In contrast, research on routine dynamics has pointed to the processual nature of organizational routines by focusing on their internal dynamics *over* time (Pentland, Feldman, Becker, & Liu, 2012). Our findings, however, go beyond the notion of time in the sense of 'over time', but show that routines have their own, idiosyncratic temporality. Following our insights, clock time served as an artifact (D'Adderio, 2011) since it had no immediate implication on routine performance. Instead clock time was used ex-ante to refer to and ex-post to account for routine performance. Clock time was for example used for compiling statistics on the work of firefighters and to ensure sufficient resources for firefighting operations. As an artifact, it became performative only through its socio-material embedding (D'Adderio, 2008) in the context of firefighting. Socio-material embedding of clock time means, as our findings reveal that clock time gets translated into event time. Event time reflects the sense of routine participants how fast or slow a routine unfolds and how pressing, in terms of urgency, an event is perceived to be. Event time thereby drives the idiosyncratic temporality of routines. To capture this temporality of routines we

suggest borrowing from music theory which has a genuine interest in timing, patterns and temporality (Cooper, 1973; Berry, 1987). Here it is, among others, differentiated between tempo and rhythm of music: With rhythm it is commonly referred to regular, recurring themes that are short enough to memorize (Yetson, 1976) and which are performed in a specific tempo (pace), i.e. the speed or frequency of a tact which means beats per minute (measured in clock time) (White, 1976). Following our findings routines reflect both, rhythm and pace: Here, rhythm means the observable shape of the enacted, reoccurring pattern and this rhythm may be performed with varying pace. Whereas rhythm provides a concept to differentiate enacted routine patterns as they are enacted through time, pace helps us in understanding that the patterns are enacted with different, idiosyncratic frequency. And whereas this pace is measured in clock time, it is actually driven by event time. Rhythm on the other hand, the specific form how a pattern evolves and gets re-enacted over time makes the routine recognizable as a specific routine by routine participants. Although – as research on routine dynamics has convincingly demonstrated – routines are never repeated in similar ways, routine participants nevertheless refer to routines as 'the hiring routine' (Feldman, 2000) or the 'search and rescue routine' (Danner-Schröder & Geiger, 2016) or the 'alarming routine'. This sense of recognizability despite performance differences is reflected in the rhythm of routines. Just as humans learn to identify musical rhythms as 'African', 'European' or 'Arabian', routine participants of a community of practice that reflects their specific knowing how to perform a routine (Danner-Schröder & Geiger, 2016) identify routines based on their rhythmic pattern. Although carried out differently over time, the rhythm of a routine therefore allows identifying similarities within differences.

With pace we refer to the speed with which routines patterns are enacted and which is measured in reference to clock time. The pace itself, from the perspective of routine

participants, is, however, not seen through the lens of clock time but is triggered through event time: the actual perception of urgency of routine participants. The pace of routines therefore reflects the perception of event time of routine participants. As our findings have shown, routine participants are able to slow down or speed up the pace of routines by enacting practices like steading (slow down) or sensing urgency (speed up). This has the potential to extend previous studies on the relation between time and routines: Our study shows that clock time does not only provide the reference against which routine participants carry out their performance (Patriotta & Gruber, 2015), but instead only by making sense out events through experience clock time gets translated into event time which drives the pace of routines. The expectancy framework (Patriotta & Gruber, 2015) of firefighters is "as fast as possible", whereas 'fast' refers to clock time and 'possible' denotes event time. The actual event and its perceived urgency translates possibilities into action patterns unfolding in event time.

Time as actor: From an outside to a relational understanding of timing and pattering

Moving away from a timeless notion of routines, routine dynamic research has emphasized that routines change over time, or, put differently, routine performance: "…exists as a trace through time and space. It is a process, not a thing." (Feldman et al., 2016: 505). They are considered to be a dynamic process since they exist through a process of reproduction *over* time. As such, time is central to a processual understanding of routines. However, current research on routine dynamics has not fully exploited the potential of studying the influence of time on routines dynamics. Whilst the importance of time is acknowledged, time is still conceptualized to exist outside of routines, since the influence of routines on time and vice versa has not been explicitly discussed. Our findings, however, show that time is central to the performance of routines and that routines construct the notion of time and timing. Seen this way time is not something outside of routines but exists inside routines. These findings are

consistent with a relational ontology (Emirbayer, 1997 Latour, 2005; Chia & Holt, 2006) that holds that the nature of any phenomena is not fixed and universal but only becomes constituted in relation to each other. This implies that the nature of any phenomena is inseparable from the connections it is embedded in. Following our findings, the patterns routine participants enacted actually formed their understanding of event time. Firefighters on the one hand experienced time only in relation to the enacted routines, on the other hand the enacted patterns created their understanding of time. Enacting rescuing routines speeded up time since it changed the priorities of firefighters and allowed them to take a higher risk, thereby sidelining safety issues and focusing on the immediate action of rescuing. Paralleling routines allowed firefighters to enact parallel patterns, which also speeded up event time. Through enacting active waiting or pausing routines, routine participants slowed down event time in an effort to actually gain time. Enacting patterns therefore creates and re-creates the perception of event time. As our study shows, time only becomes meaningful in relation to these enacted patterns. As process philosophy has already pointed out, only through and by pattering work the flow of time can be structured which renders time to be meaningful (Hernes, 2008; Tsoukas & Chia, 2002; Schatzki, 2006). But routines as enacted patterns not only create and re-create time, but time also drives the enactment of patterns. As our findings have revealed, depending on their perception of time, firefighters enacted patterns with a faster or slower pace or enacted specific routines that enabled them to speed up or slow down event time. Seen this way, time enables the emergence of patterns whereas patterning enacts the perception of time as mutually interdependent processes. Timing and pattering are therefore indispensable dualities.

As a result, time is not a phenomena that exists outside of routines but routines and time only exist in relation to each other. Time therefore becomes central for our understanding of

patterning work, whereas without patterning work time would not become meaningful either. We therefore suggest moving time to the center of our understanding or routine as processes. Here time becomes a central actor in the performance of patterning work; an actor that only comes into being through patterning work. Just as Heidegger in his oeuvre 'time and being' (1929) has noted, being is not something which is given or fixed, but only becomes constituted through the enactment of time. From this point of view, routines as processes are composed through and in time. And likewise, time is neither an objective (clock time) nor a subjective (event time) phenomenon, but only becomes meaningful in relation to routines as action patterns. The duality of timing and patterning as it is developed here therefore also undermines the traditional distinction between clock and event time (Orlikowski & Yates, 2002). Time is neither objective nor is it entirely subjective but time only becomes meaningful in relation to the enacted patterns. Routines as patterns and patterning work are therefore constitutive of time, and the other way round, time is constitutive for the emergence of patterns.

Conclusion

The paper contributes to our understanding of the relationship between organizational routines and time. Based on an ethnographic case study analyzing the performance of firefighting routines it shows how firefighters enact routines in order to slow down or speed up event time. Moreover firefighters enacted specific practices based on their situational framing that enabled them to switch the pace of routines. Based on these observations we develop an understanding of the duality of time and routines and show how time is central for the enactment of patterns and how patterns enact time. Following our insights, routines have their own temporality in constructing time and how time drives the performance of routines

(rhythm and pace of routines). As a result, the paper suggests moving time into the center of our study of routines.

References

Alvesson, M., & Sandberg, J. 2011. Generating research questions through problematization. *Academy of Management Review*, 36(2): 247-271.

Antonacopoulou, E., & Tsoukas, H. 2001. Time and reflexivity in organization studies: An introduction. *Organization Studies*, 23(6): 857-862.

Bechky, B. A., & Okhuysen, G. A. 2011. Expecting the unexpected? How SWAT officers and film crews handle surprises. *Academy of Management Journal*, 54(2): 239-261.

Berry, W. 1987. *Structural functions in music*. New York: Dover Publications.

Bigley, G. A., & Roberts, K. H. 2001. The incident command system: High-reliability organizing for complex and volatile task environments. *Academy of Management Journal*, 44(6): 1281-1299.

Chia, R., & Holt, R. 2006. Strategy as practical coping: A Heideggerian perspective. *Organization Studies*, 27(5): 635-655.

Cooper, P. 1973. *Perspectives in music theory: An historical-analytical approach*. New York: Dodd.

Czarniawska, B. 2004. On time, space, and action nets. *Organization*, 11(6): 773-791.

D'Adderio, L. 2008. The performativity of routines: Theorising the influence of artefacts and distributed agencies on routines dynamics. *Research Policy*, 37(5): 769-789.

D'Adderio, L. 2011. Artifacts at the centre of routines: performing the material turn in routines theory. *Journal of Institutional Economics*, 7(2): 197-230.

D'Adderio, L. 2014. The Replication Dilemma Unravelled: How Organizations Enact Multiple Goals in Routine Transfer. *Organization Science*, 25(5): 1325-1350.

D'Adderio, L. 2008. The performativity of routines: Theorising the influence of artefacts and distributed agencies on routines dynamics. *Research Policy*, 37(5): 769-789.

Danner-Schröder, A., & Geiger, D. 2016. Unravelling the motor of patterning work: Toward an understanding of the micro-level dynamics of standardization and flexibility. *Organization Science*, 27(3): 633-658.

Eisenhardt, K. M., & Graebner, M. E. 2007. Theory buidling from cases: Opportunities and challenges. *Academy of Management Journal*, 50(1): 25-32.

Emirbayer, M. 1997. Manifesto for a relational sociology *American Journal of Sociology*, 103(2): 281-317.

Faraj, S., & Xiao, Y. 2006. Coordination in fast-response organizations. *Management Science*, 52(8): 1155-1169.

Farjoun, M. 2010. Beyond dualism: Stability and change as a duality. *Academy of Management Review*, 35(2): 202-225.

Farjoun, M., Ansell, C., & Boin, A. 2015. Pragmatism in organization studies: Meeting the challenges of a dynamic and complex world. *Organization Science*, forthcoming.

Feldman, M., & Pentland, B. T. 2003. Reconceptualizing organizational routines as a source of flexibility and change. *Administrative Science Quarterly*, 48(1): 94-118.

Feldman, M., Pentland, B. T., D'Adderio, L., & Lazaric, N. 2016. Beyond routines as things: Introduction to the special issue on routine dynamics. *Organization Science*, 27(3): 505-513.

Feldman, M., & Rafaeli, A. 2002. Organizational routines as sources of connections and understandings. *Journal of Management*, 39(3): 309-331.

Feldman, M. S. 2000. Organizational routines as a source of continuous change. *Organization Science*, 11(6): 611-629.

Feldman, M. S. 2003. A performative perspective on stability and change in organizational routines. *Industrial & Corporate Change*, 12(4): 727-752.

Geiger, D. 2009. Revisiting the concept of practice: Toward an argumentative understanding of practicing. *Management Learning*, 40(2): 129-144.

Geiger, D., & Schröder, A. 2014. Ever-changing routines? Toward a revised understanding of organizational routines between rule-following and rule-breaking. *Schmalenbach Business Review (SBR)*, 66(2): 170-190.

Gilbreth, F. B., & Kent, R. T. 1911. *Motion study*: Constable London.

Heidegger, M. 1929. *Being and time*. Albany: SUNY Press.

Hernes, T. 2008. *Theory for a tangled world*. London: Routledge.

Howard-Grenville, J. A. 2005. The persistence of flexible organizational routines: The role of agency and organizational context. *Organization Science*, 16(6): 618-636.

Howard-Grenville, J. A., & Rerup, C. 2016. A process perspective on organizational routines. In A. Langley, & H. Tsoukas (Eds.), *The Sage handbook of process organization studies*: forthcoming. London: Sage.

Jaques, E. 1982. *The form of time*. London: Heinemann.

Langley, A., Smallman, C., Tsoukas, H., & Van de Ven, A. H. 2013. Process studies of change in organization and management: Unveiling temporality, activity, and flow. *Academy of Management Journal*, 56(1): 1-13.

Latour, B. 2005. *Reassembling the social. An introduction to actor-network-theory*. Oxford: Oxford University Press.

March, J. G., & Olsen, J. P. 1979. *Ambiguity and choice in organizations* (2nd ed.). Bergen: Scandinavian University Press.

March, J. G., Schulz, M., & Zhou, X. 2000. *The dynamics of rules: Change in written organizational codes*. Stanford, CA: Stanford University Press.

Nelson, R. R., & Winter, S. G. 1982. *An evolutionary theory of economic change*. Cambridge: Belknap Press of Harvard University Press.

Nowotny, H. 1992. Time and social theory: Towards a social theory of time. *Time & Society*, 1(3): 421-454.

Orlikowski, W. J., & Scott, S. V. 2008. Sociomateriality: challenging the separation of technology, work and organization. *The Academy of Management Annals*, 2(1): 433-474.

Orlikowski, W. J., & Yates, J. 2002. It's about time: Temporal structuring in organizations. *Organization Science*, 13(6): 684-700.

Ortmann, G. 2010. On drifting rules and standards. *Scandinavian Journal of Management*, 26(2): 204-214.

Parmigiani, A., & Howard-Grenville, J. 2011. Routines Revisited: Exploring the Capabilities and Practice Perspectives. *Academy of Management Annals*, 5(1): 413–453.

Patriotta, G., & Gruber, D. A. 2015. Newsmaking and Sensemaking: Navigating Temporal Transitions Between Planned and Unexpected Events. *Organization Science*, 26(6): 1574-1592.

Patriottta, G., & Gruber, D. A. 2015. Newsmaking and sensemaking: Navigating temporal transitions between planned and unexpected events. *Organization Science*, forthcoming.

Pentland, B. T., & Feldman, M. 2007. Narrative networks: Patterns of technology in organizations. *Organization Science*, 18(5): 781-795.

Pentland, B. T., & Feldman, M. S. 2008. Designing routines: On the folly of designing artifacts, while hoping for patterns of action. *Information and Organization*, 18(4): 235-250.

Pentland, B. T., Feldman, M. S., Becker, M. C., & Liu, P. 2012. Dynamics of organizational routines: A generative model. *Journal of Management Studies*, 49(8): 1484-1508.

Pentland, B. T., Haerem, T., & Hillison, D. 2011. The (n)ever changing world: Stability and change in organizational routines. *Organization Science*, 22(6): 1369-1383.

Schakel, J.-K., Fenema, P. C. v., & Faraj, S. 2016. Shots Fired! Switching Between Practices in Police Work. *Organization Science*, 27(2): 391-410.

Schatzki, T. R. 2005. The site of organizations. *Organization Studies*, 26(3): 465-484.

Schatzki, T. R. 2006. On organizations as they happen. *Organization Studies*, 27(12): 1863-1873.

Seidl, D., & Whittington, R. 2014. Enlarging the strategy-as-practice research agenda: towards taller and flatter ontologies. *Organization Studies*, 35(10): 1407-1421.

Strauss, A. L., & Corbin, J. 1990. *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.

Tsoukas, H., & Chia, R. 2002. On organizational becoming: Rethinking organizational change. *Organization Science*, 13(5): 567-582.

Turner, S. 2014. The temporal dimension of routines and their outcomes: Exploring the role of time in the capabilities and practice perspectives. In A. Shipp, & Y. Fried (Eds.), *Time and work: How time impacts groups, organizations and methodological choices Vol. 2*: 115-145. East Sussex: Psychology Press.

van Maanen, J. 2011. Ethnography as work: Some rules of engagement. *Journal of Management Studies*, 48(1): 218-234.

White, J. D. 1976. *The analysis of music*. Englewood Cliffs, NJ: Prentice-Hall.

Yetson, M. 1976. *The stratification of musical rhythm*. New Heaven and London: Yale University Press.