A Theory of the Origins and Adaptation of Routine

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Abstract
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ABSTRACT

Routines support organizational continuity and stability, but also change and behavioral variation. Scholars therefore research the origins and adaptation of routine. Many explore how habit and routine interact in these processes. This conceptual paper does so as well. Like others, I draw on the psychology of habit and motivated goal pursuit. Building on such theories, I explain how routine is the natural expression of shared habit in the pursuit of collective goals, and without requiring additional mechanisms of aggregation. Habit and routine are complementary and co-evolve. Regarding contributions, my theory offers an explanation for the origin and adaptation of routine, as well as the role of routine in the generation of behavioral variation and novelty.

Keywords: Habit; routine; psychology; regulatory engagement; behavioral theory.
Goal pursuits unfold in a world of experiential continua, ranging from simplicity to complexity, stability to dynamism, and predictability to uncertainty. In this world, the capacity to replicate action while adapting is critical. On the one hand, contexts change and actors must respond. Behavior must adapt (Kruglanski & Gigerenzer, 2011). On the other hand, goal pursuits also rely on recurrent patterns of action in order to progress effectively and efficiently; to the degree that contexts are consistent and stable, repetitive action is highly effective. This is true at the individual level of habit (Wood & Neal, 2007) and the collective level of routine (Bargh & Williams, 2006; Becker, Lazaric, Nelson, & Winter, 2005). Where both habit and routine are defined as patterns of recurrent action or performance, and actions are defined as instances of motivated behavior (Cohen, Levinthal, & Warglien, 2014). Habit and routine therefore combine stability and change. Moreover the two levels of action are deeply intertwined. Collective action is compounded of individuals´ actions, while individual action often derives from patterns of collective action (Cohen et al., 2014; Lazaric, 2003). Yet despite progress in understanding these phenomena, the mechanisms whereby habit and routine interact remain obscure (Salvato & Rerup, 2011). Most importantly, it is not yet clear how individual habits aggregate or combine in routines, nor how changes at either level influence changes at the other (Winter, 2013). In this paper, I address these questions and propose a new theory of the origins and adaptation of routine.

Along with a number of leading psychologists (Higgins, 2012; Mischel, 2004), I argue that answering these questions calls for a fresh perspective on individual and collective psychology, one that embraces contingency and places persons in context. Reflecting this perspective, these and other psychologists reject fixed personality traits or types, and view individual personality and behavior as deeply contextual (Cervone, 2005; Shoda & Mischel, 2006). Some organizational scholars agree, and view collective agency and behavior as equally contextual, complex and contingent (Cohen et al., 2014; Wood & Beckmann, 2006). My theory shares these perspectives.
A major challenge is to specify the mechanisms by which habits at the individual level aggregate or combine into routine at the collective level (Felin, Foss, & Ployhart, 2015; Winter, 2013). My theory resolves this question by exploiting advances in the psychology of habit. In summary, this research views habits as patterns of recurrent individual action which are insensitive to outcome variation, but sensitive to procedural control (Nafcha, Higgins, & Eitam, 2016; Wood & Rünger, 2016). This is because ends, or goal outcomes, become imprecise and less salient in habitual action; whereas enacting procedural scripts as means of control becomes more salient and motivating. As I will argue, when habits thus defined are shared by a collective in the pursuit of common goals, collective action is equally insensitive to outcome variation and more sensitive to procedural control. Motivation shifts from ends to means. Moreover, I will argue that this type of shared habit constitutes routine. My theory thereby integrates generative mechanisms across individual and collective levels of analysis. It conceives of individuals and organized collectives as inter-dependent systems of means-ends processing (see Cohen et al., 2014).

Furthermore, I argue that the key mechanism which drives the initial encoding of habit and routine, and their subsequent adaptation, is value force experience, defined as being attracted or repulsed in relation to a goal or value outcome. Here I draw on Higgins´ (2006) Regulatory Engagement Theory (RET), in which task engagement is defined as the degree to which a person is engrossed or fully occupied in goal pursuit. Building on his earlier theories of self-regulation (1998, 2005), Higgins explains how the value of goals as ends combines with the value of exercising proper or appropriate means, to generate an overall value force experience of attraction or repulsion. In my theory, I argue that the initial encoding of habit and routine is driven by these value forces. Indeed, theories of habit assert as much. They argue that habitual action originates in motivated goal pursuit, and such action is recurrent owing to an agent’s sense of engagement and outcome value (Wood et al., 2016). Notably, this is exactly the process which RET explains.
Uniting theories of habit and regulatory engagement therefore builds on their deep complementary. Both view persons in context and focus on the mechanisms by which means and ends interact in goal pursuit. In this regard, each body of theory addresses the same enduring problematic: to what degree is motivated action explained by means and/or ends (Eckhardt & Shane, 2013; March, 2003; Wijen, 2014)? In RET, both means and ends are highly salient and motivational (Higgins, 2006). RET also brings a deeper level of detail about operative mechanisms. In theories of habit, by contrast, goals as ends reduce in precision and salience, while the salience of procedural means is enhanced (Wood et al., 2016). Hence both theories revise the traditional distinction between ends and means in the explanation of action. Whereas prior research often privileges goals as ends in the explanation of action, and views means as subordinate (Higgins, Cornwell, & Franks, 2014; March, 2006; Sen, 1997), the theories I draw from do not. I agree with their perspective, and seek to explain the dynamic of means and ends at the core of habit and routine.

Regarding my paper’s major contributions, the first is to the literature on routine, offering a new explanation of origins and adaptation. This explanation includes showing how regulatory engagement functions as a primary mechanism of behavioral encoding and variation. My theory also resolves the problems of aggregation and combinatorics between individual habit and collective routine. This is achieved by exposing the deeper level of psychological processing which underpins both patterns of recurrent action. In fact, habit and routine are shown to be inter-dependent systems. In doing so, my theory provides a new perspective on traditional ontological and methodological distinctions between individual and collective levels of analysis.

A second major contribution is to offer a new framework for analyzing organizational phenomena which rely on routines, such as decision-making (Becker & Knudsen, 2005), innovation (Winter, 2006), collective capabilities (Winter, 2000), communication (Feldman & Rafaeli, 2002),
and organizational learning (Zollo & Winter, 2002). Importantly, by explaining routine insensitivity to outcome variation, combined with heightened sensitivity to procedural control, my paper illuminates a number of enduring dilemmas: organizational imperviousness to and dysfunctional learning from feedback; and the sources of behavioral novelty and adaptation (March, 2006). Third, by infusing fresh insights from contemporary psychology, I hope to contribute to the rejuvenation of the Carnegie Tradition of behavioral theory (Cohen et al., 2014; Gavetti, Levinthal, & Ocasio, 2007).

To develop my theory, I first review the literatures on habit, routine and Regulatory Engagement Theory (RET). Drawing on these literatures, I problematize traditional distinctions between individuals and collectives, and between means and ends. I then specify novel mechanisms of routinization, behavioral novelty and adaptation. The paper concludes by discussing implications for future research into routine and related behavioral topics.

**THEORIES OF HABIT AND ROUTINE**

Routine is defined as repeated patterns of collective action or performance, often within organizations (Becker, 2005; Cohen, 2006; Feldman & Pentland, 2003). Viewed from both capability and practice perspectives (Salvato et al., 2011), routines play an important role in social and organizational life, connecting and coordinating groups of people within systems of shared meaning, thought and action (Feldman et al., 2002; Parmigiani & Howard-Grenville, 2011; Winter, 2000). Habit is defined similarly, as repeated patterns of individual action or performance. Patterns of habit support the stability and continuity of individual personality. Indeed, as William James (1890: 3) noted, people can be described as “bundles of habits”. In similar fashion, routines support the stability and continuity of organizational life (Cohen et al., 2014). As Nelson and Winter (1982: 96) write, routines are the “source of continuity in the behavioral patterns of organizations.” That said, habits and routines also change and adapt in response to exogenous and endogenous factors: new situational stimuli and altered psychological states emerge; behaviors recombine into new action
patterns; and there is a constant degree of variance and incomplete replication which can stimulate behavioral adaptation (Becker, Knudsen, & March, 2006).

It is also well established that routine can be viewed through an evolutionary lens. For example, Nelson and Winter (1982:400) write that “routines in general play the role of genes in our evolutionary theory” of economic change. They argue that routines are a central unit of economic variation and selection, whereby industrial organizations adapt procedures and processes in response to a changing environment (Becker, Lazaric, Nelson, & Winter, 2005). From this perspective, the variation of routine is viewed as analogous to genetic mutation in biological evolution: organizations embody combinations of routines, just as living organisms embody combinations of genes. Regarding habit, it can be viewed through an evolutionary lens as well. Evolutionary psychologists argue that habitual patterns of recurrent action develop through a process of variation, selection and replication, as individuals strive or stumble towards behavioral fitness (Hodgson, 2010; Workman & Reader, 2014). In summary, the origins and adaptation of both habit and routine can be understood in evolutionary terms.

Habit and routine also require little if any deliberation (Bargh et al., 2006; Wood et al., 2016). Both types of action are typically procedural, effortless and executed with limited mindfulness, although scholars continue to debate the degree of mindfulness in habit and routine (Levinthal & Rerup, 2006; Verplanken, Friborg, Wang, Trafimow, & Woolf, 2007). Neuroscientific evidence adds to this debate. For example, studies show that brain injured patients with significant loss of memory and deliberative capacities can still acquire new habits and perform them successfully (Cohen, Ylvisaker, Hamilton, Kemp, & Claiman, 2010). That said, habit and routine also exhibit a degree of conscious deliberate processing (Glăveanu, 2012; Zollo et al., 2002). Other neuroscientific studies support these findings. Laureiro-Martinez (2014) shows that people possess a neurological propensity for routine action which interacts with deliberative executive control in decision making.
Any theory of these phenomena must also tackle the issues of variation and adaptation raised earlier. How do relatively automatic patterns of recurrent action relate to behavioral novelty and variation (March, 2006)? Are habit and routine generative of novelty and variation, or primarily obstructive? Considered at separate levels of analysis, variation may be accounted for. First, at the individual level of analysis, psychologists show how habits support creativity (Glăveanu, 2012) and variation is inherent in human personality (Mischel, 2004). Second, at the collective level, the imperfect replication of routines, their dynamic re-combination, plus situational and social contingency, all help to explain behavioural variation, novelty and adaptation (Feldman et al., 2003; Madjar, Greenberg, & Chen, 2011; Tsoukas & Chia, 2002).

Furthermore, a particular recurrent action pattern may be simultaneously habit and routine: habit when viewed in terms of individual action, and routine when viewed in terms of a collective (Cohen et al., 2014; Winter, 2013). However, the relationship between individual and collective levels of analysis remains opaque (Felin et al., 2015). Many propose some type of aggregation mechanism, whereby habits combine to form routine, but most of the proposed mechanisms exhibit ontological dilemmas: either habit is viewed as fundamental (methodological individualism) and routines are epiphenomenal; or routine is viewed as fundamental (methodological collectivism) and individual habit is derivative. The deeper challenge is to explain how individuals and collectives co-evolve and interact within social contexts (Salvato et al., 2011). This calls for a more pluralistic ontology, in which no single level of observed reality is accorded privileged foundational status, whether it be at the individual or collective level (Winter, 2013). This prompts further critical review of psychological foundations.

**Psychological Assumptions**

Much research into habit and routine assumes one or other theory of personality, primarily trait-based, behaviorist or type theories (Cohen et al., 1996; Winter, 2011, 2013). In particular, the
Five Factor Model trait theory has attained normative status for many management and organization scholars and few would question its validity (e.g., Judge & Zapata, 2014; Klein, Beng-Chong, Saltz, & Mayer, 2004; McCrae & Costa, 1997). Not surprisingly, therefore, this theory is also invoked in research on the origin of routine (e.g., Felin, Foss, Heimeriks, & Madsen, 2012). However, while such theories of personality have explanatory power, they fail to account for the deeper complexities of human personality and behavior (Camic, 1986; Lazarus, 1991). They cannot fully explain the contingency of subjectivity, the variability of personality, and the continuum of automaticity and deliberation in human action (Cohen, 2006; Fiedler & Wanke, 2009; Liljenfors & Lundh, 2015). In fact, behavioral variance is typically problematized in trait theories, and researchers then try to uncover reasons why individuals deviate from assumed norms (Wood et al., 2006). Opposing this view, some call for reform of the psychological basis of micro-level theories, arguing they should be “more extensively grounded in sound contemporary psychology” (Cohen et al., 2014: 334). Likewise Winter (2013: 126) advocates “microfoundations that offer an alternative to the standard brand “individuals” of economic theory.”

Leading scholars therefore question the validity of trait-based, behaviorist and type theories, and regard them as over-simplifications (Bandura, 2015; Cervone, 2005; Mischel, 2004; Wood et al., 2006). They reject theories which assume stable, universal determinants of individual personality and behavior. Instead, they argue for more dynamic theories in which contextual and intra-personal factors constantly interact. This reformist thinking reflects a wider trend towards viewing persons in context within the social sciences (Frie & Coburn, 2011; Michel, 2014). I adopt such a perspective as well. Moreover, for this reason, I do not frame my theory in terms of “microfoundations.” Arguably, this term privileges the individual level analysis and implies a bottom up process of aggregation from foundational micro processes. In contrast, my theory is ontologically pluralistic, and views individual and collective patterns of action as co-evolutionary and inter-dependent.
From this perspective, the observed stabilities of personality and organization are understood as recurrent patterns of situated behavior, expressed as habit and routine respectively. The focus of analysis thereby shifts to a deeper level, to more complex interactions between psychological processes and the situational context. Indeed, social scientists in a range of disciplines call for a richer appreciation of the social nature of persons in routine action (e.g., Dionysiou & Tsoukas, 2013; Parmigiani et al., 2011). Sociologists, for example, use terms such as “habitus” and “structuration” to refer to processes whereby the social context and experience within it give rise to social forms, patterns of social cognition and routine behavior (e.g., Bourdieu, 1977; Giddens, 1984; Leonardi & Barley, 2010). Scholarship on habit exhibits comparable trends (Wood et al., 2016).

**ORIGIN AND ADAPTATION OF HABIT**

Research into the psychology of habit has progressed in recent years. However, debate in the management literature continues to focus on earlier conceptions and theories. For example, Dewey is regularly cited as the key source of insight on this topic (e.g., Cohen, 2006; Winter, 2013). Of course, he remains significant and cannot be ignored, but much has happened since. Among contemporary psychologists, habit is explored in the light of social cognitive and neurocognitive advances. The consensus view is that habit is a pattern of individual action which is procedural and effortless in nature, and largely insensitive to outcome variation (Wood et al., 2016). That is, in habitual action, goals as ends become imprecise and less salient, meaning variations from outcomes are not significant in feedback. Hence, the outcomes of habitual action rarely lead to perceived discrepancies. Rather, feedback from habit is more sensitive to the enactment of procedural scripts as a form of control (Nafcha et al., 2016).

In this way, habits evolve over recurrent action cycles, as agents consistently approach and achieve satisfactory outcomes. As a result of such positive feedback, original goals become increasingly imprecise and less salient to consciousness. And for this reason, agents become
insensitive to outcome variation. At the same time, they experience satisfaction from enacting procedural means of control. The development of habit therefore entails the progressive encoding of procedural scripts into memory, coupled with the decreasing precision and salience of goals. Moreover, as a consequence of this process, habitual action is primarily motivated by enacting procedural means of control, not by pursuing goals as ends (Nafcha et al., 2016).

These mechanisms are depicted in Figure 1. The figure shows three simplified phases of development over time, moving from left to right. The upper section of Figure 1 labelled A shows procedural means. Procedures are shown to become increasingly salient, depicted by the increasing size of the procedural segments. At the same time, procedures become more consistent and encoded into memory, illustrated by the increasing connection between the dots in successive phases. Whereas the lower section of Figure 1 labelled B shows the process affecting goals. It shows goals become increasingly imprecise, depicted by the decreasing number of dots and connections in each successive phase. The decreasing size of the segments illustrates that goals are becoming less salient.

Regulatory Engagement and Habit

The preceding section summarizes contemporary psychology of habit. However, questions remain about the mechanisms of habituation. I argue that answers can be found in Regulatory Engagement Theory (RET) (Higgins, 2006; Higgins & Scholer, 2009). This is because RET explains the mechanisms which drive motivated goal pursuit, and why action is recurrent owing to an agent’s sense of engagement and outcome value. And this is exactly what happens in the initial phase of habit formation (Wood et al., 2016). Furthermore, many of the key constructs and relationships within RET are equally central to theories of habit: the motivational force of goals as ends and procedural means; the dynamic regulation of behavior; responding to feedback; and
contextual variation. The difference between the two theories is that RET organizes these factors into a model of engagement strength in goal oriented action, whereas theories of habit integrate many of the same factors in the explanation of effortless procedural action.

More specifically, RET explains task engagement as the interaction between means and ends. Engagement strengthens through the use of proper pursuit means, as well as from properties of goals conceived as value targets. In terms of pursuit means, people feel more engaged when opposing interfering forces and overcoming internal existence. Engagement is further strengthened by value from fit with proper means, this is, from the sense of value which derives from acting in accordance with one’s self-regulatory orientation. For example, when seeking positive gains from a promotion focus, acting with eager exploratory means generates a sense of value from regulatory fit and strengthens engagement. Alternatively, when seeking to avoid losses from a prevention focus, acting with vigilant avoidance means can also generate value from fit and strengthen engagement. Moreover, and importantly for my argument, value from fit can occur independently of the outcome of action, because exercising proper means is rewarding in itself.

Figure 2 shows the main elements and relationships of the RET model. Importantly, a number of factors in the RET model are less salient in habit processing (for example, opposing interfering forces and overcoming personal resistance seldom apply); but latent factors can be activated in response to situational and/or psychological change. Before explaining this process in full, however, I will review the elements of the RET model, moving from left to right in Figure 2.

At the top left of Figure 2 are the subjective pleasure/pain properties of the desired endstate or value target, which can also be conceived as the consequential ends of goal pursuit. Additional properties of value targets are: (a) shared beliefs with others about what’s desired and what’s
accepted (that is, standards), at both interpersonal and broader societal levels; and (b) need satisfaction, even if it does not produce a significant hedonic pain or pleasure experience (e.g., the value target is being able to each lunch daily, or to earn a basic salary that covers living expenses).

Moving further to the right, Figure 2 shows the hedonic experience related to pursuing a value target, that is, the experience of pleasure or pain associated with the value target.

The lower sections of Figure 2 depict the mechanisms of engagement strength. In addition to the value target, sources of engagement include opposing interfering forces (reflecting task difficulty), overcoming personal resistance (negative attitudes or dispositions), sensing regulatory fit (acting in a way that matches one’s self-regulatory orientation), the use of proper means (which creates a sense of value), and the perceived likelihood of success. As Figure 2 further shows, engagement strength then influences motivational force and value experience. Feedback from value experience may then influence future action.

In RET, therefore, action is not solely motivated by the anticipated value or utility of consequential ends, but also by the appropriate means of goal pursuit, including the sense of value derived from exercising proper means. Moreover, if the motivational force associated with the exercise of procedural means exceeds that of attaining goals as ends, this does not entail dysfunctional or irrational behavior. As Higgins (2006) notes, it’s not only winning or losing that matters (attaining desired ends), but how you play the game (exercising proper means). In fact, how one plays the game often matters more than winning itself. The foregoing arguments regarding the origin of habit can be summarized in the following proposition.

**Proposition 1.** Habit evolves over cycles of engaged goal directed action which produce positive value experience; however, and as these action cycles occur, future action becomes
increasingly insensitive to outcome variation and lowly engaged, but increasingly sensitive to procedural control.

**Variation and Adaptation of Habit**

RET also offers mechanisms which can drive behavioral variation and adaptation of habit. To begin with, as discussed earlier, recall that habit originates in intentional, goal oriented and engaged action (Wood et al., 2016). In other words, the initial phase of habit formation conforms to the RET model. Action is not yet habitual, but rather goal oriented. Then, over cycles of action, the value experience of goal approach and procedural control progressively encodes the action pattern. In terms of the RET model, needs and standards are consistently met, leading to a reduction in the precision and salience of value targets and goals. Goal related feedback therefore becomes less significant in the adaptation and motivation of future action.

Moreover, owing to satisfactory goal approach over cycles of action, there is little need to overcome obstacles or personal resistance. This weakens engagement. Yet at the same time, the likelihood of success increases. Agents will also continue to experience value from fit, because the action constitutes proper means for control. Indeed, value from fit can occur independently of other elements of the RET system (Higgins, 2005). Over time, therefore, the action becomes encoded as consistent procedural means, but with a much reduced level of engagement. Rather than being highly engaged, action becomes effortless, unmindful and procedural. Future action is motivated by the value experience of exercising control. The recurrent action pattern is now habit.

Nevertheless, all features of the RET system remain potentially active. Changes in the agent’s situational context or psychological states may create new obstacles or stimulate personal resistance. Changes can also alter the likelihood of success, or elevate the salience of the value target itself. New needs, standards or hedonic properties may arise. Value targets and goals may
become more salient, and if so, the agent will shift from habitual to intentional goal directed action. Ends again become more salient as motivators, and the agent will be sensitized to outcome variation. The agent’s regulatory engagement system is re-activated. As a result, the initial habit will either absorb, amend or be forgotten. The degree of such adaptation will largely depend on the scale and scope of contextual and psychological variance, and how intensely action becomes goal oriented and intentional.

**Proposition 2.** Habit adapts as contextual and individual psychological changes stimulate latent features of the individual’s regulatory engagement system, resulting in heightened sensitivity to outcome variation and stronger goal orientation in future action; where the degree of resulting behavioral adaptation will be contingent on the scope and scale of the stimulating changes.

**ORIGIN AND ADAPTATION OF ROUTINE**

**Origin of Routine**

Collectives often possess common goals which call for coordinated action. Sometimes collectives emerge for the explicit purpose of achieving such a goal. On other occasions, an organized collective may already exist, and individuals join and inherit its purpose (Cohen et al., 2014; Feldman et al., 2002). In either case, when a common goal motivates collective action over time, members of a collective will develop similar habits. All will experience the habituation mechanisms explained above. Goals as ends will be become increasingly imprecise and less motivating, while procedural means will become more consistent and salient. Feedback will be increasingly insensitive to outcome variation, but increasingly sensitive to procedural control.
Collective action is increasingly effortless and unmindful. The result is a pattern of shared habit among members of the collective.

Importantly, the shared habit of the collective will embody the same imprecise goals. This is because as goals become imprecise, individual preferences fade and goals become equivalent. Similarly, encoded control procedures become more consistent and motivating (Nafcha et al., 2016). Moreover, such procedures will often be encoded into shared organizational artifacts, systems and structures (Feldman et al., 2003). In this way, members of the collective possess the same imprecise goals and heightened procedural means. Moreover, because goals are imprecise, outcome variation is relatively insignificant in motivating future action. Rather, action is motivated by the value experience of exercising control through the enactment of encoded procedures.

Regarding regulatory engagement among the collective, as in habit processing, needs and standards are consistently met, while hedonic intensity lessens, leading to a reduction in the precision and salience of collective goals (Higgins, 2006). There is also no need to oppose obstacles or internal resistance, owing to satisfactory goal approach over cycles of action. Although likelihood increases, as does value from fit from the exercise of procedural control as proper means. Overall, however, collective engagement is relatively weak, at least while benign conditions persist. Moreover, the level of engagement will be broadly equivalent among members of the collective, given that procedural action is relatively effortless, unmindful and consistent. And importantly, when this state is reached, the recurrent action pattern is routine.

A major consequence of this process is that no special mechanism of aggregation is required to explain routine (see Felin et al., 2012). There is no need to aggregate individuals’ habits, because the constituent means and ends are the same at both levels of analysis. Aggregation is inherent, when recurrent action is motivated by the collective desire to exercise control relative to imprecise, equivalent goals. The problem of aggregation is therefore resolved by members of a collective
possessing the same habit. In fact, the resulting action pattern constitutes habit at the individual level, and routine at the collective level. Both patterns of recurrent action are complementary expressions of the same behavioral system. Granted, they differ in terms of focal agency—one is individual, the other collective—but they are equivalent in terms of means, ends and motivations. The following proposition summarizes this explanation of the origin of routine.

**Proposition 3.** Routine evolves over cycles of collective, engaged goal directed action which produce positive value experience in the pursuit of a collective goal; as action cycles accumulate, collective action becomes increasingly insensitive to outcome variation and lowly engaged, but increasingly sensitive to procedural control, constituting a system of shared habit having equivalent procedural means and imprecise goals.

These mechanisms are depicted in Figure 3. The figure shows three simplified phases of development over time, moving from left to right, similar to those in Figure 1. The upper section of Figure 3 labelled A shows procedural means for two agents. Procedures are shown to become increasingly salient, depicted by the increasing size of the procedural segments. At the same time, procedures become more consistent for both, illustrated by the increasing similarity of dots and connections. Whereas the lower section of Figure 3 labelled B shows the process affecting goals for the same two agents. It shows goals become increasingly imprecise, depicted by the decreasing number of dots and connections in each successive phase. The decreasing size of the segments illustrates that goals are becoming less salient, but at the same equivalent.

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Variation and Adaptation of Routine

Not surprisingly, the mechanisms which drive variation and adaptation of routine mirror those which drive variation and adaptation of habit. As in habit, all features of the RET model remain potentially active, although some antecedents of engagement are typically latent during routine action: in particular, interfering forces and internal resistance are rare. However, changes in the situational context or social psychological states of the collective may activate these latent factors. New obstacles or internal resistance may emerge. Changes could alter the likelihood of success, or reduce agents’ sense of value from fit. At the same time, new needs, standards or hedonic drivers may arise, making value targets and goals more salient. If such changes occur, the collective will shift from habitual to more intentional, goal directed action. Goals as ends will become more salient and motivating. Consequently, feedback will be more sensitive to outcome variation, relative to procedural control. Individual preferences can also become more salient and potentially intrusive. In summary, members’ regulatory engagement systems are active once again. As a result, shared habit as routine will be disturbed, often adapt, and sometimes forgotten. The degree of such adaptation will largely depend on the scale and scope of contextual and psychological change, and how intensely action becomes goal oriented and intentional.

Proposition 4. Routine adapts as contextual and psychological changes stimulate latent features of the regulatory engagement systems of the collective, resulting in heightened sensitivity to outcome variation and stronger goal orientation in future action; the degree of resulting adaptation will be contingent on the scope and scale of the stimulating changes.

Through the same mechanism, routine disturbance also plays an important role in the initiation of behavioral variation and novelty. Recall that imprecise goals mean that routine is
relatively insensitive to outcome variation, and most sensitive to procedural control (Wood et al., 2016). Clearly, falling short of imprecise goals is less likely—exactly because of their imprecision. Hence, as long as outcome variations are within the broad limits of imprecision, they are not a source of impactful feedback. But if agents are therefore insensitive to outcome variation, then goal related performance is insignificant in guiding future action. Hence routine is often impervious to goal related feedback (March, 2006). Variation and adaptation are more likely in response to procedural performance (Feldman, 2000). In summary, absent significant contextual or social psychological change, routine action is relatively impervious to outcome variation, meaning behavioral adaptation is less likely in response to goal related feedback.

At the same time, and for the same reason—that is, because of routine insensitivity to outcome variation—novelties will emerge. This happens because the system tolerates variations, assuming they remain within the limits of imprecise goals. Outcome variations will therefore be accommodated if they are consistent with the broad trajectory of collective goals. In this way, routine supports the accumulation of variation, while maintaining the priority of procedural control. However, when significant contextual or psychological changes do occur, feedback is sensitized to outcome variation once again. And when this occurs, pre-existing variations spontaneously generate performance discrepancies. Behavioral novelty and adaptation are then more likely, as the collective activates intentional goal seeking in response to feedback. The following propositions summarize these consequences for routine adaptation.

**Proposition 5.** Routine is relatively insensitive to feedback from goal related performance, unless significant contextual and social psychological changes stimulate heightened sensitivity to outcome variation and goal oriented action.
**Proposition 6.** Routine supports the accumulation of outcome variation within the bounds of imprecise goals and procedural control, and these variations become a spontaneous source of feedback discrepancy and behavioral novelty when contextual and social psychological changes stimulate heightened sensitivity to outcome variation and goal oriented action.

Implications follow for other responses to feedback. Notably for behavioral theory, the paucity of perceived discrepancy from performance feedback means routine is less likely to trigger the adaptation of collective attention and aspiration levels, nor lead to learning (Levitt & March, 1988; March, 2006). For the same reason, as long as routine remains routine, it cannot fully explain the evolutionary adaptation and selection of new action patterns (cf., Nelson et al., 1982). All of these processes require perturbations which are large enough to activate regulatory engagement mechanisms and goal oriented action.

**DISCUSSION**

The explanation of habit and routine requires a revision of traditional psychological and ontological assumptions. Individual and collective agents are not distinctly different categories, but co-evolve, and their means and ends of action adapt in response to a changing world. At the same time, consistent features of this world stimulate recurrent patterns of action. Initially, cycles of action are goal directed, highly engaged and produce positive outcome value. As cycles accumulate, some of these action patterns become habit or routine, lowly engaged and procedural in nature. Yet once formed, habit and routine can also adapt. Changes in context and agents’ psychological states cause action to become intentionally goal seeking once again (Nafcha et al., 2016). Outcome variation then matters as a source of feedback and motivation. The overall system is an ecology of situated behavior, of persons in context.
Thus conceived, the explanation of recurrent action patterns requires neither the reduction of individual psychology to mechanistic determinants, nor the prioritizing of ends over means as explanatory factors. Neither the individual nor collective level of analysis occupies a privileged ontological status. Instead, individuals and collectives are complementary systems in which personal agency and inter-personal relatedness co-evolve (Mischel, 2004). From this perspective, both individuals and collectives can be seen as mediated, complex adaptive systems, linking persons in context (Latour, 2005). Classical distinctions are thereby relaxed. Ontology is contingent and relational. In particular, the traditional empirical realist conception of autonomous individuals is reinterpreted as epiphenomenal (see Wegner, 2002). It is no longer necessary to choose between methodological individualism and collectivism in the explanation of routine. Each perspective is a reification of deeper psychological processes.

This critique is challenging and controversial, yet ontological revisions of this kind are a regular feature of empirical science. In numerous fields of enquiry, and over many years, intuited ontological distinctions are diluted or displaced, once the underlying phenomena and their mechanisms of interaction and transformation become clear. Consistent with this historical trend, my theory implies that classical distinctions between individuals and collectives, as well as between ends and means in the explanation of behavior, will further dilute as well. In this paper, I have examined the origin and adaptation of routine as an expression of this shift.

**Habit and Routine**

My paper’s primary contribution is to the literature on routine. I integrate insights from the psychology of habit with RET to develop a new theory of the origin and adaptation of routine. At its core, my theory argues that owing to the emphasis on procedural means in relation to imprecise common goals, collectives develop shared habits which constitute routine. My theory therefore suggests a new understanding of the aggregation and combinatorics of routine. In contrast to prior
thinking on these topics, my theory proposes that behavioral aggregation is a natural feature of collective goal pursuit. Combinatorics are inherent. Adopting this perspective, habit and routine are complementary systems of imprecise goals and heightened means.

Another contribution is better to explain the imperfect replication of routines in the generation of organizational novelty, adaptive learning and innovation (Becker et al., 2006). On the one hand, there are constant variations in context, collective behaviour and social psychological states. Yet owing to the imprecision of goals and emphasis on procedural control, routine is relatively tolerant of outcome variation, allowing them to accumulate without correction or adjustment. Exact replication of routine is therefore unlikely, and simultaneously a source of behavioural novelty (March, 2006). And importantly, in the context of routine, insensitivity to outcome variation results in imperviousness to goal related feedback. As noted earlier, this places significant constraints on organizational learning and adaptation, especially in less turbulent environments.

My theory also suggests a new way to view the collective agency of routine: collective agency can be reconceived as a network of agents who share imprecise goals combined with consistent control procedures. But this agentic network does not include full personal aspirations and dispositions. These are sublimated in the imprecision of goals and consistency of procedures. Hence, by unpacking the deeper level of inter-personal processing, we can explain collective agency without ascribing it full agentic status. Collective agency is the shared activation of a common behavioral system, but without implying the involvement of full identities and personality systems.

Another implication relates to the distinction between the practice and capability perspectives on routine (Salvato et al., 2011). On the one hand, regarding the practice perspective, my theory proposes that when contextual and psychological changes are modest—that is, within the tolerance of imprecise goals and procedural control—action remains routine and insensitive to outcome variation. In these circumstances, action is effortless, low in mindfulness, and not motivated
by deliberate goal seeking. Such action is explained in terms of procedures and performance, that is, in terms of practices (Pentland, Feldman, Becker, & Liu, 2012). On the other hand, however, when contextual and psychological changes are more significant, and approach or exceed the tolerance of imprecise goals and procedural control, then action is sensitive to outcome variation. Action is more intentional, mindful, and motivated by goal seeking. In this case, the explanation of routine must incorporate deliberate goal seeking and sensitivity to outcome discrepancy; that is, it is more about the development of capabilities and learning from feedback (Winter, 2013). Not surprisingly, scholars who focus on intentional goal seeking and performance feedback (such as those who study strategic management and economics) tend to favor a capability perspective on routine. Whereas, scholars who focus on procedural means and performativity often favor the practice perspective (Feldman, Pentland, D’Adderio, & Lazaric, 2016). My theory contributes to this literature by explaining the behavioral conditions which best support each perspective.

**Behavioral Theories**

My theory also has implications for behavioral theories of organizations and management (see Argote & Greve Henrich, 2007; Felin et al., 2015). At a general level, my theory provides a new set of mechanisms for explaining organizational phenomena which are deeply dependent on routine, such as collective attention, adaptive aspirations, learning and capabilities, decision making, and exploration and exploitation. Building on the theory I present, future researchers can investigate the triggers and thresholds of task engagement, goal oriented versus procedural action, the origins of behavioral novelty and organizational adaptation. In particular, to the extent that routines are constitutive of organizational capabilities (Felin & Foss, 2009; Winter, 2013), then my theory suggests a new lens on the evolution and adaptation of capabilities. This would involve deeper investigation of the shared habit systems which constitute routine, and the way in which multi-level patterns of action cohere into capabilities as meta-routines (Winter, 2012).
Once elaborated and tested, my theory may also lead to significant practical benefits in the design and management of organizations. For example, it is known that inflexible routines can lead to competency traps and myopias which stifle learning and adaptation (March, 1991). Indeed, inflexible routines can be a major impediment to organizational change (Tripsas & Gavetti, 2000; Zbaracki & Bergen, 2010). My theory suggests that this problematic can be restated as follows: in many contexts, the value experience of exercising proper means (routine control procedures) inhibits the adaptation of attention, aspirations and goals. If so, then the widespread rigidity of encoded procedures and resistance to organizational change is not simply a consequence of limited adaptive capabilities, poor absorptive capacity or structural inertia (see Cohen & Levinthal, 1990). The persistence of habit and routine derives from the inherent imprecision of goals, insensitivity to outcome variation and motivational force of procedural control. Once this is understood, it may be feasible to amend collective action patterns by targeted interventions which activate intentional goal seeking. A previous CEO of the Alcoa aluminum company, Paul O’Neill, provides an example. He triggered significant adaptation of work routines across his organization by connecting the desired change to employees’ deeply felt concern for shared safety and well-being (Duhigg, 2012). In this way, O’Neill stimulated, needs, standards and hedonic states (whether knowingly or not), thereby joining proposed changes to important personal and collective aspirations. As shown by this example, by deliberately activating regulatory engagement systems and making intentional goal seeking more salient, one may transcend routine to enhance organizational flexibility and learning.

**Conclusion**

The dynamics of recurrent action support stability and change within both individuals and organizations. In increasingly volatile and complex environments, it is important to understand and manage these processes, and especially the relationship between individual habit and collective routine. However, past research on these topics has been inconclusive, hampered by limiting
assumptions about agency, and the means and ends of collective goal pursuit. My paper presents a fresh approach, adopting recent insights into the psychology of habit and regulatory engagement. In doing so, I expose the deeper level of psychological processing which supports both habit and routine, as well as individual and collective agency. Building on this foundation, I propose mechanisms which can explain the origins and adaptation routine. Moreover, the same mechanisms explain variations which can lead to behavioral novelty. Habit and routine are thus conceived as co-evolving within an ecology of situated behavior, relaxing traditional distinctions between individual and collective levels of analysis, and between means and ends.
REFERENCES


A Theory of Routine

Figure 1

Cycles of the habit development process over time

Legend

A = Increasing consistency and salience of procedural means
B = Decreasing precision and salience of goals as ends

Figure 1

Cycles of the habit development process over time
Figure 2

Illustration of variables contributing to engagement strength and value force experience

(Adapted from Higgins et al., 2009)
Figure 3

Cycles of the habit-routine development process over time

Legend

A = Increasing consistency, salience and similarity of procedural means among agents
B = Decreasing precision and salience of goals as ends, but increasing similarity of goals among agents