Generalization

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Abstract

Psychological generalization is a pervasive phenomenon. The formation of customs, habits and conventions rely on it. This note outlines some aspects of generalization that are of particular relevance for institutional analysis, such as learning, routinization, fairness perception, attitude formation, and group effects. Closer attention to phenomena of generalization may enhace our apprehension of the economic performance of firms and countries and may contribute to our understanding of social evolution.

Keywords: generalization, motivation, authority, consistency, social evolution, norms punctuation, learning, fairness, local culture, attribution, self-classification, historical specificity

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Introduction

Psychological generalization is a fundamental proclivity underlying learning, motivation, and interaction. The term refers to forming general notions or propositions from the observation and comparison of individual facts or appearances, and applying them to similar or analogous cases. The tendency works across cognition, emotion, and habit formation. Generalization is a very general phenomenenon.

This note outlines some aspects of generalization that seem of particular relevance to institutional analysis. Sections I to V discuss briefly how learning, coordination, and work attitudes depend on generalization, Sections VI to VII relate the productivity of firms and countries to phenomena of generalization, and Section VIII explains that generalization may give rise to discontinuity in social evolution. Finally, Section IX addresses the perennial background issue of historical specificity. It is emphasized that a recognition of transhistorical psychological tendencies, such as the propensity to generalize, are indispendable tools for approaching issues of historical and institutional change.

I Generalization and Learning

We learn from experience. This is commonplace, but we can be more specific: We learn by perceiving patterns and extrapolating them to other cases. In this sense, learning rests on generalization: Learning works by generalizing perceived regularities.

This feature of learning—the extrapolation of perceived regularities to similar cases—is of particular importance regarding the learning and formation of the rules governing social interaction. The formation of customs, habits and conventions rely on it. If we arrive on a Monday at a foreign country and see that traffic keeps right on Harbour Street and Broadway, we will guess that traffic keeps right on all streets in that country—everyday, not just on Mondays. This expectation may be wrong, but we try such simple hypotheses first. It is only if they fail that we look

for refinements and notice exceptions. In so far as many individuals generalize in a similar way, they will all draw the same conclusion—to keep right everywhere and everytime. This will vindicate our conjecture and establish a rule of social interaction.[1]

Yet generalization works even more sweepingly. If we conclude to keep right on the street, we will tend to keep right on sidewalks and staircases as well. To state this formally, consider the table of alternatives:

	on road	on sidewalk
keep right	a	b
keep left	α	β

Generalization would favor combinations (a, b) and and (α, β)—to keep on the same side on roads and sidewalks—and impede mixed combinations such as (a, β) and (α, b). Thus a will generalize to b,and α will generalize to β.

Further, we learn sometimes by noting deviations from generalizations. In these cases, learning presupposes generalization as well. If we grasp that the plural of a noun is formed by adding an "s", we have generalized a perceived pattern. Later on we may learn that the plural of "opus" is "opera" because it derives from Latin, and we have to memorize this, along with "genera," as a refinement. If we attend a tennis match and see that the server scores first 15 and then 30, we may expect that his next score will be 45; yet we will learn that he scores 40, and we will continue to wonder why this might be the case.[2] Yet even here we learn by generalizing: We learn 15, 30 and remember 40 as an exception replacing 45. Noting the exception presupposes noting the underlying regularity to begin with, and this involves generalization.

[1] See Hodgson and Knudsen (2004) for a discussion of the role of habit (which rests on extrapolation, and, hence, generalization) in the formation of traffic rules, and Schlicht (2000) on the importance of mutually shared aesthetic judgement for such processes. [2] As remarked in the Encyclopedia Britannica (2002): "It never has been satisfactorily explained why three points equal 40 rather than 45."

II Generalization and Coordination

Consider this: A workman is ordered on Monday afternoon to move from department Y, where he would be idle, to help in department X.[1] He will generalize this command and will assume that, if idle, he ought to help on Tuesday afternoon as well. The foreman is well advised to agree. Giving a contrary order on Tuesday afternoon under the same circumstances as those that were prevailing on Monday afternoon will undermine his competence, as perceived by the worker, and will thereby undermine his authority. If he wants to have it differently on Tuesday, he better gave a good reason.

The case is quite similar to the former case about keeping right or left on streets and sidewalks. Formally we may write

	on Monday	on Tuesday
Help in department X	a	b
Do not help in department X	α	β

Generalization favors again combinations (a, b) and (α, β) and works against combinations (a, β) and (α, b).

Such generalization is often of great advantage. It saves transaction costs because commands need not be issued over and over again, and similar cases are treated similarly without explicit order or intervention.

Yet generalization can pose a formidable impediment to change and useful adaptation. In the table above, a implies b by generalization, just as b implies a in reverse. It is therefore difficult to sustain combinations (a, β) or (α, b) even if one of them is strictly preferable over both (a, b) and (α, β) from some instrumental point of view.

Assume for instance that we start with (a, b)—the workman helps on Mondays and Tuesdays. Some changes occur, and the combination (a, β) turns out to be more productive. It is preferable that the workman helps on Mondays but not on

[1] This paraphrases the famous example by (Coase, 1937, 35). See also Schlicht (forthcoming).

Tuesdays—maybe because on Tuesdays some new processes are used in department X, and the workman is too clumsy to help. (If you explain this him, he would be insulted; if you don't explain, he would be offended.) Further, barring him to help on Tuesdays—with or without explanation—will weaken his obligation to help on Mondays. In addition, the entitlement of department X to obtain help from department Y would be weakened, and this may induce department Y to accept help on Tuesday even if not needed, for reason to uphold this entitlement. In this way, enforcing β may eventually bring about the combination (α, β) which may be worse than the initial combination (a, b). Generalization eases some combinations (a, b and α, β) and impedes some others (a, β and α, b), quite independently of technological efficiency. Generalization channels interaction.

It is sometimes emphasized that the interaction within firms is sustained by routines.[1] This view would be quite incomplete and even misleading without taking into account that routines are governed by generalization. Routines are almost never reducible to blind and stupid repetition, they are neither hard wired nor imprinted, they don't turn workmen or firms into automata. Tacit knowledge is shaped by practice and deteriorates without practice. The routines governing the salesperson's interaction with customers are incessantly adjusted to the problems at hand, and modified according to circumstance. Likewise, the routines adopted by the foreman for allocating jobs among the workmen, and the workman's way of handling orders are responsive to circumstance. Similar cases are treated similarly. In this way the diverse routines are tied together by generalization, very much like right-hand driving is paired with keeping right on the sidewalk.

[1] Nelson and Winter (1982, Ch. 5). Hodgson (2004) follows Nelson and Winter in conceiving routines as "the organizational analogue of individual habits" that "operate through the triggering of individual habits." My use of the term here relates more to everyday usage as it pertains to individual behavior (Oxford English Dictionary: "A regular course of procedure; a more or less mechanical or unvarying performance of certain acts or duties") which Hodgson would classify as "habit." Yet even if routines build on habit, the following observations hold true *mutatis mutandis.*

III Fairness and Generalization

The prime importance of fairness judgements for economic interaction is, by now, acknowledged.[1] Attention is drawn to "fairness fights" where people claim, in the name of fairness, what serves their own narrow interests. This gives rise to the cynical view that judgements about fairness are arbitrary and self-serving. If this were true, reasonable people would not accept fairness arguments, yet fairness arguments reign public debate. Successful politicians seem to think that fairness arguments are powerful political weapons, and they are successful. This seems to suggest either that people are stupid and can be cheated all the time, or that the cynical view is wrong—that people are actually influenced in their actions by considerations of fairness. Fairness matters in both cases.

In order to appreciate the importance of fairness judgements for economic and social interaction, it seems even more important, though, to consider the many cases that are settled without any fight. This goes often unnoticed, yet such cases are arguably more important for social and economic interaction than those eye-catching fairness fights.

As noted by Coase (1988, 162), even the simplest market transaction involves splitting some surplus, but not each and every market transaction is consorted with fairness fights. Fairness fights will be largely absent if the parties entertain matching ideas about fairness, and these are the cases where perceptions of fairness are of particular importance, precisely because they help avoiding costly fights. Without some underpinning in terms of mutually accepted entitlements and obligations, even the most trivial economic interactions are hardly conceivable, but in practice they go through, largely unnoticed (Schlicht, 1998, 29-32).

Fairness judgements are brought about by generalization. As Kahneman *et al.* (1986, 736) explain, they arise by evaluating a transaction in the light of a reference transaction, which serves as a standard for comparison. If the given transaction deviates from the reference transaction, this is considered unfair. The reference

[1] This and the following relies on Zajac (1995).

transaction is obtained by generalizing from normal cases. It provides a basis for fairness judgements because it is normal, not necessarily because it is "just."

We see this in everyday life. If people bargain, they refer to similar other cases. If one party finds, for the issue under dispute, a strong analogy with an established normal pattern, this will enhance its bargaining position.

IV Generalization of Attitudes

One of the most important aspects of generalization relates to the influence of the nature of work on personality and attitudes. It has been found that complexity of work induces intellectual flexibility, independently of the selection processes that draw men into particular fields of work and independently of men's efforts to mold their jobs to fit their needs, values, and capacities (Kohn and Schooler 1983, 104; Miller *et al.* 1985). Parental values and educational style generalize from work experience (Kohn, 1959, 1976; Pearlin and Kohn, 1966), and religious rituals shape religious attitudes (Sosis, 2003).

Further, a number of studies on "learned industriousness" suggest generalization of effort and persistence across tasks: Subjects who had completed a difficult task put significantly more effort into mastering a further unrelated task than those who had completed a less demanding task (Eisenberger, 1992; Eisenberger and Leonard, 93; Hickman, 1998). A similar generalization occurs with regard to creativity: Creative performance on one task generalizes to creativity on other tasks, and divergent thinking on one issue generalizes to divergent thinking on other issues (Eisenberger *et al.*, 1999; Eisenberger and Shanok, 2003). All these observations highlight the moral and instrumental importance of psychological generalization.

V Generalization of Group Characteristics

Group effects on individual judgement and behavior are pronounced. Group forces induce erroneous judgement even in objectively quite unambiguous cases (Asch, 1987, 450-73). Social psychology takes the view that a group affects individual behavior and attitudes through "self classification": If a person joins a group this will induce him to emphasize behaviours and attitudes that he perceives distinctive for that group (Turner, 1987). Classifying himself as a group member changes his attitudes and behavior significantly in this direction, often unintentionally and subliminally. This process works toward uniformity within the group and generates a more pronounced ingroup-outgroup difference. It accentuates and augments group distinctions.

At the same time, self-perception as a group member molds identity and motivation. Group identity is enhanced by the generalization processes working on the level of routines (Section II). Shared routines shape shared identities, and this affects work motivation, just as religious rituals mold and stabilize religious identities and behavior.[1]

Generalization is, however, a psychological force that is not always "nice." It works both to the good and to the bad. It is a force that just there. Obvious nasty effects of generalization relate to social and racial stereotyping—including self-stereotyping by racial, religious, or political fanatics. Such stereotyping tries to portray the world in terms of very few categories that capture allegedly general aspects of the class: That race, that religion, that form of government. It is the same psychological propensity–generalization–that engenders on the one side nasty phenomena like racism and totalitarianism and is, on the other side, necessary for establishing rule-following behavior, social order, the desire for fairness, and the formation of social, religious, and cultural identities.

[1] The importance of identity for economically relevant behavior is emphasized in Akerlof and Kranton (2000). Contributions in sociology and political science and sociology on the topic abound.

VI Generalization in the Theory of the Firm

All the processes of generalization sketched above carry important implications for the theory of the firm: The interaction within firms depends on learning and routinization (Sections I and II). Fairness perceptions are behaviorally important both in the market and within a firm (Section III). Working attitudes and group effects are of concern (Sections IV and V).

All these phenomena are obviously not specific to the firm, but firms build on them. The most conspicuous aspect of generalization within the firm context relates, it seems to me, to group effects brought about by self-classification. If the firm succeeds in shaping a corporate identity such that its members perceive themselves as belonging to that firm, such perception becomes behaviorally relevant and gives rise to the perceptional theory of the firm (Schlicht 1998, 240f.; Schlicht, forthcoming).

Further, the interpretation of the employment relationship by the workers is a matter of attribution that is governed, again, by generalization. If the firm, in its dealing with its customers, is strictly profit-oriented, the workers will notice and will conclude by generalization that the firm treats the workers just like the customers. Any benefits given to the workers will be scrutinized as means to increase profits, and any apparent concern with the worker's well-being will be apperceived as obfuscating exploitation. The entailing work attitude is undesirable, and the firm may fare better if it treats its customers more kindly and thereby induces better work attitudes even if such behavior may seem, at first sight, incompatible with straightforward profit maximization.[1]

[1] See Schlicht (2004) for an elaboration of this argument. Attribution theory refers in this context to the "consistency" requirement, rather than to generalization: A cause must apply across situations in order to be perceived as a cause. As such consistency refers to generalization across cases, the terminology used in this paper seems defensible. It serves to highlight the unifying force of "generalization." Another way to express these ideas would be to refer to "clarity", as in Schlicht (1998).

VII Local Culture

In a number of studies, Gregory Clark (1987a,b, 1989a,b) has argued convincingly that labor productivity of English workers has exceeded that of comparable workers from Eastern Europe, India, Japan and elsewhere by a factor of four. As this observation cannot be rationalized by traditional reasons, such as use of capital and machinery, technology, management, property rights, interest rates, or transaction costs, the mysterious cause for these persistent differences in labour productivity has aptly been labeled the "factor C" by Mokyr (2003).

The "factor C" is localized. As Mokyr (2003) notes, "Mexican or Indian workers migrating to high-productivity economies do not bring their factor C with them." They leave it behind at home and become as productive as the workers in the guest country. This would give an explanation why, in the sixties, guest workers where invited on a large scale to come to West Germany, and the alternative to move capital rather than labor by building factories in their home countries was not the preferred option, in spite of the higher wage payments entailed by moving workers rather than equipment. Because of its localized nature, Gregory Clark has referred to the "factor C" as "local culture." This factor, rather than capital, or technology, or education, remains important and seems the driving force behind the increasing economic divergence between industrialized and developing countries (Clark and Feenstra, 2003).

The factor C may appear less enigmatic in view of what has been said about the generalization of attitudes (Section IV). Erecting a new factory in a country without any industrial tradition would require shaping industrial attitudes within a firm, but in a non-industrial environment. This may be much more difficult to achieve than shifting worker to an environment that is permeated by these attitudes already, just as it is easier to keep to the right on both roads and sidewalks, rather than have different rules for the two cases.

VIII Generalization and Punctuation

Generalization may induce punctuation—sudden episodes of change punctuating a slow evolutionary process.[1] Consider an environment that changes smoothly. A gradual and adaptive response to environmental changes may call for successive replacements of traits a, b, c, d, and e by traits α, β, γ, δ, and ε. In presence of generalization, it is difficult to move smoothly from (a, b, c, d, e) to $(\alpha, \beta, \gamma, d, e)$ in a stepwise manner, though. It is difficult to sustain α in (α, b, c, d, e). Generalization tends to replace the α by a here. It may be easier to sustain α, β in (α, β, c, d, e), but it is still the case that generalization works toward replacing either α or β by a or b. Similarly, d, e is difficult to sustain in$(\alpha, \beta, \gamma, d, e)$ and it is even more difficult to sustain e in $(\alpha, \beta, \gamma, \delta, e)$. Generalization works against these combinations. It will impede the first steps and will accelerate the later adjustments even if it would appear from a purely instrumental point of view that a smooth and gradual adjustment path would be called for. In this way, generalization may account for both the apparent stickiness of culture, as well as its coming close to leaping at times.[2] The idea of such punctuated adjustment, as brought about by continuous change, is illustrated in Figure 1.

[1] The term "punctuation" has been introduced by Eldrege and Gould (1972) in paleontology. The idea is central to Piaget's (1967) learning theory and his distinction between "assimilation" and "accommodation." ("Assimilation" refers to the integration of new elements into a given cognitive structure, and "accommodation" refers to a change in cognitive structure—a punctuation.) The analogous idea is employed Kuhn's 1970 theory of the evolution of science in his distinction between "normal science" and "scientific revolutions," corresponding to Piaget's "assimilation" and "accommodation." The punctuation idea is obviously implicit in Marx's writings. It has been re-introduced into economics by Schlicht (1979), Mokyr (1990), Boulding (1992), and North and Denzau (1994); see also Fiori (2002). [2] Jones (2006, 270 and *passim*) argues convincingly that cultures tend to rigidity if left undisturbed by outsides forces but adapt to changes in circumstances (*viz.* environment, technology, scarcities) in the longer term, sometimes rather quickly. Such changes may be caused by truly exogenous reasons (climatic changes) or culturally determined behavior (man-made environmental desasters). See also Jones (1995) for the argument that culture is to be conceived as neither purely exogeneously fixed nor fully adaptive. Culture and economic forces must be envisaged as interacting in a reciprocal way.

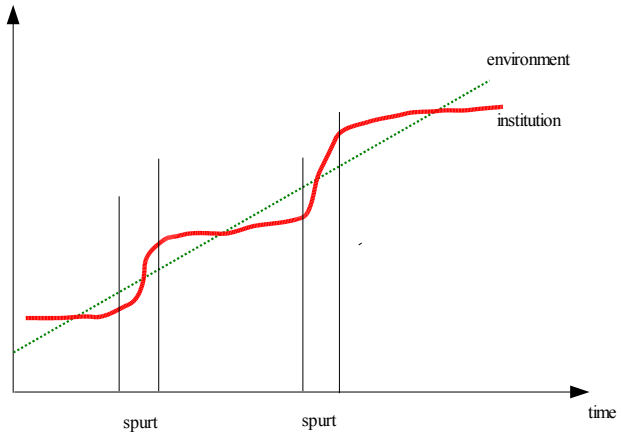

Figure 1: In a smoothly changing environment, generalization induces institutional adaptation punctuated by spurts.

IX Generalization as a Transhistorical Force

Generalization has been portrayed here as an overarching, albeit quite abstract, tendency of the human mind. It is a psychological propensity that must have evolved in biological time. For purposes of economic and institutional analysis we may take this and similar psychological propensities safely as givens, as human nature has not changed much over millenia while "economic systems, such as the structure of an industry, may be transformed within a single generation." (Coase, 1978, 244). Generalization is, in Hodgson's (2001, 281) terminology, a "transhistorical" force.

For purposes of economic analysis, we need both: Historically specific assumptions, pertaining to a given historical situation, and transhistorical forces like generalization. Otherwise we would end up with a sundry set of theories, each of them taylored to a historically specific situation. Each of them would be historically specific, yet each of them would, in itself, be a-historical, as it would be valid only for a definite set of circumstances; how these came about would be irrelevant. It is

precisely the consideration of transhistorical forces, in their action on historically specific circumstances, that permits grasping history.[1]

Generalization is obviously a structuring force: It fashions interdependencies and over-all connections between sundry organizational features and makes them interct in particular ways, comparable to bar magnets that tend to cling together in certain arrangements and resist others. By taking account of this psychological force we may be find a way to understand why it may be the case that a certain "Style" or "Geist" characterizes an economic system, or why a "corporate identity" or "corporate culture" may characterize a firm. At the same time we may better understand from such a perspective why punctuation occurs, and why such a "Style" brakes down, to be replaced by another one, and that one by yet another...

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[1] Some economists of the historical school started from the insight that a general economic theory, applicable to all conceivable societies, must me pretty empty, as there exist very few economic phenomena shared by all such societies. It is somewhat pathetic that this insight about the importance of historical and social circumstances led them sometimes to the conclusion that we have to taylor a specific theory to each situation–and thereby lose history. (This applies, for instance, to Spiethoff's (1933; 1952) conception of "Wirtschaftsstile.") Hodgson (2001, 279) has reminded us rightly that "*some* universal presuppositions are necessary in social science." I fully agree and would add that it is the *interaction* of transhistorical forces and historically specific circumstances that should be of central concern for institutional analysis.

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