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Elsner, Wolfram

University of Bremen, iino - Institute of Institutional and Innovation
Economics

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The Theory of Institutional Change Revisited.

The Institutional Dichotomy, Its Dynamic, and Its Policy Implications in a More Formal Analysis

Wolfram Elsner *)

Abstract: The original institutional *theory of institutional change* as elaborated by Paul D. Bush (1987) in the traditions of Veblen, Ayres and J.F. Foster (*VAFB-paradigm* in the following) provides a most important theoretical device for critical institutional analysis, with its clarification of the *value base* and of *different forms and dynamics of value-behavior patterns*. Bush's paper certainly was one of the most important ones in the history of Institutionalism. The Theory of Institutional Change pushed Institutionalism to a certain limit by elaborating its *logical relations* that have been underexplored for so long. Coming from a different 'galaxy', established *formal approaches* and methods, such as system dynamics, econometrics, network analysis, graph theory, or *game theory* (GT)—in fact, often applied only bluntly in the economics 'mainstream'—have been interpreted, developed and applied by institutional and evolutionary economists in an evolutionary-institutional perspective in the last two decades. However, a *theoretical and methodological gap* still existed until recently that institutionalists working with those formal approaches had to deal with. This gap seems to get closed recently by different approaches such as with the *Social Fabric Matrix Approach* (F.G. Hayden et al.) and *System Dynamics* (M.J. Radzicki et al.), both developed to operationalize, formalize, empirically apply and further process and develop institutionalist theory. This paper strives to demonstrate that a careful proper interpretation allows, in a 'dialectical' process, to *bridge* the remaining gap between the institutionalist theory of institutional change and an evolutionary-institutional interpretation of GT. This attempt reveals surprising *equivalences and complementarities* with resulting potential synergies for the future. The mutual approximation of the VAFB-paradigm and *evolutionary-institutionally interpreted game theory*, called the *EIGT-paradigm* in the following, allows for (1) a deeper logical analysis of *institutions*, (2) revealing the *value base* in EIGT, (3) a deeper analysis of the instrumental-ceremonial *asymmetry*, (4) a sharpening of the understanding of *ceremonial dominance and encapsulation*, and (5) a readjustment of the institutionalist *policy conception*. Should such bridge-building be corroborated in the future, Institutionalism would be enabled to *cut across traditional boundaries* with respect to deeper both *empirical and logical analysis*. This might turn out to be a broader historical project for the extension of Institutionalism's reach.

*) University of Bremen, Germany, Faculty of Business Studies and Economics, iino - Institute of Institutional and Innovation Economics, welsner@uni-bremen.de. I am deeply indebted to Paul Dale Bush who introduced me to Original Evolutionary and Institutional Economics, to AFEE and to people and university places with an institutionalist standing back in the early 1980s. Also, I am grateful to him and to John Hall for thoughtful comments on an earlier draft of this paper. This paper was presented at a session honoring P.D. Bush at the AFEE annual meetings at Denver, January 2011. I am indebted to the discussant, John Harvey, for his comments and discussion. Finally, I thank my assistants and PhD students for helpful comments and further considerations: Torsten Heinrich, Matthias Greiff, Henning Schwaradt, and Shuanping Dai. All remaining faults are mine.

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The Institutional Dichotomy, Its Dynamic, and Its Policy Implications in a More Formal Analysis

Abstract: The original institutional *theory of institutional change* as elaborated by Paul D. Bush (1987) in the traditions of Veblen, Ayres and J.F. Foster (*VAFB-paradigm* in the following) provides a most important theoretical device for critical institutional analysis, with its clarification of the *value base* and of *different forms and dynamics of value-behavior patterns*. Bush's paper certainly was one of the most important ones in the history of Institutionalism. The Theory of Institutional Change pushed Institutionalism to a certain limit by elaborating its *logical relations* that have been underexplored for so long. Coming from a different 'galaxy', established *formal approaches* and methods, such as system dynamics, econometrics, network analysis, graph theory, or *game theory* (GT)—in fact, often applied only bluntly in the economics 'mainstream'—have been interpreted, developed and applied by institutional and evolutionary economists in an evolutionary-institutional perspective in the last two decades. However, a *theoretical and methodological gap* still existed until recently that institutionalists working with those formal approaches had to deal with. This gap seems to get closed recently by different approaches such as with the *Social Fabric Matrix Approach* (F.G. Hayden et al.) and *System Dynamics* (M.J. Radzicki et al.), both developed to operationalize, formalize, empirically apply and further process and develop institutionalist theory. This paper strives to demonstrate that a careful proper interpretation allows, in a 'dialectical' process, to *bridge* the remaining gap between the institutionalist theory of institutional change and an evolutionary-institutional interpretation of GT. This attempt reveals surprising *equivalences and complementarities* with resulting potential synergies and cross-fertilization for the future. The mutual approximation of the VAFB-paradigm and *evolutionary-institutionally interpreted game theory*, called the *EIGT-paradigm* in the following, allows for (1) a deeper logical analysis of *institutions*, (2) revealing the *value base* in EIGT, (3) a deeper analysis of the instrumental-ceremonial *asymmetry*, (4) a sharpening of the understanding of *ceremonial dominance and encapsulation*, and (5) a readjustment of the institutionalist *policy conception*. Should such bridge-building be corroborated in the future, Institutionalism would be enabled to *cut across traditional boundaries* with respect to deeper both *empirical and logical analysis*. This might turn out to be a broader historical project for the extension of Institutionalism's reach.

The conceptualization of institutions, the asymmetric schematization of value-behavior-structures, the reason for ceremonial dominance, and the possibility of progressive institutional change will be reconsidered and compared in this paper using a EIGT perspective, with its *basically instrumental* comprehension of institutions and with the ceremonial warrant comprehensible only as a *degeneration of the instrumental*. We refer to a most simple *social dilemma* interaction structure and a supergame solution.

An initially instrumental institution is considered to develop (in fact to degenerate), together with (1) the emergence, or reproduction, of *status and power differentials* in hierarchical systems, and (2) the striving for easy, smooth, and cheap decision-making, or '*economies of scale*' of *decision-making*, first into a still *instrumental norm* and eventually into a *ceremonial or abstract norm*. The latter takes place, when original *conditions have changed* but the institutional structure will *not properly adapt* because of the two motives mentioned of status gain and economies of scale of institutionalized decision-making. In a game-theoretical perspective, *ceremonial dominance* and *ceremonial encapsulation* preventing a new progressive institutional change would translate into an *insufficient new collective action capacity*, due to (1) *habituation*, (2) an *insufficient incentive structure* and (3) a *neglect of the common future*.

The conclusion of the *critical role of policy to initiate, accelerate, and stabilize* progressive institutional change is shared in the institutionalist and the EIGT perspectives as well. A well-defined *institutional policy* approach, inferable in some detail from the GT logic, may initiate a *lock-out* from ceremonial encapsulation, through a change of the *incentive structure*, and an increase in the importance and awareness of interdependence and the *common future*. The public agent must be capable of '*meritorizing*' the private-interaction outcomes through a *negotiated, participatory social process*. Thus, the public agent would interact with the interaction system of the private agents in a well-defined way, i.e., '*institutional policy*' as a *double interactive policy*.

Introduction

The dynamics of social institutions between ‘instrumental’ and ‘ceremonial’ warrant is an original-institutionalist core theme and an empirically most relevant issue for modern socio-economic research. Thorstein Veblen and two of his finest exponents, Clarence E. Ayres and his student, J. Fagg Foster, explored the dynamics of institutions between the instrumental and ceremonial. The evolutionary-institutionalist ‘state of the art’ that had emerged this way was reviewed and clearly restated by Foster’s students Marc R. Tool and Paul D. Bush, and further developed into a theoretical scheme of institutional forms and dynamics by *P.D. Bush* during the 1970s and 1980s. The model that culminated in the *Theory of Institutional Change* (Bush 1987) had a great impact on institutionalist thinking on the process and variants of institutional change – and still has a great potential for modern evolutionary-institutional economics in general (see, e.g., Waller 1982, 1987; O’Hara 1997; O’Hara, Tool 1998; Fayazmanesh, Tool (eds.) 1998). The original institutional theory of institutional change (also, after Veblen, Ayres, Foster and Bush, called *VAFB-paradigm* in the following) provided a most important theoretical device for critical institutional analysis through its clarification of the *value base* and of *different forms and dynamics of value-behavior patterns*. Thus, Bush’s paper certainly was one of the most important in the history of Institutionalism. It pushed Institutionalism to a certain limit by elaborating its *logical relations* that still had been underexplored then. This paper will strive to demonstrate its ongoing great potential and prime recent relevance through a major reconsideration and revisiting in an even more *formal perspective*¹.

Coming from a different ‘galaxy’, established *formal approaches* and methods, such as system dynamics, econometrics, network analysis, graph theory, or game theory—in fact, often applied only bluntly in the economics ‘mainstream’—have been interpreted, developed and applied by institutional and evolutionary economists in an evolutionary-institutional perspective in the last two to three decades (for the *Social Fabric Matrix Approach*, and applied *graph theory* and *matrix theory*, see, e.g., Hayden 2006, particularly Chpt. 6; Natarajan, Elsner, Fullwiler (eds.) 2009; Markwell 2009; for *system dynamics*, see, e.g., Radzicki 1988, 2009; for *game theory*, see, e.g., Hargreaves Heap, Varoufakis 2004, particularly Chpts. 5, 6; Field 1994, 2001; Villena, Villena 2004). However, a conceptual, *theoretical and methodological gap* still existed until recently that institutionalists who were working with those formal approaches had to deal with. This gap seems to get closed recently in the context of different approaches such as with the *Social Fabric Matrix Approach* (F.G. Hayden et al.) and *Game Theory* (GT, and particularly Evolutionary Game Theory, EGT; see, e.g., Villena, Villena 2004; Elsner, Heinrich 2009; Elsner 2010; Hédoin 2010; Watkins 2010), both developed to operationalize, formalize, empirically apply and further process and develop institutionalist theory.

This paper strives to demonstrate that a careful proper interpretation allows, in a ‘dialectical’ process, to *bridge* the remaining gaps, in our case, between the institutionalist theory of institutional change and an *evolutionary-institutional interpretation of GT* (also *EIGT-paradigm* in the following)². This attempt reveals surprising *equivalences and*

¹ To our knowledge, O’Hara 1997 was the only earlier attempt at further analyzing the *logic* of the institutionalist theory of institutional change and applying it (to economic systems). See also O’Hara, Tool 1998, 16-18, for a further logical clarification in terms of axiomatization and the derivation of a system of theorems from it. This paper considers itself in that tradition.

² The first attempt, to our knowledge, at explicitly *approaching Evolutionary Game Theory and Institutionalism* was Villena, Villena 2004. Recently, Hédoin 2010, 975-84, and Watkins 2010, 1005f., both arguing within the

complementarities with resulting potential synergies and cross-fertilization for the future. The mutual approximation of the VAFB and EIGT paradigms will allow for (1) a deeper logical analysis of *institutions*, (2) revealing the *value base* in EIGT, (3) a deeper analysis of the instrumental-ceremonial *asymmetry*, (4) a sharpening of the understanding of *ceremonial dominance and encapsulation*, and (5) a readjustment of the institutionalist *policy conception*.

Should such bridge-building be corroborated in the future, Institutionalism would be enabled to *cut across traditional boundaries* with respect to *deeper theoretical, logical, and empirical analyses*. Therefore, this might turn out to be a broader historical project for the extension of Institutionalism's reach.

To recapitulate, characteristic of the institutionalist *theory of institutional change* (Bush 1987) are

1. the conception of an *institution* as a *value-behavior-structure*, i.e., patterns of behaviors correlated by values;
2. the *instrumental, ceremonial, and 'dialectical'* significance of such correlated patterns of *behavior*;
3. the *asymmetric logic* and asymmetric operational principles of instrumental and ceremonial valuation;
4. a *scheme of specific value-behavior-structures* resulting from those different significances of behaviors and from that value asymmetry;
5. the conception of *degrees of ceremonial dominance* in (or its reverse, the 'instrumental permissiveness' of) a system's institutional structure, as derived from that asymmetry;
6. the definition of a partitioned institutional space, where typically a real-world institutional structure (or an economic system) is in the state of *ceremonial encapsulation*;
7. resulting *forms of institutional change*, i.e., changes of the *degree of ceremonial dominance*, where typically there will be either an *ongoing* (enforced) *ceremonial encapsulation* (staying in the same sector of the institutional space, i.e., no change of degree), or *regressive or progressive institutional change* (increasing or decreasing degrees of ceremonial dominance);
8. the consideration that *progressive* institutional change will not automatically occur but will require *discretionary public-policy support*, possible only in a pragmatist culture of a participatory and negotiated democratic process.

The *EIGT* perspective on institutions, on the other hand, is different, at first sight, beginning with the fact that institutions can be explained only in an *instrumental* sense, i.e., as a solution

general conception of evolution, have suggested and applied a similar perspective and approach. We have not included their insights into our approach yet. But a first review confirms that our approach definitely has come to be 'in the air' within recent Institutionalism. The present paper is definitely toeing the line with those papers.

of a complex decision problem, typically a social dilemma structure. This also illustrates that the perspective is one of *institutional emergence*.

Nevertheless, surprising similarities, *equivalences*, and *complementarities* between both perspectives turn out to exist so that not only a *comparison* and mutual ‘translation’, but also considerable future cross-fertilization appear feasible. For instance, while the game-theoretic perspective may benefit, in terms of a broader perspective and epistemological sensitivity, from the *value sensitivity* of institutionalism, the institutionalist analysis, in turn, may profit from some *deeper logical analysis* feasible through a game-theoretic conceptualization, e.g., a more specific explanation of the *emergence of the ceremonial* and of a *policy design*. We will show this in more detail in the following.

This paper aims at

1. illustrating the *GT* perspective on *institutions* with a most simple game-theoretic formalism;
2. *comparing* and ‘translating’ back and forth the two conceptions of *institutions*, of the *asymmetry* of the two value systems, and of *ceremonial dominance*;
3. complementing a simple explanation from the *GT* perspective of *why ceremonial values emerge* (and then dominate) *at all*, out of an ideal instrumental world;
4. demonstrating that institutionalist and *EIGT* perspectives *share the policy conclusion* that discretionary policy support is required to initiate, accelerate, and stabilize progressive institutional change, and that the *GT*-inspired conception of *interactive/institutional policy* may add some specific policy instruments.

In the first section, we explain and compare the two conceptions of institutions. Section 2 discusses institutions as value-behavior structures and introduces the ‘ceremonial’ and the ‘instrumental’ valuations. The third section analyzes the asymmetry of this value structure, resulting asymmetric institutional structures, and in particular ceremonial dominance, each in both perspectives. Section 4 explains the process and forms of institutional change, particularly ceremonial encapsulation, and regressive/progressive institutional change. Section 5 explains the emergence of the ceremonial as a degeneration of the instrumental in a *EIGT* perspective. Section 6 introduces and discusses the converging policy implications in both perspectives. Section 7 concludes.

1) The Two Conceptions of an ‘Institution’ Compared

1.1) A Most Simple *GT* Formalism to Determine an ‘Instrumental’ Definition – and Its Ceremonial Downside

The simplest formal illustration of the *GT* institutional perspective is the static ‘*single-shot*’ solution of a *prisoners’ dilemma* (PD). We have explained and elaborated at length elsewhere on the practical everyday *relevance* of the PD structure, the full evolutionary ‘process story’ required for substantial explanation, a formal model of emergence (most effectively at certain

‘meso’ ‘platform’ sizes), and computer simulations of some core elements of that model (see, e.g., Elsner, Heinrich 2009, 2011).

The ‘single-shot’ just provides a logical condition for the superiority of cooperation, solving the dilemma problem, over defection. Assume a simple PD 2x2 normal-form matrix:

$$\begin{array}{cc} a, a & d, b \\ b, d & c, c \end{array}$$

with $b > a > c > d$, and $a > (d + b)/2$. As is well-known, the payoffs P in a ‘supergame’ (SG)³ for the cooperative *tit-for-tat* (TFT)⁴ player always encountering another TFT player, and for a defection (ALL D) player encountering a TFT player, with δ being the common *discount factor*, are

$$\begin{aligned} P_{TFT/TFT} &= a + \delta a + \delta^2 a + \dots \\ &= \frac{a}{1 - \delta} \end{aligned}$$

and

$$\begin{aligned} P_{ALL D/TFT} &= b + \delta c + \delta^2 c + \dots \\ &= \frac{c}{1 - \delta} + b - c, \end{aligned}$$

resp. In an evolutionary perspective, cooperation pays (and may be successful in a population) if

$$\begin{aligned} P_{TFT/TFT} &> P_{ALL D/TFT}, \\ &\rightarrow \delta > (b - a) / (b - c), \end{aligned}$$

as popularized for instance by Axelrod (1984/2006).

According to this inequality, cooperation may become logically possible. But in fact it will have to emerge in a complex evolutionary process, as a new Nash equilibrium (NE) in a PD SG, different from the individualistic, hyper-rational, myopic ‘one-shot’ NE of a conventional GT perspective.

The critical factors here are the given quantitative dilemma-prone *incentive structure*, i.e., the quantitative strength or weakness of the collective-good problem involved, i.e., a , b and c , relative to the common *discount factor* (δ), which can also be interpreted in a SG as the ‘*probability to meet the same interaction partner again next interaction*’, i.e., the importance of the *common future*. Particularly, cooperation will come to be the superior strategy easier

³ Either an infinitely or an indefinitely iterated interaction (or ‘game’). The end of the SG always lies beyond the current ‘planning horizon’ of the agents.

⁴ As is well-known, TFT always starts cooperatively and thereafter does what the other one has done the previous interaction.

(even in a population dominated by defection) the smaller the ‘opportunity costs of common cooperation’ $(b - a)$ in relation to the ‘opportunity costs of common defection’ $(b - c)$, and the larger the importance of the future (δ) relative to $(b - a)/(b - c)$.

With some PD incentive structure given, social terms, i.e., short- or long-run perspective, become crucial: If society, and agents in their interactions, have a *sufficiently long-run perspective of common futurity* (a large δ), given a sufficient *awareness of their common interdependence*, they will be able to solve the problem of overcoming the dilemma by overcoming their short-run dominant individualistic incentive maximize and, thus, to defect. If, however, their common future does not count high, formally a small δ , the condition above will not hold [there will be $\delta < (b-a)/(b-c)$]. They will remain in the short-run individualistic rationality of ‘hyper-rational’ maximization, and thus in the NE of common defection, the social dilemma.

In an *EGT* perspective this is reflected by the question whether a cooperative culture could be *evolutionarily stable*, i.e., could invade a defective population, or, in turn, not be invaded itself by a defective culture. Axelrod (1984/2006), for instance, has argued with some superior (more long-run) *self-commitment* of cooperators, favoring a high δ , while the defectors have a δ close to 0, since they defect always, independent of the future (of ‘meeting again’ and future reactions). If δ is high enough so that the inequality above holds, long-run SG payoffs transform the PD into a less cumbersome coordination game where cooperation becomes another NE. Finally, ‘meeting again’ may also have to do with the level of *mobility*, i.e., the probabilities of staying in or leaving the interaction ‘arena’, the size of a relevant social or spatial *neighborhood*, of the degree of segmentation of a population, among other things (see, e.g., Elsner, Heinrich 2009; Hédoïn 2010, 977-9). For the institutionalist tradition, the importance of *futurity* was extensively elaborated and introduced by *John R. Commons* (1934).

We will not delve here into the manifold complex formal and theoretical aspects of an elaborated model and also will not explain all assumptions, elements, and implications of a full ‘process story’ required. For the purpose of this paper, just some *core aspects* suffice:

First, considering the solution above as a sequence or *process*, the institutional solution can *not* come about through narrowly rational agents, i.e., short-run (i.e., hyper-rational) maximizers. We cannot explain a process or mechanism to achieve the superior (‘Pareto-superior’) result with such ‘hyper-rational’ behavior. The latter would, even in a SG process, only be capable of generating a series of *one-shot* NEs (i.e., common defection, where the inequality would not hold, since δ remains too small). Thus, in a GT perspective, an institution can only emerge through some *habituation*, where agents *learn* to habitually *abstain from* striving for their *short-run* maximum. In this way, they would determine relatively high δ s. The institution will thus have to be a ‘*semi-conscious*’ phenomenon. It typically will remain in that semi-conscious state as long as expectations of conformity with it are met, supported by the conditions of a favorable numerical result of the inequality above (i.e., the payoff-superiority of common cooperation; if only lingering somehow in the background, i.e., not deliberately calculated) and by mutually enforced cooperation. Therefore, institutional emergence is conditional on a learned *broader and long-run rationality*, overcoming the dominant short-run incentive to defect. That broader and long-run rationality will have to be habitually applied. In contrast, the institution may be abandoned through a more or less *deliberate* consideration, when a new (‘deliberate’) single-shot calculation (after some condition has changed, either payoffs or futurity/expectations) no

longer justifies conformity with the old institution, i.e., when some ‘change’ took place, or after some ‘surprise’, ‘disappointment’, ‘frustration’, or ‘becoming exploited’ by others may have occurred.

Second, introducing some *stochastic aspect* into individual behavior, the institution can emerge only on the basis of the *individual motivations* (1) to *escape repeated frustration* from common defection (from individualistically aspiring b and commonly receiving only c time after time), and (2) to *learn* and increase knowledge, and particularly to explore what a different behavior, namely common cooperation, may bring about (*idle curiosity* as Veblen would have put it), or to find a way to improve one’s economic situation, resp. (to gain common a ’s rather than c ’s), a case of Veblen’s *instinct of workmanship*. That is, the payoffs for common cooperation may not even be known (‘incomplete information’ in GT terms) but may get explored by *searching* and *experimenting* agents. The institution thus may emerge just out of an agent’s vision that there is more to be gained than repeated frustration. Agents who then make contributions to cooperation thus need to be *imaginative*, explorative, *innovative*, and creative. Therefore, *broader individual agency capacities* would need to be carefully defined for an evolutionary process, particularly for the individualistic perspective of conventional GT.

Third, the agent who then starts to search and experiment with a different behavior will have to contribute repeatedly to the *change of the others’ expectations* in favor of cooperation. The process, thus, must be *cumulative* in the sense that all agents must *repeatedly* and interactively (*sequentially*) contribute (or, alternatively, will have to continue to cumulatively punish each other).

Fourth, these agents also have to be *risk-taking* and *not too envious*. The first to send a signal for a potential better common future will have to take the risk of being exploited, at least once (thus, better to offer cooperation twice in a row—tit-for-2-tat (*TF2T*)—before returning to defection). He also will never be able to compensate for slightly smaller payoff, as compared to the other – if common cooperation should start in response to his cooperative action. This agent thus needs to be mainly focused on *his own* net gain, which he has to compare only with *his* payoff under continued common defection. Compared to this, he clearly will be better off over time.

Fifth, with agents starting to learn, search, and experiment, and individual *behaviors* thus becoming (stochastically) *diversified* (in our two-strategies world, this usually means starting cooperation from previous defection), we finally introduce a *population perspective* (a population with *many* and *heterogeneous* agents, with initially unknown portions of defectors and cooperators). Agents then no longer can exactly tell the strategy of any particular other agent whom they (more or less randomly) will be matched with in the next interaction (rather than meeting exactly the same again next interaction to sanction him for earlier cooperative or defective behavior, as in the simple single shot above). Behavior thus is considered somewhat random, and agents will have to *experience* the ‘true’ strategy shares in the relevant population. The ‘pure’ expectation ‘to meet the same again’, δ , of the single-shot perspective above will be replaced by the expected ‘*probability to meet a cooperative agent next interaction*’, i.e., what we call ‘*contingent trust*’ δ_k (i.e., the no. of cooperators k over population size n).

Sixth, while agents will have to experience such ‘contingent trust’, they will *have to ‘know about’ as many agents as possible*. Thus, even more capabilities of agents may have to be

considered and introduced into relevant models. Instances and model components of such *enhanced agency* assumptions will be *memory length*, *monitoring capacity*, building *reputation* and transmitting it in reputation chains, and some active *partner selection* based on the knowledge generated by these mechanisms, i.e., some (imperfect though) '*preferential matching*', for instance, according to some social and/or geographical *neighborhood topology*, some population segment, peer group, social class, cluster, etc.

In total, this indicates that in a (evolutionary) GT perspective the *institution* is as complex a thing as, and connected to an evolutionary process as complex as, it always was in the institutionalist perspective, although there basically remains some 'rational' calculation at the core of the GT model and process. ('Rational calculation', however, may easily lose any guiding potential for individual agents in any complex evolutionary process⁵.)

In this way, the institution emerging is conceived of as an *instrumental device to solve a defined complex decision structure* in a process, that could not be solved other than through *habituated*, i.e., institutionalized behavior with a learned broader rationality (that is, truly 'recognized interdependence' and a more long-run perspective) of agents. The instrumental perspective of the GT conception of institutions is embedded in the theoretical and methodological perspective of *institutional emergence*.

Against this background, an extensive proper EIGT definition of an *institution* may be given as follows:

An institution is a *habituated social rule* for the decision/behavior of individual agents for (infinitely, or indefinitely) *recurrent* and *multipersonal* (i.e., directly interdependent and thus genuinely social) situations (repeated direct interactions, SGs), with social *coordination problems* (and particularly collective-good problems/*social dilemmas*) involved, that has gained, through a process of *social learning*, a general approval so that it can *inform* the agents about *mutual* (and mutually consistent) *expectations* of behavior, and about the fact that with unilateral deviation from the rule (i.e., unilateral defection) other agents also will deviate in the future – so that eventually all will be *worse-off with mutual defection* than with rule-conforming behavior (an *endogenous sanction mechanism*)⁶.

Now, despite this instrumental reference point of the solution, the upper left cell of the 'normal-form' structure (the matrix), also the one-shot NE of *mutual defection* in the *lower right*, resulting in the individualistic, myopic, and hyper-rational environment, can of course be considered a 'culture'. Repeated defection as an *individualistic culture*, however, can, in the GT perspective and on the background of the above definition of an institution, be conceived of only in the sense of a more simple *social rule*, which does *not need the endogenous sanction mechanism* nor a *habituation* to make people adhere to it. In a recurrent one-shot perspective, agents would *just spontaneously follow repeatedly and schematically*

⁵ Just note that in complex models, evolutionary process with replication and, with this, an ever-changing social environment may easily make prediction (calculation) of relative individual success impossible and hence proper 'rational' individual decision infeasible for any real-world agent. Even if the agent might be able to properly regard the past, any calculated decision, proper for past experience, may turn out to be fully wrong under the new (changed) environment of the next period. Even if a neoclassical individual could solve n-dimensional differential equation systems all the time in a neoclassical world, it could not calculate complex simulations of interactions in a population and its replications in its path-dependent and idiosyncratic, i.e., unpredictable process.

⁶ This definition of an *instrumental institution*, referring to a *PD-SG* problem structure and process, where the solution requires a *sacrifice* of the short-run maximum, and hence an *endogenous sanction mechanism* and *habituation*, was basically developed first by Schotter 1981 (see also Schotter, Schwoedlauer 1980).

their individualistic, short-run, hyper-rational ‘best answer’ and ‘dominant strategy’ by (mutually) defecting. No sacrifice, no sanction, no learning, no process, and no habituation required. Therefore, we just call this a social rule rather than an institution. A social rule is what individualistic agents follow spontaneously, *in their very short-run individualistic interest*, given the same behavior of others – a short-run interest in being coordinated. It most generally reflects some coordination in a so called *coordination game*. Thus, a social rule applies whenever it is in the interest of an individual to behave that way when the other one behaves that way too, even in a short-run ‘one-shot’ perspective. Social rules thus apply to any simple coordination game where it is in everyone’s interest just to be coordinated (see, for instance, basic traffic rules as the usual prototype).

This *coordination* in a PD, however, is a ‘negative’ one (common defection). Note again that hyper-rational individuals do not need to overcome a complex problem here in order to establish *defection as their behavioral (social) rule*. In the PD SG, common defection thus is easily established as a social rule. If I (have to) assume that the other one defects, I am (hyper-rationally) forced to defect myself. However, other than in a coordination game, there will be no problem solved in a PD through this way of ‘coordination’⁷.

In other words, there immediately appears an *obvious asymmetry* between the ‘culture’ of instrumental problem-solving through learned and emerging cooperation *motivated* by the striving for problem solving, and the ‘culture’ of defection motivated by *individualist myopic maximization* and immediate individual interest. The social institution of cooperation is fundamentally more requiring than commonly following just the (individualistic) social rule of defection.

The latter motivation also includes *unilateral defection*, thus aspired exploitation of the other one, if the other one for some reason could be led to stick to cooperation. Therefore, also the *upper right* and *lower left* constellations are covered by that individualistic ‘culture’. This, in turn, implies, and reveals, that the *true motivation* here is not just individualist myopic maximization, but in fact the *striving for exploitation of the other one* (or to prevent getting exploited oneself) — as the PD payoff structure obviously indicates. Hence, the true motivation, justification, and *normative warrant* here is what Veblen has termed *invidious distinction*, the quest for *differential status and power*, embedded in a short-run maximization behavior. Note that the latter can, in fact not be realized without exploitation. The motivation to defect in any of these cases (unilateral or mutual defection) is to exploit the other one and to gain differential status and power — an underlying *ceremonial valuation* (to anticipate the institutionalist argument below).

If all are that ‘clever’ and ‘hyper-rational’, general *mutual defection* necessarily follows. But, if an additional story about *lasting power and status differentials* in a *hierarchical* environment can be told so that the other agent can be induced to continue to cooperate, to accept the superior’s position and his own inferior position, we may also consider ‘cultures’ of *unequal constellations* (see below *Section 5.2*).

⁷ Note also that on this basis, the solution of a dilemma is specifically called ‘*cooperation*’, while the solution of a coordination game is called just ‘*coordination*’ — while the umbrella term for both would be also coordination. Similarly, *social rules* is used as an umbrella term for both *institutions* as defined (rules plus sacrifice and sanctions) and specific social rules to solve coordination games, where coordination is in everyone’s immediate individualistic interest. With this, we continue to follow the GT terminology as established in the EIGT.

But let us consider first the institutionalist ‘story’ in more detail now.

1.2) *The Institutional Definition – and its Equivalence With the GT Perspective*

Bush (1987) defines an institution as

‘a set of socially prescribed patterns of correlated behavior’ (p. 1076).

While this is consistent with most definitions in the institutionalist tradition, it needs some clarification in relation to our GT informed definition as a device to ‘solve’ a specified social dilemma problem.

‘Patterns’ of Behavior

First, ‘*patterns* of behavior’ can be easily and straightforwardly translated just into ‘behavioral *social rules*’ in the broad sense (see fn. 7), where institutions (= rules ‘plus sanctions’) are included as mentioned. The patterns will typically be a structure with a time dimension (*over time*) and an interpersonal or social dimension (*across agents*).

‘Prescribed’ Patterns -- Instrumental Norms

Second, ‘*socially prescribed*’ stresses the fact that institutions typically appear to the individual agents as *normative* phenomena and prescriptions (be they objectively instrumental or ceremonial), while the *original ‘functional’ (instrumental) context of their emergence* (as illustrated in the GT perspective above) has often faded away in an individual lifetime or over generations of a population. Correspondingly, Bush stresses the idea of a (*instrumental*) ‘*norm*’: The idea of social prescription would apply, and perhaps particularly so, to

‘all problem-solving (purposive) behavior. The community at large has a stake in the manner in which its tools and intelligence are brought to bear on its life processes. Those patterns of behavior perceived to be vital to the survival of the community are the most carefully prescribed and carry the heaviest sanctions’ (p. 1077).

This ‘*norm*’ is mostly not just a behavioral rule (or institution) conveyed by social conditioning and *enculturation*, and not just some semi-conscious habituation, but, above that, the explicit feeling of individuals of a socially *required behavior*, whether instrumental or ceremonial. (We will discuss later how we can derive such ‘norm’-atization and even ‘ceremonialization’ out of a benchmark of an ideal instrumental ‘functional’ problem-solving behavior — see *Section 5.2* again.)

‘Correlated’ Behavior

Third, the idea of ‘*correlated*’ behavior, in particular, is not that obvious, from a GT perspective:

- In our ‘instrumental’ derivation of institutional emergence in a game-theoretic context, behaviors are correlated, first, *between two agents* who ‘correlate’ their behaviors in face of a problem at hand, be this ‘correlated’ (mutual) cooperation or (mutual) defection in a PD, the two basic forms of ‘coordination’ in a PD. Correlation here, therefore, is just a ‘*coordination*’ in the broad sense, be it ‘correlated’ cooperation or ‘correlated’ defection. At first, this would logically apply to a *single interaction* of each agent, i.e., a one-shot decision (one interaction, the ‘game’ played just once).

- However, any such behavior must also be correlated *over time*, as a recurrent, *repetitive*, and thus rule- or institution-based behavior (remember that we have argued in a SG, particularly in a sequential process). In fact, a rule or institution would be no full-fledged rule/institution (or ‘coordinated strategies’) if it was not repetitive/recurrent, and thus *correlated with itself* over time.

‘Patterns of correlated behavior’, thus, also means that institutional behavior

‘is not random but purposeful [...] [and in this sense] correlated’ (p. 1077).

A ‘Set’ of Patterns of Behavior

Fourth, a ‘set’ of correlated behavior thus may refer either to a *set of coordinated (pairs of) agents* carrying the rule or institution across many agents at one point of time, and/or the *set of repetitions* of coordinated behaviors of pairs of agents, i.e., a set of coordinated actions *over time*.

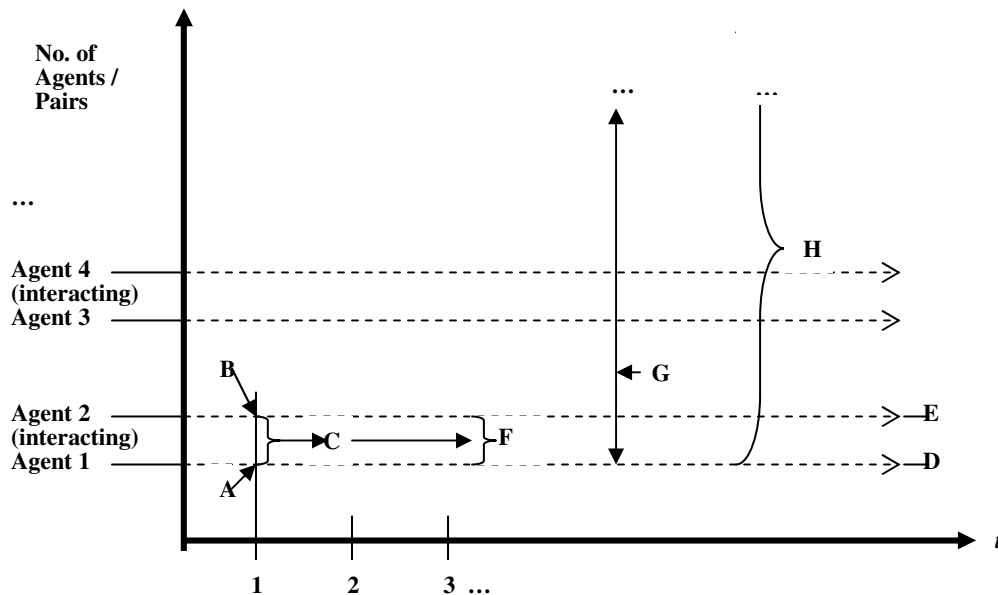
It should have become clear from this that GT modeling may be of some help to sort the different logical dimensions of ‘*a set of patterns of correlated behavior*’. For an illustration of the mentioned components of the institutionalist definition of an institution, see *Figure 1*.

Figure 1: Components of the Institutional Definition of an Institution as ‘Sets of Correlated Behavior’--Illustration.

No. of Agents Involved \ Repetition of Interaction	Once (‘one-shot’) (‘correlation’ just across agents)	Many Over Time (recurrent, sequential) (‘correlation’ cross-sectional & longitudinal)
Two (one pairing)	<i>Behaviors ‘correlated’ between two agents</i>	<i>A ‘pattern’ of behaviors ‘correlated’ between two agents and with themselves over time</i>
Many Pairs (in a population)	<i>A ‘set’ of behaviors ‘correlated’ within each pair of agents and among pairs (with the no. of elements of the set equal to the no. of pairs)</i>	<i>A ‘set’ of ‘patterns’ of ‘correlated’ behavior (within each pair and among pairs) ‘correlated’ with themselves over time (with the no. of elements of the set equating the no. of pairs).</i>

Also, for an illustration of the *logic of the components* of a rule or institution, from an individual action to a ‘set of patterns of correlated behavior’, see *Figure 2*.

Figure 2: The Logic of a ‘Set of Patterns of Correlated Behavior’--Illustration.



Notes:

- A, B** = a *behavior*, an individual *action* (one agent's action at one point of time);
C = *behaviors* (actions) **A** and **B** 'correlated' between (at least) two agents (at one point of time);
D, E = '*patterns*' of behavior (of each one agent), each 'correlated' only with itself over time;
F = a '*pattern*' of behaviors **C**, 'correlated' with itself over time (a social rule or institution);
G = a '*set*' of '*patterns*' of behaviors **C**, 'correlated' among (at least two) pairs of agents;
H = a '*set*' of '*patterns*' of behaviors **G**, 'correlated' with itself over time.

2) Values Correlating Patterns of Behavior: Instrumental or Ceremonial Warrant

Another important aspect, specific of the epistemological sophistication of Institutionalism, which has not been explicitly accounted for in usual GT so far, is *values*. As Bush puts it:

'Values function as the "correlators" of behavior within and among patterns of behavior'.
 [That is] 'two behaviors [...] [are] correlated by a value' (p. 1077).

However, as indicated already above, this appears equivalent and reconcilable with an *EIGT* perspective: Consider again that cooperative behaviors in a *PD* (and also coordinated behaviors in a coordination game, where a Pareto-superior coordination between two coordination solutions in a 2x2 normal form exists, which aspires or attains this superior coordination⁸) are correlated through the *instrumental valuation* (the motivation, or norm) of *problem-solving*, i.e., overcoming the very dilemma (or distrust, risk-aversion in the

⁸ The prototype in modern complexity economics of such a coordination game with two different coordination solutions, a Pareto-inferior and a Pareto-superior one, is W. B. Arthur's model of a random *technology choice* with two different technologies (superior, inferior)—where any solution may emerge (see Arthur 1989). Those familiar with GT may also consider another structure, the *Stag-Hunt game* (or *assurance game*) as an example, a coordination structure with a Pareto-superior solution, which however is not attained by non-trusting, risk-averse agents.

coordination-game case with a Pareto-superior solution) by a motivation of problem-solving. This instrumental motive or basic valuation seems quite obvious: We have to assume that agents are *motivated to cooperate* (in a social dilemma) through a prior value-decision to solve a common and collective problem to improve their situation.

Intended hyper-rational *maximization* (in the PD), on the other hand, i.e., putting oneself above and trying to exploit the other one, and, thus, either *unilateral or mutual exploitation* (*unilateral or mutual defection*), are justifiable — also in GT terms — in no other way than through the prior fundamental valuation of *invidious distinction*, i.e., the *striving for superior power and status*, in a word, through what institutionalists since Veblen have called *ceremonial value*. According to ceremonial values, agents are after distinction, differential status and power, rather than problem-solving.

The ‘correlating’ role of instrumental and ceremonial values now has been most important for the institutionalist argument and scheme of institutional dynamics. EIGT can learn about the value base of decisions/strategies from this, and the theory of institutional change has paved a way here already, through the elaboration of a system of resulting potential forms of value-behavior-structures.

The basic *value-behavior-scheme* (or structure) is

$$B-V-B,$$

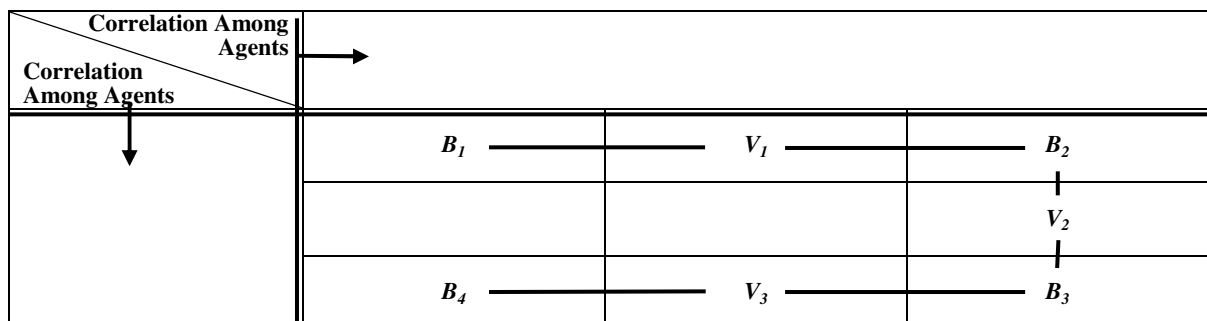
with *V* for the correlating *value* and *B* for the *behaviors*. *V* ‘correlates’ behaviors *B*, among both agents and over time as indicated above.

Note that there can be different interconnected constellations of values and patterns of behaviors, among agents and/or over time, where

‘the correlation of [two] behavioral patterns entails a [third] behavioral pattern’ (p. 1078),

as illustrated according to Bush’s explanation in *Figure 3*.

Figure 3: Behaviors Correlated by Values -- Illustration.



For instance, while two pairs of ‘(patterns of) behavior’ [of each two agents (1, 2) and (3, 4)], (B_1, B_2) and (B_3, B_4), may be ‘correlated’ by instrumental values (V_1, V_3), the (patterns of) behaviors of agents 2 and 3, B_2 and B_3 , may be ‘correlated’ by a ceremonial value V_2 .

Since the relationship between two patterns of behavior is fundamentally characterized by the type of V (instrumental or ceremonial), institutional change basically requires a change of the value basic to that institutional structure. We will return to this later.

3) The Asymmetry in the Dichotomic Institutional Structure: Ceremonial Dominance and Ceremonial Encapsulation

3.1) *The Asymmetric Value Structure in Both Perspectives*

Again, behavior warranted by ceremonial values is based on invidious distinction, and aspirations of differential status and power. The *logic of ceremonial warrant* of institutionalized patterns of behavior is, as Veblen has already put it, one of

‘*sufficient reason*’,

which means that ceremonial values refer to just tradition, received authority, some plausibility, suitable myths, etc., and are beyond critical scrutiny or scientific inquiry. The *operative criterion* for such behavior thus is

‘*ceremonial adequacy*’,

i.e., just *conformity* to the legitimizations of differential power and status without any proof of real efficacy – conformity to the myths is just sufficient (cf. Bush, pp. 1079-80).

Instrumental values, on the other hand, are bound to problem solving, and thus the *logic of instrumental warrant* is that of

‘*efficient cause*’

rather than just ‘sufficient reason’. The *operative criterion* by which instrumentally warranted behavior is judged, therefore, is that of

‘*instrumental efficiency*’

(rather than ‘ceremonial adequacy’), i.e., *efficacy*.

Typically, with *new ‘technological’ knowledge* (in the broadest sense), instrumental behavior will have to be scrutinized and adapted. Proper (instrumental) behavioral adaptation, in turn, will ‘require changes in the instrumental values that correlate such behavior’ (p. 1080), i.e., change to *reinforce instrumental valuing*. This will particularly be feasible if the institutional structure is warranted by instrumental value.

With this, there also are *two basic types of patterns of behavior* that would consistently and fully relate to the two valuations, i.e., *instrumentally and ceremonially warranted patterns*.

In *GT* terms, and in the context of a social dilemma, we have made the distinction between an *instrumentally warranted institution* and a *ceremonially warranted social rule*, reflecting

already the above mentioned asymmetry. In particular, *dilemma-solving behavior* is subject to the value criterion of ‘*efficient cause*’ or ‘*instrumental efficiency*’, an effort with a learning process attaining the Pareto-superior solution⁹, while *defective behavior* (in a PD) can be considered to be subject to ‘*sufficient reason*’, i.e., just the *belief* and hope that the agent can (and should) gain a maximum in the short run, which he knows he can attain only at the expense of the others. The institutionalist value-asymmetry thus neatly applies to that GT problem setting so that the GT perspective could be opened up for more institutionalist input, and vv.

3.2) Resulting Institutional Value-Behavior Structures

This has several implications for resulting value-behavior structures:

- First, as said, it is immediately intelligible that there are *two pure types* of the *basic value-behavior schemes* that consistently relate to one of the two valuations:

$$B_c-V_c-B_c$$

and

$$B_i-V_i-B_i,$$

where *c* and *i* stand for ceremonial and instrumental, resp.

- Second, however, *real-world behavior* typically is ‘*dialectical*’ in the sense that *both ceremonial and instrumental* characteristics are involved.

For example, institutionalists from Veblen on have dealt with such ‘*dialectical*’ behavior: *Fashion clothing* is both instrumental clothing and ceremonial distinction, and the *professor’s teaching* behind the lectern is both instrumental teaching and ceremonial status differentiation between him and the students. Veblen and Ayres have also investigated the ‘*ceremonial cleanliness*’, the ‘*cult of the tub*’, with its waste of hot water – which has become particularly relevant in recent times of body and beauty cults, ubiquitous hot showers and one-arm water taps that always admix hot water, water pollution with all kinds of detergents, mostly used in abundance, and ubiquitous ‘*sanitation*’ and ‘*beauty*’ industries (see also examples and discussion given by Bush, pp. 1081 f.).

This means there are patterns of behavior to be symbolized by B_{ci} (or equivalently, B_{ic}), which are *ambivalent*. Thus, their final significance *depends on the type of value* that correlates them. Hence, the following forms can be added to the list of specific schemes (see Bush, pp. 1082-4):

$$B_{ci}-V_c-B_{ci} \text{ and } B_{ci}-V_i-B_{ci},$$

but also

$$B_c-V_c-B_{ci} \text{ and } B_i-V_i-B_{ci}.$$

⁹ Note that the use of the *Pareto Criterion* throughout this paper is confined to the simple examples of symmetric payoff matrices with two different potential equilibria. We do not want to argue that the particular Pareto Criterion in general would lead us far in evolutionary-institutional economics, in the VAFB paradigm or EIGT.

That is, both ceremonial and instrumental values can correlate either two ‘dialectical’ patterns of behavior or one ‘pure’ form of their own kind with another ‘dialectical’ form.

- Third, the asymmetry between instrumental and ceremonial modes of valuation, as mentioned, causes an *asymmetry between the value-behavior-structures* that instrumental or ceremonial values warrant.

Particularly, the instrumental logic and operational criterion of *efficient cause* and *instrumental efficiency* are *inapplicable to purely ceremonial behavior*:

‘Instrumental valuation cannot rationalize purely ceremonial behavior’ (p. 1083).

The ceremonial logic and operational criterion of *sufficient reason* and *ceremonial adequacy*, on the other hand, are less limited: *Any behavior*, including instrumental behavior, may be ‘rationalized’, absorbed, used, or misused, by ceremonial valuation, since its logic and operational criterion are ‘weaker’, so to speak, i.e., *less demanding*.

For example, think of the massive progress made in the natural, technological, organizational, medical, psychological or social sciences (including, by the way, game theory) through *arms and warfare research*, typically justified by myths like ‘our nation is under threat’, ‘we need to help others who are under threat’, ‘they don’t share our values’, ‘they are different’, etc. Also, you may think of the justification of some reasonable and effective social caring behavior within and through the churches through ‘the will of god’, or perhaps of some other socially effective behaviors through ‘the national interest’, ‘the interest of the economy’, etc. In fact, there has been generated a rich stock of applied institutionalist research on such issues since Veblen’s critical analyses of dominating myths and belief systems.

In *GT* terms, we would have to consider again the *exploitation constellations* in the upper right and lower left cells of the 2x2 PD matrix, where instrumental (cooperative) behavior of some agents would be *dominated* by others who are motivated by invidious payoff maximization for their own benefit. Thus, we have to assume that these whole situations are dominated and characterized by the *ceremonial* valuation. This clearly would go beyond any conventional *GT* perspective and would require additional assumptions, theoretical justification, and proper ‘story-telling’. *GT* obviously is not well prepared for the conception of *lasting asymmetric behaviors*, i.e., combinations of ‘rational’ and ‘irrational’ behaviors. But again, we consider such additional story-telling about the *emergence of a dominating ceremonial warrant* out of an instrumentally warranted behavioral solution in *Section 5.2* below.

3.3) ‘Ceremonial Encapsulation’ in Particular

In case of such ceremonial enclosure of ‘dialectical’ or even of purely instrumental patterns of behavior, institutionalists are talking of *encapsulation*:

‘In these instances, instrumental behavior is “encapsulated” within a ceremonially warranted behavioral pattern, thereby incorporating instrumental behavior in a ceremonially prescribed outcome’ (p. 1084).

For instance, *Marx’s* conception of ‘*moral depreciation*’, i.e., premature scrapping of commodities under the pressures of competitive race among firms, would fall into this category of instrumental aspects of behavior being ceremonially encapsulated. In such cases, commodities may display some instrumentally reduced functioning through wearout so that replacement or reinvestment would basically be in order sooner or later, but in fact they will prematurely be put to waste as they no longer function as a vehicle of invidious distinction (e.g., are no longer fashionable or no longer a cutting-edge model of a technology), this being more a symbolic and signaling action. The case could be symbolized by $B_c-V_c-B_{ci}$ or $B_{ci}-V_c-B_{ci}$ as already introduced, but also by $B_c-V_c-B_i$ and even $B_{ci}-V_c-B_i$, as introduced below.

The forms of *ceremonial encapsulation*, thus, are manifold. Beyond the two forms already mentioned in the context of ‘*dialectical*’ behavior, $B_{ci}-V_c-B_{ci}$ and $B_c-V_c-B_{ci}$, it may also occur with ‘*pure*’ behaviors, where purely instrumental behavior is correlated with purely ceremonial behavior, the first being dominated and encapsulated by ceremonial valuing:

$$B_c-V_c-B_i .$$

And, of course, another feasible form correlates purely instrumental behavior with ‘*dialectical*’ behavior (and encapsulates both), i.e., even ‘*dialectical*’ and purely instrumental behaviors can be encapsulated to serve a ceremonially prescribed outcome:

$$B_{ci}-V_c-B_i .$$

Note that these two forms can not have parallels under ‘*instrumental conditions*’. Because of the asymmetry, *instrumental values cannot justify any purely ceremonial behavior*, so no constellations $B_i-V_i-B_c$, $B_{ci}-V_i-B_c$ and $B_c-V_i-B_c$ are feasible.

But, on the other hand, also $B_i-V_c-B_i$ is *no* possible constellation, as *ceremonial values cannot justify only pure instrumental behaviors*. See *Figure 4* for an overview of the forms.

Figure 4: The Forms of Ceremonially and Instrumentally Warranted Patterns of Behavior (Variants of Value-Behavior-Schemes) (after Bush, p. 1082).

	Ceremonially Warranted Patterns of Behavior	Instrumentally Warranted Patterns of Behavior
‘Pure’ Forms of Behavior of the Same Kind Only	$B_c-V_c-B_c$	$B_i-V_i-B_i$
‘Dialectical’ Forms of Behavior Only	$B_{ci}-V_c-B_{ci}$ (involving <i>ceremonial encapsulation</i>)	$B_{ci}-V_i-B_{ci}$
Mixed ‘Pure’ and ‘Dialectical’ Forms of Behavior	$B_c-V_c-B_{ci}$ $B_{ci}-V_c-B_i$ (involving <i>ceremonial encapsulation</i>)	$B_i-V_i-B_{ci}$
Mixed ‘Pure’ Form of Behavior	$B_c-V_c-B_i$ (involving <i>ceremonial encapsulation</i>)	$J.$

From the *GT* perspective, we are able now to draw an obvious *analogy of the cases* for a normal form PD. While the institutionalist scheme just consisted of two lists of *B-V-B* structures, we attain a *more elaborated two-dimensional scheme*, where we can sort the *B-V-B* patterns according to the constellations of interacting ‘cultures’ of cooperating or defecting behaviors (see *Figure 5*).

Figure 5: The Equivalence of the Institutional *B-V-B* Cases and the ‘Interacting-Cultures’ Constellations in the EIGT Perspective: A More Elaborated Two-Dimensional Scheme.

		Player II	
		C	D
Player I	C	<i>Bi-Vi-Bi</i> <i>Bi-Vi-Bci</i> <i>Bci-Vi-Bci</i>	<i>Bi-Vc-Bc</i> <i>Bi-Vc-Bci</i> <i>Bci-Vc-Bc</i>
	D	<i>Bc-Vc-Bi</i> <i>Bci-Vc-Bi</i> <i>Bc-Vc-Bci</i>	<i>Bc-Vc-Bc</i> <i>Bci-Vc-Bci</i>

We can *completely allot* the institutionalist patterns to the *GT* constellations. We also immediately see the *asymmetry* of the cases between the three instrumental and the five ceremonial cases, which is reflected in the *GT* scheme as three cells ceremonial cases vs. only one cell of instrumental solutions. (Note that the *B-V-B* cases repeat between the ‘Upper Right’ and ‘Lower Left’ cells. We have just mirror-inverted them to accentuate the parallelism between Upper Right and Lower Left.) Of course, only the ‘ceremonial cells’ contain the forms of *ceremonial encapsulation* (except the extreme case of *B_c-V_c-B_c* under mutual defection in the Lower Right).

While the forms with ‘pure’ behaviors of the same kind may be obvious cases, the forms with ‘dialectical’ behaviors, with mixed ‘pure’ and ‘dialectical’ behaviors, and with mixed ‘pure’ behaviors of different kinds may require some more ‘story telling’. While this, however, is not our main thrust here, Bush (1987) is full of cases from institutionalist research allocated to the different *B-V-B* patterns. We will indicate some of them below in the context of forms of institutional change.

Finally, note that the arrows indicate *progressive/regressive institutional change*. See below for more detail on this.

3.4) ‘Ceremonial Dominance’ and the ‘Permissiveness’ of the Institutional Structure

The asymmetry between the logics of ‘ceremonial’ and ‘instrumental’ valuation according to which *ceremonial warrant can encapsulate more forms of behavior*, is consistent with, and in fact stems from, the general comprehension of *institutions* in the *Veblenian* tradition

according to which institutions are always and unavoidably *past-bound*, and thus prone to a *ceremonial dominance*, particularly in traditional, hierarchical, and predatory societies.

In fact, specific cultures and nations vary in the ‘*permissiveness*’ of their institutional arrangements (value-behavior-structures) vis-à-vis *new* (‘technological’) *knowledge* (‘increases of the social knowledge fund’). Some few have been *allowing for a* (‘*progressive*’) *change* towards more instrumentally warranted behavioral patterns. Hence, that asymmetry and the resulting ceremonial dominance are a ‘*gradual*’ phenomenon. An ideal ‘*index of ceremonial dominance*’ (to be formalized yet¹⁰) would be inversely related to the *degree of permissiveness*: The higher that index, i.e., the greater ceremonial dominance, the lower the permissiveness of the institutional structure of an economy towards new knowledge and its full instrumental use.

In *GT* terms, we may think here of some *technological or organizational change*, causing a *change of the payoff structure*,

1. e.g., in a coordination game with a Pareto-superior and a Pareto-inferior coordination solution, so that the former superior coordination becomes the inferior one and vice versa,
2. transforming a coordination game into a PD and vice versa,
3. increasing the relative payoffs for common cooperation in a PD so that common defection pays relatively less and cooperation becomes easier feasible in a SG process, and vice versa (while the basic PD structure as such is maintained).

Also, we might assume some change in other external conditions so that the *expectations change* (i.e., δ) with implications for the *probabilities* with which *instrumentally or ceremonially* warranted behavioral patterns come to prevail in an evolutionary process in a population.

Combining changes in knowledge, payoffs, and expectations (and thus — in the *GT* perspective — in the long-run calculations of relative benefits and costs of different strategies) with the *valuing* aspect we may say that the more ‘permissive’ the value structure in games that undergo such changes would be, e.g., the more the agents will be after *long-run and inclusive problem solving* ($V_c \rightarrow V_i$), the more a *behavioral change towards a new, adapted, and now more proper and superior, or more instrumental, solution* would appear feasible. But nevertheless, agents need to have a strong *instrumental-value motivation* in order to *overcome*, in a sequential process, *the incentive to defect* that always dominates in the short-run, even if the long-run calculation is in favor of cooperation.

Therefore, note again that, in *GT*, as already the approach and structure of the simple single-shot solution above reveals, the *degree of permissiveness* itself is not only positively related to, but in fact would *change uno actu with the long-run calculations* of the agents based on both the payoff structure and the importance of the common future — a ‘rational’, calculative explanation of the relative weights of the two types of values. Particularly, with *favorable calculative* conditions, agents, in the *GT* perspective, will usually be *more inclined towards instrumentally warranted* solutions — if not other aspects that may explain a ceremonial

¹⁰ However, see O’Hara 1997, 112-16, for a formal operationalization and application of an ICD for the cases under investigation there. We do not need to delve deeper into this here.

dominance would prevail. The latter will indeed play a role in the specific *argument in favor of dominant ceremonialism* that we will deal with in *Section 5.2*.

4) The Process and Forms of Institutional Change

4.1) *Combinations of Instrumental vs. Ceremonial ‘Feasibilities’: The ‘Institutional Space’*

It follows from the above that *new knowledge*, together with related *instrumental patterns* of behavior, can be either ‘*encapsulated*’ within ceremonially warranted patterns of behavior or ‘*embedded*’ within instrumentally warranted patterns of behavior.

While new knowledge basically *supports instrumental valuation* (see our argument above on the support of a proper set of conditions and a ‘favorable’ calculation for instrumentally warranted solutions), the ‘index of ceremonial dominance’ eventually is indicative of the degree in which new knowledge is *allowed to be used* in the community’s problem-solving process. For instance, under strong ceremonial dominance,

‘knowledge that cannot be reconciled with the need to justify existing patterns of status, power, and other forms of invidious distinctions would not be intentionally sanctioned’ (p. 1091).

The asymmetric structure between ceremonial and instrumental warrant, ‘allowance’, or ‘feasibility’ of behaviors now defines an ‘*institutional space*’ within which we not only can define different *sectors* according to these *value or feasibility constellations*, but furthermore can also illustrate the *motions of institutional change* (Bush, p. 1092; see *Figure 6* below, with the formal *B-V-B* structures added that apply in each case):

- (1a) When behavioral patterns are both *instrumentally feasible* (warranted, allowed for) *and ceremonially feasible* (warranted, allowed for), in this way meeting both ‘sufficient reason’ and ‘efficient cause’, or ‘ceremonial adequacy’ and ‘instrumental efficiency’, we clearly face the *case (and sector) of ceremonial encapsulation* since this implies (because of the asymmetry) a dominant ceremonial warrant. Here then, the institutional structure of an economy allows for benefiting from *instrumental behavior* that at the same time can be *ceremonially justified* and utilized, misused, and, in fact, encapsulated (see *Figure 6*, upper left sector).
- (1b) In *dynamic* terms, if an increase in the knowledge fund would *trigger compensatory efforts not to change the value structure*, the system would remain in the upper left sector of both instrumental and ceremonial feasibility under ceremonial warrant, a case of *ongoing and enforced ceremonial encapsulation* (remaining in the upper left sector).
- (2a) If behavioral patterns were *instrumentally infeasible* but *ceremonially feasible* under dominant ceremonial valuation (ceremonial warrant), they were *purely ceremonial*, a complete dominance of the ‘myth structure’, a full ‘loss of

instrumental efficiency’ (Bush, p. 1092), with instrumentally warranted patterns completely excluded (upper right sector). We are talking of *quasi-religious effects* here.

- (2b) In a *dynamic* perspective, if *ceremonial dominance* would *further increase* and the economy moved from the ceremonial-encapsulation subspace into this sector, excluding more and more instrumental behaviors, this would be indicative of ‘*regressive*’ *institutional change*, i.e., an *even greater dominance* of ceremonial over instrumental values (and behaviors), of total ideology, myths, and received belief systems over knowledge (moving from the upper left to the upper right sector).
- (3a) Finally, those parts of behavioral patterns that are *instrumentally feasible* but *ceremonially infeasible* will normally be *excluded* under ceremonial dominance (lower left sector).
- (3b) In a *dynamic* perspective, however, if *ceremonial dominance* could be *reduced* after an increase in the social knowledge fund, this would be indicative of ‘*progressive*’ *institutional change*, i.e., an increasing weight of instrumental over ceremonial values and with this of instrumental behaviors. Then the economy would move from the upper left into the lower left sector.

Figure 6: The ‘Institutional Space’ in the Interface of Instrumental Feasibility (Warrant) and Ceremonial Feasibility (Warrant).

Behavioral Patterns Made Instrumentally Feasible by the Knowledge Fund Behavioral Patterns Made Ceremonially Feasible by Ceremonial Values	Instrumentally Feasible (instrumentally warranted)	Instrumentally Infeasible
Ceremonially Feasible	<p>(1)</p> <p>Actual/Enforced Institutional Structure: Ceremonial Encapsulation (with a constant index level of ceremonial dominance/permmissiveness), reproducing, or changing among, these forms: $B_c-V_c-B_i$ $B_{ci}-V_c-B_i$ $B_{ci}-V_c-B_{ci}$ $B_c-V_c-B_{ci}$</p>	<p>Fully Ceremonial Institutional Structure (quasi-religious effects; a full loss of instrumental efficiency; a full ‘myth structure’) $B_c-V_c-B_c$</p> <p>(2) Dynamically: Increasing Ceremonial Dominance / Regressive Institutional Change $\rightarrow B_c-V_c-B_c$</p>
Ceremonially Infeasible	<p>(3)</p> <p>Actual Structure: Some Instrumentally Warranted Patterns of Behavior Excluded</p> <p>Dynamically: Decreasing Ceremonial Dominance / Progressive Institutional Change $\rightarrow B_{ci}-V_i-B_{ci}$ $\rightarrow B_i-V_i-B_{ci}$ $\rightarrow B_i-V_i-B_i$</p>	(Empty Set)

Note: (1) = Ongoing/enforced Ceremonial Encapsulation (with a constant ceremonial dominance).
 (2) = Regressive Institutional Change (increasing ceremonial dominance).
 (3) = Progressive Institutional Change (decreasing ceremonial dominance).

4.2) *The Forms of Institutional Change in Particular*

As said, *institutional change* is defined by a *change in (the 'index' of) ceremonial dominance* which in turn only occurs with a *change in the value structure* (Bush, p. 1094), i.e., in the relative dominance of ceremonial or instrumental warrant. And there are three forms of institutional change identified:

(1) Ongoing and *enforced ceremonial encapsulation* will then imply that any increase of the knowledge fund, any *new knowledge*, and thus any potential increase of instrumental patterns of behavior will be *offset*, under a continuing dominance of ceremonial values in the community, by concomitant or *reactive increases in ceremonial 'mythology' and valuation*, and thus ceremonial patterns of behavior are supported and instrumental behavior encapsulated. The *status quo ante* will be *maintained* and reinforced. In this case the *'index' of ceremonial dominance* and the value structure basically remain *unchanged*.

As a major example, consider the technical progress made in the last decades through the *digital microelectronic technologies*. Now consider, what part of the effective use of the new facilities and equipment is devoted to just ceremonial activities rather than effective potential social problem-solving and related communication, information, and calculation. What part is used to divert people rather from social (and individual) problem-solving, engaging them in just killing time, distracting them from the social problems as well as their individual problems, tending to make them addicted, involving them in 'sex&crime' worlds (virtual or real), promoting global sex&crime industries, money laundering, generating and promoting violence, social isolation, invidious distinctions – but also surveillance and control, and so forth ... ? (see, e.g., Adkisson 2004, particularly on ceremonialism with respect to intellectual property rights; see also Gallaway, Kinnear 2002). One might try to make an empirical estimation (through case studies) of instrumental vs. ceremonial portions in the real use of those technologies.

Furthermore, decentralized systems based on net-technologies and nets of independent agents in the new economy may be dominated and restricted by big powerful bureaucratic hierarchies of international corporations. They form supplier networks that are hierarchically directed and restricted by the powerful hub of such a global hierarchy, i.e., *hub&spoke networks* that have come to dominate the global spatial organization of industries nowadays. Many *power-based* contractual nets have turned out, through critical institutional analysis, to be less problem-solving constructions but rather complicated machines to generate windfall profits accruing at the most powerful agents (see, e.g., Hayden and Bolduc 2000).

Applied institutionalist research is full of cases of reinforced ceremonial encapsulation (for the media industries, see, e.g., Champlin, Knoedler 2002). Institutionalists such as L.F. Junker, F.G. Hayden, J.R. Munkirs, W.M. Dugger and many others have empirically investigated ceremonial encapsulation in many fields, such as corporate dominance or pathogenic corporate agricultural and food production that causes public health to deteriorate (see Bush, pp. 1095 ff.).

The late *capitalist culture* has developed, for instance, ceremonial *life styles* of affluence that prevents rationality to be fully realized, with the opulent life style of the developed countries of the Northern hemisphere, full of *oversupplies* of food, drugs, entertainment, diversion, events, and mass hysteria, while appropriating and absorbing for this purposes the resources

that the rest of the globe provides – and even more than these (in fact, the annual *ecological footprint* of the global North is 3 to 4 times their annual natural capacity).

And, in fact, virtually all relevant *knowledge* on sustainable production, social justice, general trust and happiness, on preventing financial speculation and crises, environmental deterioration and climate crisis, etc. does *already exist*, but can rarely be applied because of a *lack of instrumental collective action capacity*, caused by a ceremonial *encapsulation* of knowledge and instrumental behavior. Similarly, we know virtually everything to effectively deal with most of the big *social and humanitarian problems* of societies and of the current global structures — but the taboos and belief-systems connected to the dominating ceremonial values (‘do not touch the wealth of the mega-rich investors’; ‘do not touch the “market”’; ‘defend your freedom of the established ways of production, trade, consumption, mobility, leisure, tourism, etc.’, ‘do not restrict freedom and flexibility’, ‘push our national interests globally’, ‘protect “our” resources worldwide’, ‘kill the enemy’, etc.) largely prevent an instrumental turn in the existing patterns of behavior and valuations.

Considering a *GT* perspective, we would argue that while *all know* about the *superiority of the collective-action (cooperative) solution* and the conditions to get there (‘complete information’), the *dominant individualistic (ceremonial) incentive* still remains to trigger general defection, with an inferior economic performance. In *GT* terms, we would consider again the critical role of the payoff structure and of the common future (expectations) to explain the ceremonial dominance — i.e., their bearing on the opportunities of problem solving in an economy.

(2) *Regressive institutional change*, on the other hand, will displace instrumentally feasible and dialectical behavior, as indicated, i.e., an extreme case where ceremonial practices will not only dominate instrumental ones, but *substitute* them and in the end even imitate instrumental efficiency. It is the case of *increasing ceremonial dominance*, consistent with what Veblen had coined *the triumph of imbecile institutions over life and culture*.

You may think of the *quasi-religious* and ‘fundamentalist’ ‘theories’ and *anti-rationalisms* all over the world, reactions of fear of turbulence and social uncertainty, propagating hatred and ignorance against ‘the others’, particularly against poor, needy, dependents, and migrants, including the alleged inferiority of other religions, races, and nations, of women or of non-believers, e.g., postulating literal readings of the bible, counting generations back to Adam and Eve in the bible’s metaphors, accordingly claiming the world to be some 6000 years old, or arrogating ‘*creationism*’ to be seriously taught in schools, on an equal basis with scientific biology, history and anthropology, for the time being, reserving open totalitarianism for the future.

Again, with regressive institutional change, there occurs a *further loss of instrumental efficiency* as (the index of) *ceremonial dominance increases* and the permissiveness towards the application of new knowledge and related instrumental behavior decreases. Knowledge and instrumental behavior will be fully displaced in the end by ceremonial behavior under a strong dominance of ceremonial values.

(3) *Progressive institutional change*, on the contrary, will be experienced

‘when for a given fund of knowledge ceremonial patterns of behavior are displaced by instrumental patterns of behavior’ (p. 1101).

It would move the institutional structure into the lower left sector of the institutional space (see *Figure 6* again), i.e., the ceremonial barriers that have prevented instrumental behavior to be realized (because it was ceremonially infeasible) can be torn down on the occasion of new technological knowledge. Here we would experience a *decreasing (index of) ceremonial dominance*, which can only come about through a displacement of ceremonial values by instrumental values.

But it has always been obvious for institutionalists that progressive institutional change has strong *limits*, in a ceremonially dominated system and predatory society, particularly in face of an ongoing systemic crisis. The present system, despite its crises, still has the power to maintain sufficient diversion for its people and to keep up its particular myths of modernity, flexibility, liberties, effectiveness, the ‘systemic relevance’ and usefulness of the super- and mega-rich ‘investors’, also, for instance, the superiority *per se* of ever more research, ever more high technology, etc. — in all, strongly caught in *ceremonial encapsulation*’ rather than *progressive institutional change*, with insufficient collective rationality and action capability.

We will return to progressive institutional change considering its strong preconditions, namely the crucial role for *public policy* to initiate, stabilize, and accelerate it.

5) An Additional Explanation on How Ceremonial Dominance May Emerge From an Instrumental Benchmark

5.1) *The Different Benchmarks: The Institution as 'Enabler' vs. Ceremonial Dominance*

As we have seen, in the *GT* argument the institution emerges in a complex evolutionary process from a defined particular *problem-solving* process. It helps individuals to solve complex decision situations that otherwise would not be solvable in a decentralized individualistic economy.

Consistent with this view, it has for long been argued by *institutionalists* that the institution is *not just a restriction* to some ideal (allegedly unrestrained) perfect maximization, as argued by neoclassical economics, and it is *not even just flatly past-bound*, conservative, and inadequate, but *in complex situations* it also is an ‘enabler’ of qualified, coordinated behavior of agents (see, e.g., Neale 1994), an *empowerment* of agents in terms of improving information and making expectations of agents consistent with each other and thus stabilizing them — i.e., the *instrumental* dimension of institutions.

On the other hand, as we have seen, some *ceremonial dominance is rooted in the asymmetry* of the logics of ceremonial vs. instrumental warrants, where ceremonial valuation is more ‘permeable’, i.e., *capable of encapsulating more ways of behavior* than instrumental valuation is capable of embedding. This very *asymmetry* was reflected, as seen, in the *dominance of defective strategies* in the *GT* perspective.

Also, in the *institutionalist* tradition, the ceremonially warranted institution has mostly been the starting point, due to the *historical perspective* of institutionalism, where more or less

predatory societies and economies have been the received object of realistic and comprehensive socio-economic analysis and theorizing.

However, both the logical and historical accounts do not fully ‘genetically’ explain how ceremonial dominance *endogenously emerges*, particularly from a benchmark of an instrumentally warranted institution. Especially in a *GT* perspective, we would need to show that, and how, initially institutionalized problem-solving cooperation *degenerates* into a ceremonial defection.

Instrumentally warranted institutions can indeed have an endogenous course of their own, some *life cycle* leading them from ‘instrumental’ (considered here the ‘natural state’ of the system) to ‘ceremonial’, in fact a process of degeneration, from problem-solving cooperation to a behavior that – while perhaps even formally unchanged – in fact has become inadequate in face of *new conditions*, which is equivalent to the idea of (*institutional*) *lock-in* as in the famous QWERTY analysis (David 1985) — where a *new collective-action capability is required* for a proper progressive institutional change to emerge. Note that such ‘institutional lock-in’ usually will happen in a *hierarchical environment*.

For a normal-form game, think of the case mentioned, that new conditions (new knowledge, some *technological/organizational progress*, and, in addition, now also an *uneven distribution of the gains of cooperative behavior*) change the payoff structure in a way to make the formerly (Pareto-) superior *common-cooperation solution now (Pareto-) inferior* (in a 2x2 PD). We will give a schematic illustration after the story-telling.

5.2) *Degeneration of an Instrumentally Warranted Institution*

Instrumentally Warranted Cooperation in a Hierarchical Environment

The idea applies when, for instance, a fresh economics M.A. or MBA joins a firm with new ideas and new knowledge, but his suggestions are refused by his superior arguing ‘We have always done it like this, we have been successful with this, and we will continue doing it like this.’ This would be a symbolic indication of an institution formerly successfully established to solve a certain problem, by which a group became a cooperating one, thus successfully coordinated and highly performing. With the *successfully cooperating group ‘plus hierarchy’*, however, the group leaders and higher ranks of the cooperating team have established and tightened their positions, promoted their individual careers, and perhaps climbed up the hierarchical ladder.

The ‘Career Motive’ and the ‘Motive of Identity and Belongingness’

Differential hierarchical status and power in societies, economies, and organizations that are characterized by received power and status differences anyway, i.e., the ceremonial value, thus becomes a new, additional motive determining the future of that institution. But also, the very ‘ceremonial’ valuations may also provide institutionalized *identity* and belongingness to the lower ranks of the team, which in turn may *relieve their uncertainty* in the turbulent environment they live in (for an institutional economics of identity, see, e.g., Herrmann-Pillath 2011). These factors may combine and *transform* the system into a position of *unilateral defection and exploitation* where the superiors increasingly exploit but still manage to keep their subordinates cooperating.

Also, *habituation* may explain why those receiving less of the common gain stick to the same formal behavior although the character of the institution has tacitly changed. Consider the following illustration in a normal-form matrix:

Starting with the usual PD,

$$\begin{array}{cc} \underline{a}, \underline{a} & \text{d, b} \\ \underline{b}, \underline{d} & \text{c, c} \end{array}, \quad \text{with } b > a > c > d,$$

the payoffs of common cooperation and success may change into

$$\begin{array}{cc} \underline{a_1}, \underline{a_2} & \text{d, b} \\ \underline{b}, \underline{d} & \text{c, c} \end{array},$$

with either (1) $b > a_1 > a_2 > c > d$ or even (2) $a_1 > b > a_2 > c > d$, i.e., the earlier common success, but with an *increasingly uneven distribution* now. Agent 2, the subordinate, may still stick to the institutionalized behavior (rather than changing back to defection) by way of still *receiving identity* from the ‘winning team’ or just by way of *habituation*, while agent 1, the superior, in the extreme case (case (2)), even has gained a short-run (hyper-rational) incentive to stick to it (no sacrifice any longer while sticking to the formally same, earlier cooperative behavior).

The character of the situation then may change from an instrumental warrant into a full-fledged ceremonial warrant, when (a_1, a_2) changes into an *overtly exploitative* situation, (b', d') (i.e., $a_1 \rightarrow b'$ and $a_2 \rightarrow d'$), perhaps with a further aggravating unequal distribution, in the frame of a now *new PD*:

$$\begin{array}{cc} \underline{a'}, \underline{a'} & \text{d', b'} \\ \underline{(a_1, a_2)} \rightarrow \underline{(b', d')} & \text{c', c'} \end{array}, \quad \text{with } b' > a' > c' > d'.$$

The conventional GT prediction for the new PD structure would be the common-defection NE in the next step, since the exploited would rationally switch back to defection as well in the new game. In any case, the earlier instrumentally warranted situation will have *fully transformed itself into a ceremonially warranted situation*, a situation of a B_c - V_c - B_i type¹¹.

Another ‘Motive’: Institutional Economies of Scale

A *factor supporting* this process of collective cooperative success (how unevenly distributed ever) may be *transaction-cost reduction*, i.e., the *economies of scale of the application* of that institution, with a learning curve that ensures that sticking to the institution makes the average transaction costs of the single institutionalized decision ever more decrease — the classical case of *routinization* and, in fact, an objective *cost argument in favor of habituation*.

That senior manager who is referring to, and insisting upon, his past experience in the example above, thus, is of course not totally selfish. He might refer to a history of the

¹¹ There are certainly different (and more elaborated) ways to capture the ceremonially warranted degenerative situation in some future EIGT modeling. For instance, one might also think of a game in which each payoff is a vector with the elements of an instrumental and ceremonial payoff. A weight function (‘utility function’) may then result in overall ceremonially or instrumentally warranted behavior. Habituation and sticking to an earlier instrumentally warranted institution under now ceremonial warrant may then be modeled by a change of weights. There are many similar approaches in the literature. Proper modeling of institutionalist theory in this regard, however, is absolutely rare and must be left to future effort.

institution that has been successful. During that history, he and his ‘interaction partners’ have successfully established the institution as an adequate instrumental device.

But also, as particularly the *GT* analysis reveals, he and the others in that interaction system in fact had to *invest a lot in terms of time, intellectual effort, uncertainty, risk-taking of getting exploited once, trial & error, non-invidiousness*, etc., to make that institution eventually emerging in a long and fragile joint learning process, as indicated above. The result was the development of an effective instrumentally warranted institution, habituated by all involved.

And, as everyone who has invested *high fixed and sunk costs*, he and his fellows desire permanently high returns on their investment, by *spreading their initial fixed costs over as many applications as possible* (thus maximizing ‘output’, i.e., the quantity of applications). And, if possible, they do not wish to invest in a new learning process. They do want their initial high investment to be apportioned among a maximum number of applications of the same institution, i.e., an *endless series of institutionalized/routinized decisions*. They want to realize increasing returns. The important reason here will be that *coordination*, in such a learning process and with cumulative reinforcement of cooperation, may become *ever more effective* (in a stochastic population perspective: The portion of cooperative actions in all actions will increase) and thus the whole decision process and its performance more effective. Decreasing transaction costs of the institution will contribute to the relatively high payoffs of common cooperation (further increasing the win-win payoff).

From a Norm Still Instrumentally Warranted ...

Now, this situation may still be consistent with the instrumental character of the institution. While the institution may increasingly appear to the individual agents, in the culture of the team, group, or organization at hand, as something external, a *given, exogenous requirement, desideratum, a postulate, or a norm*, it still may be dominantly instrumentally warranted and *relate to the solution of the problem* structure at hand. But tacitly, the motivation to maintain the institution may change from solving the original problem to (1) saving the careers of the leaders and thus extra benefits and *unequal distribution* (see above), and (2) reducing average transaction costs, making their decision-making as easy and smooth as possible, rather than properly solving a defined problem, which may have become a *new problem* in the meantime.

A norm, thus, is not necessarily ceremonially warranted. The instrumentally warranted institution may have become a general prescription, and even become codified, but the connection to the basic problem has become somewhat opaque, but still may be an adequate behavioral pattern. We term this an *instrumentally warranted norm*.

Note that related behavior, earlier B_i , may easily be considered to have become ‘dialectical’ in the institutionalist sense, i.e., B_{ci} , as mentioned above.

... to a Ceremonially Warranted Social Rule and Institution — An Abstract Norm

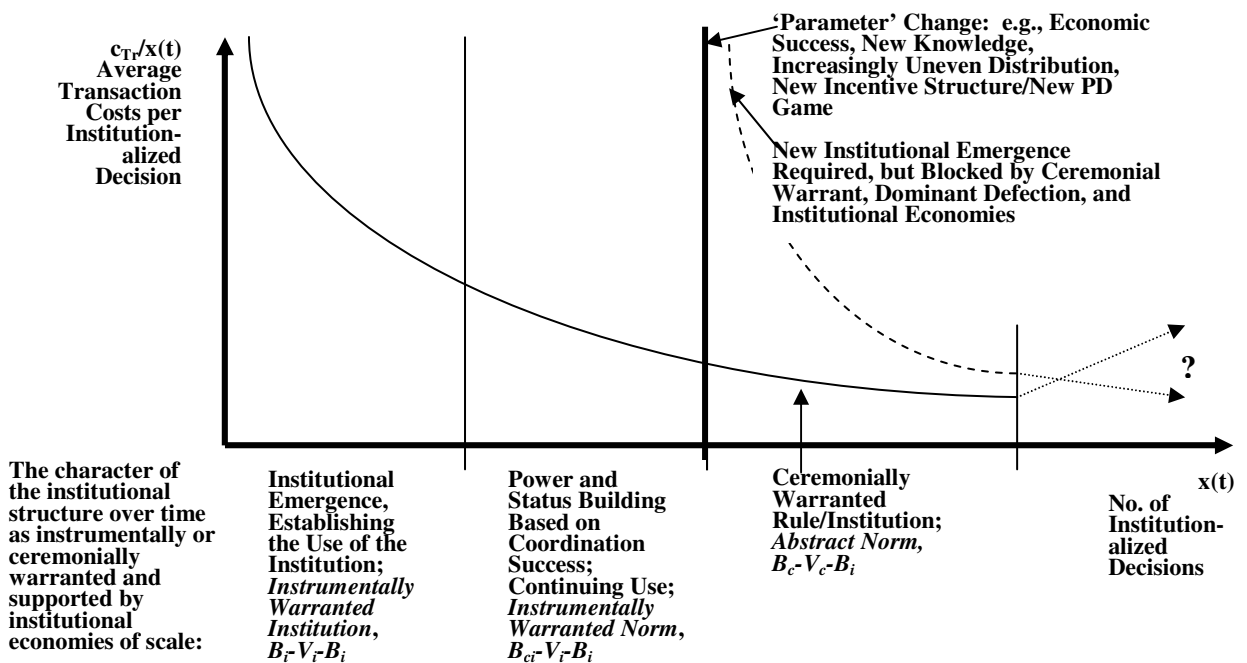
Only when some ‘external’ conditions change — in *GT* modeling: changing expectations and/or payoff structure — the instrumentally warranted norm would turn out to be *disconnected* from the (new) problem. And it would become further disconnected as the establishment of a proper new institution will be blocked by the now dominating motives of differential status and of continuing easy and smooth decision-making. The *formally same behavior* thus now becomes *ceremonially warranted*, and in fact *defective* in terms of the payoff structure, while the agents *shift from the upper left in the basic PD matrix to the lower right of a new PD*, which then provides *new and larger win-win opportunities* in the upper

left. We call this an abstract norm. Remember that the ‘norm-ative’ dimension may work as an *imposition on the subalterns to stick* to cooperation, the earlier instrumentally warranted institution.

The institutional economies of scale in a complex environment together with the motive of differential status and power in a hierarchy thus explain why socio-economic interaction systems may stick to an (formerly instrumentally warranted) institution for longer than instrumentally justified. The institution may eventually become ‘outdated’, ‘petrified’, ‘sclerotic’, ‘ossified’, or locked-in. The ceremonial motivation and valuation will *prevent the interaction system* to properly learn, and gain a *renewed collective action capability* required according to the instrumental value criterion.

Note that a new institution may facilitate even lower average decision costs in the long-run. The more disconnected from the problem the abstract norm gets, and the more *fight over unilateral or mutual exploitation* may re-emerge, the more the average *transaction costs* of the old norm may *increase again*. Thus, the potential average transaction costs of a new institution may fall below those of the old norm, despite its initial high average and marginal costs. This, of course, does not guarantee that the system will regain anew a proper collective action capability, as game-theoretic analysis reveals. See *Figure 7* for an illustration.

Figure 7: Average Transaction Costs and Institutional Economies of Scale Supporting the Emergence of a Ceremonially Warranted Norm After Some ‘Technological’ Change -- Illustration.



In all, this ‘endogenous’ institutional degeneration may help systematically explain the *ceremonial* dimension and its *domination* in an individualized and hierarchical environment. *Figure 8* sums up the changing character of an institution during a ‘life-cycle’ as described.

Figure 8: The Instrumental and Ceremonial Dimensions of Institutions — From an Instrumentally Warranted Institution to an Abstract Norm.

Institutional Dimension	Instrumental		Ceremonial
Normative Load	Problem solving <i>Instrumental Institution</i>	Keep decision-making easy and smooth; maintain hierarchy and differential status <i>Instrumental Norm</i>	Don't care for new problems; follow the criterion of career making, differential status, and hierarchy, and the prescriptions of those in power and high status <i>Abstract Norm</i>

6) The 'Discretionary Character of Progressive Institutional Change' and a GT-Informed Policy Perspective

6.1) *The Possibility, and Improbability, of Instrumental Solutions in a Spontaneous Decentralized Individualistic System*

As *progressive institutional change* will normally not automatically emerge — particularly when systemic *crises* and conditions of widespread uncertainty and fears may lead to *reinforced ceremonial encapsulation* or even *regressive institutional change* — it remains an issue of proper deliberate, discretionary *policy action*, as institutionalists have always argued (see Bush, pp. 1107-9). In the institutionalist tradition, M.R. Tool further developed the theory and philosophy of *instrumentalism* and progressive institutional change into the *social value principle*, which operationalized the pragmatist institutionalist conception of public policy and its formation (see, e.g., Tool 1994, and the references given there). It elaborated the issue that democracy and *transparent democratic participatory policy* is substantial in the sense that reasonable decisions on prices, wages, income distribution, etc. will have to be determined in a cause-and-effect-based *negotiation processes* of all social interests involved (the so-called 'negotiated economy'; see already Commons 1934). This is not primarily about some abstract 'majority rule' but about the substantial

'process by which majorities [...] are formed' (Bush, p. 1109),

and such process would be heavily interconnected

'with the process of inquiry upon which instrumental valuing depends' (ibid.).

In this way, substantial, participative, and *discursive democracy* would support collective long-run rationality and action capacity, and with this an increasing dominance of instrumental values and instrumentally warranted patterns of behavior — i.e., progressive institutional change.

The '*non-cooperative*' GT perspective, in contrast, is not so much about discourse and oral communication but rather on 'tacit' learning from repeated interaction and from the

consequences of combined action¹². Nevertheless, it suggests a similar conclusion regarding the *critical role of discretionary public policy action*, related to the interaction system of the individual agents and the critical factors determining its process and outcomes. In fact, GT modeling and related complex model simulations have specifically demonstrated that there is no automatic or easy way out of *dominant defection*, and even of *repeated breakdown of some institutionalized cooperation* after it has emerged in complex settings and long-run evolutionary processes (see, e.g., Liebrand, Messick 1996; Lindgren 1997, for classical accounts).

Thus, a very basic GT-informed policy conclusion, based on the most simple single-shot approach as indicated above, may be the following. We refer to Elsner (2001) and make a long story very short here. Remember the simple PD-SG single-shot inequality above. Obviously, it is unfavorable for cooperation if (b) and (c) are relatively high and (a) and δ are relatively low. The simple algebraic *logic of policy action* resulting is rather obvious:

$$\delta \uparrow > [(b \downarrow - a \uparrow) \downarrow / (b \downarrow - c \downarrow) \uparrow] \downarrow.$$

Note, that the PD payoff structure must not be dissolved as such by policy action, this would imply a trivial and probably a politically costly solution (i.e., subsidizing *a* such that eventually $a > b$).

Thus, the problem that remains, and cannot be solved by hyper-rational individuals coined for an ideal ‘market’, is the very social-dilemma structure, i.e., an *individualistic culture* when, however, real-world ‘markets’ are characterized by directly interdependent and directly interacting agents (see, e.g., Kirman 1998). An individualistic culture confronted with complex and dilemma-prone incentive structures implies that the process of solving a ‘collective-good’ or a social-dilemma through cooperation will usually be highly *time-consuming* and *unstable*, if not *blocked* at all. The more individualistic the culture is, i.e., the stronger the dilemma-structure in terms of the relations of *a*, *b*, *c*, and δ , the greater is the incentive to defect and to deviate from an already established institution of cooperation¹³. Again, we can see a full equivalence with the institutionalist conclusion with respect to *ceremonial dominance* here.

The process of (instrumentally warranted) institutional emergence and the conditions for its *initiation*, its sufficiently *fast emergence*, and its *stability* over time has been extensively investigated in recent decades, after some pioneering explorations by, e.g., Schelling 1978; Schotter 1981; or Axelrod 1984/2006 (among the countless game-theoretic and PD-based modeling and simulation approaches, see, e.g., Stanley et al. 1994; Liebrand, Messick (eds.) 1996; Lindgren 1997; Fudenberg, Levine 1998; Offerman, Sonnemans 1998; Oltra, Schenk 1998; Eckert, Koch, Mitloehner 2005; Demange, Wooders (eds.) 2005; Traulsen, Novak 2006; Jun, Sethi 2009; Spiekermann 2009; Hédoïn 2010).

Therefore, it is necessary to design a *supra-individualistic, i.e., broader and more long-run, rational mechanism* to support this process and complete the whole system, namely an

¹² This means that we will take the policy agent here as given, informed by a deliberately negotiated economy — admittedly a ‘catch-all’ entity. Modeling democratic process explicitly with GT would be in the realm of ‘cooperative’ GT. As a prominent recent example, see, e.g., McCain 2009.

¹³ In a more elaborated population model on the critical *size* of institutions, we have shown that institutions and their carrier groups or ‘platforms’ will become exploited (invaded) by defectors beyond a critical maximum (a ‘meso’) size when few invaders profit from exploitation of many cooperators — see Elsner, Heinrich 2009.

additional *public-policy intervention* to *initiate, accelerate, and stabilize* the process, which cannot be brought forth with sufficient speed and stability by the ‘market’ or any decentralized individualist system alone, if there are ubiquitous dilemma-prone direct interdependencies and thus coordination/cooperation problems in the real world ‘out there’.

6.2) *‘Meritorics’ For a Negotiated Economy*

The conception of the *merit good* (see, e.g., Brennan, Lomasky 1983; Musgrave 1987) has substantiated ‘*meritorization*’ (i.e., a positive social valuation) exactly on the basis of ‘community preferences’ that have evolved from interaction processes beyond the ‘market’ logic (Musgrave 1987, 452). This implies a *social evaluation* of the outcomes of the ‘market’ through some kind of a social decision-making broader than, relatively independent of, and superior to it.

For our purpose we will define a *merit good* as a good possibly resulting from the decentralized evolutionary interaction process of emergence as indicated (a ‘self-organizing’ process, and in this sense a ‘private good’ then), which, however, needs to be evaluated through a *social decision-making* process on the grounds of its deficient quantity, quality, and — as new dimensions discovered in deficient ‘market’ processes with coordination and cooperation problems — the *certainty* of its emergence, the *time* needed for its production, and the *stability* of its acquisition through a decentralized system and process (see also, e.g., Ver Eecke 1998).

Institutionalists have always claimed that democratic and participative socio-political decision-making should continue to be relatively independent of the ‘market’ allocation and should have priority over it (see, e.g., Hayden 1994). The institutionalist conception of the *negotiated economy* was exactly elaborated to show that the ‘market’ has to be deliberately embedded in a wider socio-political process, and how this is possible (see again Commons 1934, 612ff., 649ff.; also, e.g., Ramstad 1991; Nielsen 1992).

We will not delve into this discussion any deeper here, but will simply assume an economic policy agent who is legitimized through a process of participatory democratic decision-making, subject to the criteria of the pragmatist ‘*instrumental value principle*’. In this very process, *public policy objectives* can be developed which provide the criteria for the ‘meritorization’ required. Note that not necessarily a financially ‘big’ state but a self-conscious and in this sense ‘strong’ democratic state would be required.

Against this background, the economic policy agent may employ instruments *related to the interactive process of the private agents* to change those interactions, aiming at initiating, accelerating, and stabilizing the provision of the merit good through promoting cooperation.

6.3) *Instruments of an ‘Interactive’ or ‘Institutional’ Economic Policy*

Not only does the public policy agent have to publicly identify the specific characteristics of the ‘good’ he/she wants the private agents to cooperatively produce (equivalent to the ‘Pareto-superior’ economic situation as illustrated in EIGT), i.e., the public objective or ‘merit good’, but he must also establish incentives to promote cooperative private behavior that favors this superior social solution. For instance, he may *implicate the private agents into projects* to be

pursued cooperatively, which helps (1) *increasing their awareness of their complex and dilemma-prone interdependence* (for this, see, e.g., Bush 1999), (2) *increasing their awareness of the fact that they always will have a common future* to meet again (a high δ) (and then either reward each other for previous cooperation or continue sanctioning and ‘warfare’ for earlier defection), and (3) *enabling them to learn to cooperate*.

Rewarding Cooperation

The first complex of instruments of ‘interactive (or institutional) economic policy’ is rather obvious; it aims at changing the incentives (the payoffs in the technical sense) in order to *increase the relative rewards for cooperation* ($a \uparrow$) or the *opportunity costs of common defection* ($b \downarrow - c \downarrow \uparrow$), or decrease the *opportunity costs of common cooperation* ($b \downarrow - a \uparrow \downarrow$). See the simple logic of policy actions attached to the single-shot inequality above.

The single-shot inequality also shows that the more successful the public agent is in integrating the private agents into a *future-bound* process, i.e., the higher the discount parameter δ , the less the increase of the relative rewards for cooperation need to be.

However, this trade-off between the rewards for cooperation (a) and the ‘shadow of the common future’ (Axelrod), δ , does not necessarily imply a contrast between *quantitative* (namely, pecuniary) and *qualitative* instruments, i.e., offering pecuniary subsidies as opposed to promoting more favorable expectations among the agents (of ‘meeting again’). As has been shown from long lasting practical experience, the incentives from the public policy agent which reward cooperation may even primarily consist of *non-pecuniary* benefits (for instance, early information about public planning, see again Elsner 2001).

Enlarging the ‘Shadow of the Future’

The second complex of instruments of interactive economic policy is not that obvious, in practical terms. It refers to the analytics of the basic interactive process, i.e., the logic and *probability of ‘meeting again’* (the same agent in a future interaction)¹⁴. Consistent with the single-shot solution, cooperation can be promoted if the discount parameter can be increased, i.e., if future interactions become more probable or *future-awareness* of the agents can be promoted.

But this condition for the success of the basic evolutionary process can also be subject to policy control. As Axelrod (1984/2006) has already mentioned, the public agent can indeed increase the importance (i.e., the probability, or weight) of future interactions ‘with the same’ by organizing cooperation in the form of frequent project-based meetings, or make it permanent, e.g., by organizing *meetings with a greater frequency*, dividing projects into several sub-interactions, *connecting different projects* so that the same agents will meet in different arenas, connecting them *over time*, etc. Obviously, there is ample opportunity for the public agent to deliberately *design the conditions of interaction* to promote cooperation in a variety of subject areas that private agents are jointly interested in, namely, in order to improve common conditions (location factors) of their individual economic activities (infrastructures, intermediary agencies, or improving the industrial structure itself by strengthening individual agents involved).

¹⁴ Note that the introduction of *reputation mechanisms and chains* in more complex population models helps considerably extending the number and range of agents falling under this criterion (see, e.g., Elsner, Heinrich 2009).

This policy perspective can be, and has been, applied to manifold areas of industrial and regional policies, *cluster* and *network policies*, innovation and information policies (see, e.g., Elsner 2000, 2001). Also, it has been demonstrated to be a ‘lean’, ‘qualitative’, ‘structural’, and thus *inexpensive* policy (it definitely is not about subsidizing cooperation so that $a > b$).

It is *institutional policy* since it refers to the processes of institutional emergence, and it is ‘*double interactive*’ as it refers in an interactive way to the conditions and intermediate results of the interaction processes of the private agents.

Finally, it has been shown to be applicable by ‘enlightened’ interdependent and interacting agents themselves, as their own policy strategy, e.g., in their cluster, their value-added chain, their innovation network, etc., or by an ‘enlightened’ neutral private cluster or network advisor hired by the parties involved. As far as this has its inherent limits, the public agent’s state activity, a *new type of ‘enlightened’ public agency*, to be sure, is required.

The evolutionary-institutionalist interpretation of the GT perspective obviously largely and ‘naturally’ converges with the policy perspectives institutionalism has developed over decades.

7) A Short Conclusion

In this paper, an effort was made to

- *revisit the institutionalist theory of institutional change*, the VAFB-paradigm, as formulated by P.D. Bush, after (roughly) 25 years;
- reconsider the *logic of its conception of institutions* and *institutional value-behavior-structures*;
- elaborate surprising *equivalences, similarities* and *complementarities* of an *EIGT* perspective, if embedded in a proper evolutionary perspective and ‘process story’, with the institutionalist approach, as demonstrated in the cases of (1) the conception of *institutions*, (2) *value-warranted institutional structures*, (3) the *basic asymmetry between instrumental and ceremonial warrant*, (4) the rationale of the concept of *ceremonial dominance*, and (5) the different resulting forms of value-behavior-structures and their potential *endogenous dynamics*, i.e. institutional change;
- elaborate some *relative advantages and disadvantages of each perspective*, as for instance
 - (1) the advantage of the *institutionalist* approach, based on its larger *epistemological* foundations, towards the specification of the different value-behavior structures, based on a clear conception of the instrumental-vs.-ceremonial asymmetry, of the *dynamics of ceremonial encapsulation*, and of *progressive and regressive institutional change*;

(2) the clearer *distinction* in the *GT* perspective between *institutions* and simpler *social rules* (with a complementary *asymmetry*), based on its greater potential of a *logical* analysis of the processes of institutional emergence, furthermore its logical requirement to *endogenously explain the emergence and dominance of the ceremonial warrant* as instrumentally warranted institutions degenerate into ‘abstract norms’;

- *parallel* the inescapable *discretionary policy* perspectives in both approaches, where already the most simple formal solution shows that a proper *GT* argument can contribute some *specific implications for policy instruments*, which, however, may well fit into the broader institutionalist conceptions of the *social value principle* and the *negotiated economy*.

In all, a modern revisiting, interpretation, and enrichment of the 25-years old state of the art of the institutionalist theory of institutional change is possible in a dialectical approaching and bridging final gaps — with, in all, more complementarities, synergies, and cross-fertilization than incommensurabilities or paradigmatic differences.

It appears that such a review bears some potential, and the institutionalist conceptions of institutions and evolutionary institutional change may profit from insights based on proper use of *EIGT* — but also, and perhaps even more so, the *EIGT* approach may considerably be informed from encountering the rich tradition of the *VAFB*-paradigm.

If this mutual approaching, bridge-building and gap-closing between modern formal approaches and evolutionary institutionalism becomes a major line research in the future, Institutionalism may cross some boundaries that have limited its reach for long.

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