

The *Theory of Institutional Change* Revisited.

The *Institutional Dichotomy* and its Asymmetry (and Dynamic) in a Game-Theoretic Perspective

Paper given at the
X. International Symposium on Evolutionary Economics
*"Evolution of Economic Theory:
Economic Reproduction, Technologies, Institutions"*
Pushchino/Moscow, Russia, Sept. 13-14, 2013

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0. Introduction:

The *Veblen-Ayres-Foster-Bush* Paradigm (VAFB)
and (Evolut.-Institut.) Game-Theoretic Reasoning
(GT/EI-GT)

0. Introduction: The Veblen-Ayres-Foster-Bush Paradigm (VAFB) and (Evolut.-Institut.) Game-Theoretic Reasoning (GT/EI-GT)

- Characteristics and elements of the institutionalist theory of institutional change (Veblen-Ayres-Foster-Bush—VAFB) (Bush 1983, 1987) recapped:
 1. Institutions are value-behavior-structures, ‘patterns of behaviors correlated by values’, of the general structure B-V-B;
 2. the institutional dichotomy: instrumental, ceremonial, and (a great bulk of) ‘dialectical’ patterns of behavior: B_i, B_c, B_{ci} , and instrumental and ceremonial value ‘warrant’: V_i, V_c ;
 3. the asymmetric logic of instrumental and ceremonial valuation (warrant) favoring a ceremonial dominance (CD) ($..-V_c-..$), with most real-world forms being ceremonial encapsulations (CE) ($B_i-V_c-..$);
 4. thus, a (asymmetric) scheme of specific value-behavior-structures resulting: less $B..-V_i-B..$, more $B..-V_c-B..$;

0. Introduction: The Veblen-Ayres-Foster-Bush Paradigm (VAFB) and (Evolut.-Institut.) Game-Theoretic Reasoning (GT/EI-GT), cont'd.

Characteristics and elements of the institutionalist theory of institutional change (cont'd.):

5. degrees of ceremonial dominance (Index I_{CD}) in real-world institutional structures, quantified in a graph/network-theoretic dominance setting (Bush 1983);
6. a partitioned 'institutional space' of instrumental/ceremonial feasibilities, where, again, typically a real-world institutional structure is in the state of some CE (instrum. + cerem. feasible);
7. resulting dynamics: types of institutional change, i.e., changes in the I_{CD} , with regressive ($I_{CD} \uparrow$) ('the triumph of imbecile instit. over life and culture') or progressive ($I_{CD} \downarrow$) ('permissiveness'!) instit. change, but typically ongoing (reinforced) CE ($I_{CD} \text{ const.}$);
8. so progressive institutional change will not automatically occur (because of CD), but will require discretionary public policy support, in a pragmatist culture of a participatory and negotiated democratic process.

0. Introduction: The Veblen-Ayres-Foster-Bush Paradigm (VAFB) and (Evolut.-Institut.) Game-Theoretic Reasoning (GT/EI-GT), cont'd.

- Many '*heterodoxers*' have come to work with game theory (**GT**) today, develop an evolutionary-institutional(ist) interpretation of it (**EI-GT**) (A. Field, S.P. Hargreaves Heap, Y. Varoufakis, C. Hédoïn, V. Pelligra, J. Watkins, M. Villena ... but **not much integration** in detail between *Institutionalism* and (EI-)GT so far.
- Obviously, different starting points and world views, **paradigms clash** – at first sight (see, e.g., Hodgson, Huang, JEE 2012).
- But, at in-depth revisiting and cross-check of *terms, definitions, and schemes*, also **surprising equivalences/commensurabilities and complementarities** can be elaborated, with a potential for cross-fertilization ...

0. Introduction: The Veblen-Ayres-Foster-Bush Paradigm (VAFB) and (Evolut.-Institut.) Game-Theoretic Reasoning (GT/EI-GT), cont'd.

- Against this background, this paper aims at
 1. illustrating an **EI-GT perspective on institutions** with a simple formalism;
 2. 'translating', **comparing** and **combining** the two conceptions of (i) **institutions**, of the (ii) **value base**, and (iii) its **asymmetry**;
 3. particularly an **explanation of CD and CE from the EI-GT** perspective, i.e., **why ceremonial warrant emerges, dominates, and perpetuates** itself at all, out of an instrumental GT world;
 4. demonstrating **convergent perspectives on discretionary policy** for progressive institutional change, and that the GT conception of 'interactive/institutional policy' may add to the institutionalist policy perspective.

1. The Two Conceptions
of an Institution Compared:
A first 'translation' and comparison –
Equivalences and complementarities

1.1 An (EI-)GT Perspective in a Nutshell

1. The two conceptions of an *'institution'* compared

1.1 An (EI-)GT perspective in a nutshell

- General explanation of specific complex decision structures: Prisoners' Dilemma (PD), Coordination Game (CG), Battle of the Sexes, Chicken/Hawk-Dove, Ultimatum, Trust games, ...
- The general, every-day relevance of the social dilemma (PD) in a decentralized and individualistic society!
- A most simple 'single-shot' solution of a PD supergame (PD-SG):

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

with $b > a > c > d$,

with *tit-for-tat* (TFT) cooperators and a 'defectors' (All-D players), both encountering either TFT or defection players, in a SG plus population/evolutionary-GT (non-invadability) perspective (J. Maynard-Smith):



1. The two conceptions of an *institution* compared
 - 1.1 An (EI-)GT perspective in a nutshell (cont'd.)

- $P_{TFT/TFT} = a + a\delta + a\delta^2 + \dots$

$$= \frac{a}{1-\delta}$$

and

$$P_{All-D/TFT} = b + c\delta + c\delta^2 + \dots$$

$$= \frac{c}{1-\delta} + b - c.$$

Cooperation pays, if

$$P_{TFT/TFT} > P_{All-D/TFT} \rightarrow \delta > \frac{b-a}{b-c},$$

as popularized, e.g., by R. Axelrod (1984/2006): The *institution of cooperation* then might evolve in a population of defectors, or, more specifically, cannot be invaded by defectors ...


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1. The two conceptions of an *institution* compared

1.1 An (EI-)GT perspective in a nutshell (cont'd.)

- Critical factors of this solution: incentive structure (b, a, c) and 'futurity' (discount factor, δ), in a certain *relation to each other*.
- Solution (a new, Pareto-superior NE) of the complex social decision problem feasible only in a process, through an interactively learned longer-term rationality ('futurity' – J.R. Commons) (formally: δ must be sufficiently large!), and/or a broader rationality ('recognized interdependence' – J.F. Foster/P.D. Bush).
- Impossible with short-run hyper-rationality (i.e., in a one-shot perspective, defection is dominant and the only NE); thus, only through habituation/ institutionalization ('semi-consciousness', rational rule-following, 'rational fools'—A. Sen).

1. The two conceptions of an *institution* compared
 - 1.1 An (EI-)GT perspective in a nutshell (cont'd.)

- An evolutionary 'process story' to develop a properly elaborated EI-GT model required: the process of emerging cooperation, with motivations/instincts (workmanship, idle curiosity, parental bend – T.B. Veblen), agency capacities (e.g., search, innovation, risk-taking, reputation building, partner selection, further learning (a replicator mechanism), ...
- The resulting character of the institution:
*an instrumental device to collectively solve a specific complex decision structure (problem-solving!) through socially learned and habituated behavior with a *learned broader rationality* and *longer-run perspective* of agents.*

1. The two conceptions of an *institution* compared
 - 1.1 An (EI-)GT perspective in a nutshell (cont'd.)

- **Resulting definitions/terms:** *Coordination i. w .s.*

(1) *coordination i. n. s.*

(2) *coöperation*

- **Coordination problem** (CG) → solved through **coordination i. n .s.** requiring a '**social rule**' only. Everyone's short-run interest to be coor.

<u>a</u> , <u>a</u>	d, b
b, d	<u>c</u> , <u>c</u>

with $a > b$, $c > d$, and $a > c$.

- **Dilemma problem** (PD) → solved through '**coöperation**' (= coordination i. n. s. ,**plus sacrifice**'), thus requires a social 'institution' , a rule ,plus endogenous sanction' , in a sequential process.

a, a	d, b
b, d	<u>c</u> , <u>c</u>

with $b > a > c > d$ → **Sacrifice of cooperation:**
(b-a) = opportunity costs of common cooperation.

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1. The two conceptions of an *institution* compared
 - 1.1 An (EI-)GT perspective in a nutshell (cont'd.)

- An **Institution defined in EI-GT:**

An institution is a **habituated social rule** for the decision/behavior of individual agents in **recurrent** **multi-personal** (social) situations (**SGs**), with coordination problems involved (particularly collective-good problems/**social dilemmas** – PDs) that has gained, through an *evolutionary process of interaction and social learning*, a **general approval** so that it can **inform agents** about **mutual expectations** (consistent beliefs) of behavior, and about the fact that with *unilateral deviation* from the rule other agents also will *deviate in the future* ('trigger' behavior) so that eventually **all will be worse-off with mutual defection than with mutual rule-conforming behavior** (a **sacrifice!**) (thus, an **endogenous sanction** mechanism required).
(as introduced, for instance, by Schotter 1981)

1. The two conceptions of an *institution* compared
 1.1 An (EI-)GT perspective in a nutshell (cont'd.)

- A social rule, thus, applies – by analogy – to the defective behavior in a PD! The ‘lower right solution’ (NE): ‘coordinated defection’ is in everyone’s short-run interest, an individualist culture of defection.
- A resulting asymmetry in a collective situation, ie. a social dilemma: instrumental institution (C) vs. ceremonial social rule (D):

CC is instrumental: $\longrightarrow a, a \quad d, b \longleftarrow$ D is short-run individualistic
 D short-run individualistic $\longrightarrow b, d \quad c, c \longleftarrow$ DD short-run individualistic;
 unilateral C still is instrumental.

- The Instrumental/Ceremonial Veblenian Dichotomy applies!
 And GT, in an embedding EI-GT process-story, indeed has a (so far implicit) value base in terms of problem-solving vs. power/status-based warrant!

1. The two conceptions of an *institution* compared
 - 1.1 An (EI-)GT perspective in a nutshell (cont'd.)

- The **(so far implicit) (EI-)GT value base:**
 - **Dominant defection is ceremonially motivated:**
differential power and status: **free riding** through **exploitation** of the other (who is hoped to cooperate); **invidious distinction**; putting oneself above the other.
 - **Cooperation is instrumentally motivated:**
collective problem-solving and **collective 'Pareto-improvement'** through commonly **sacrificing short-run extra gains**, taking the **risk of being exploited** at least once, **not being too envious**.

1.2 The *Institutionalist* Definition of an Institution

1. The two conceptions of an *'institution'* compared (cont'd.)
 - 1.2 The institutionalist definition of an institution

- **'A set of socially prescribed patterns of correlated behavior'**
(Bush 1987, 1076).
- Highlighting the **value base**: institutions as **value-based warranted and correlated behavior structures, B-V-B.**
- Only the **value warrant gives sense and meaning to behaviors!**

1.3 A First Comparison – Equivalences and Complementarities



1. The two conceptions of an *institution* compared (cont'd.)
 - 1.3 A first comparison – Equivalences and complementarities

- An **asymmetry** of 'institutions' vs. 'social rules' in EI-GT, vs. an **asymmetry between instrumental and ceremonial institutions** in Institutionalism, different but complementary.

An interim conclusion:

- **(EI-)GT** has to learn about the **value bases** of institutions vs. rules.
- **Institutionalism** has to learn about the **different incentive structures** and **the following logics** of 'patterns of behavior' in **specified problem structures** (CGs vs. PDs).

2. The Value Base of Institutions –
and Its Asymmetry:
Equivalences and Complementarities Again

2.1 The Value Bases Compared

2. The *value base* of institutions – and its *asymmetry*

2.1 The value bases compared

- The **Institutionalist (Veblenian)** value base/motivation/'warrant':
 - The **ceremonial** value decision:
Differential status and power ('invidious distinction').
 - The **logic** of ceremonial warrant:
'sufficient reason', **'ceremonial adequacy'**,
i.e., just conformity with any 'enabling myth'.
 - The **instrumental** value decision:
Problem-solving.
 - In contrast, the **logic** of instrumental warrant is verifiable:
'efficient cause', **'instrumental efficiency'**
– objective proof of efficacy required.
- Therefore, **ceremonial warrant can cover (warrant or 'encapsulate') more behaviors:**

2. The *value base* of institutions – and its *asymmetry*

2.1 The value bases compared (cont'd.)

- The VAFB institutional-asymmetry scheme (Bush 1987):

Instrumental FormsPure: $B_i-V_i-B_i$ Mixed: $B_i-V_i-B_{ci}$ $B_{ci}-V_i-B_{ci}$ Ceremonial FormsPure: $B_c-V_c-B_c$ Mixed: $B_c-V_c-B_{ci}$ $B_{ci}-V_c-B_{ci}$ $B_c-V_c-B_i$ $B_{ci}-V_c-B_i$

2. The *value base* of institutions – and its *asymmetry*
 2.1 The value bases compared (cont'd.)

- The *two asymmetries compared and combined*:
 - *Collective cooperation* ('upper left'): an *instrumentally warranted 'institution'*, a collective *broader* and *long-run* persp.
 - *Common defection* ('lower right'), *motivation of invidious distinction*, free riding/exploitation: a *ceremonially warranted 'social rule'*, *individualist culture*; *immediate individ. interest*.
 - *Unilateral defection* ('lower left' and 'upper right'): a *ceremonially warranted social rule* on the exploiter's side, somehow keeping the exploited 'instrumentally' committed to contribute.
- *A combined and more differentiated scheme of asymmetries of institutional forms attained*:

2.2 The Resulting *B-V-B Schemes* in an *El-GT Frame*

2. The *value base* of institutions – and its *asymmetry* (cont'd.)2.2 The resulting *B-V-B scheme* in an *EI-GT frame*

- The analogy in (EI-)GT perspective – A more differentiated scheme:

		II	
		C	D
I	C	$\underline{B_i-V_i-B_i}$ (also: $B_i-\underline{V_i}-B_{ci}$ $B_{ci}-\underline{V_i}-B_{ci}$) (common instrumental <u><i>social institution</i></u>)	$\underline{B_i-V_c-B_c}$ (also: $B_i-\underline{V_c}-B_{ci}$ $B_{ci}-\underline{V_c}-B_c$) (ceremonial encapsulation, <u><i>rule/institution</i></u>)
	D	$\underline{B_c-V_c-B_i}$ (also: $B_{ci}-\underline{V_c}-B_i$ $B_c-\underline{V_c}-B_{ci}$) (ceremonial encapsulation, <u><i>rule/institution</i></u>)	$\underline{B_c-V_c-B_c}$ (common ceremonially warranted <u><i>social rule</i></u>) (also: $B_{ci}-\underline{V_c}-B_{ci}$)

‘Upper right’, ‘lower left’, and ‘lower right’ being forms of *ceremonial encapsulation* (except $B_c-V_c-B_c$ which is a common pure ceremon. rule).

3. Ceremonial Dominance and Ceremonial Encapsulation in Particular

3. *Ceremonial dominance and ceremonial encapsulation* in particular

- Again: CD and CE are reflected in a GT social dilemma (PD) as the **dominant strategy of defection** and the **majority of cells** dominated by it, and the **majority of B-V-B forms** applying to it: B_i 's and B_{ci} 's **encapsulated** by ceremonial values V_c !
- BUT: As said, in (EI-)GT, the character of **'institutions'** (as distinct from just rules) only depends on **instrumental** warrant!
- The mere historical 'descent' of predatory societies (as with Veblen and Institutionalism) would appear insufficient.
- Thus, a full-fledged **model and process story of endogenous emergence of CD is required!**

3. *Ceremonial dominance and ceremonial encapsulation* in particular (cont'd.)

- [Methodological Note: rationality in complexity econ: In EI-GT, a *change of the value structure*, i.e. in the *degree of CD*, or '*permissiveness*' of the institutional structure, will regularly *depend on the formal calculation and resulting superiority/inferiority of payoffs*. But the individual can typically *not be so 'rational'* as to be able to do the calculations of a computer in a complex-system simulation in a real-world!]
- In EI-GT, CD and CE comprehensible as ***institutional degeneration*** only!
- Consider a ***hierarchical environment***.
 - Starting from *instrumentally warranted institutionalized cooperation*.
 - The ***career motive*** for the upper ranks, *belongingness/identity* for the inferiors – *win-win for all in the beginning*.
 - ***Increasing unequal distribution*** ... exploitation/free riding in the end.
 - The subalterns keep ***sticking to the same behavior*** through *belongingness* and *habituation* ...

3. *Ceremonial dominance and ceremonial encapsulation* in particular (cont'd.)

- The game changes, a **new game** emerges, and with it **changes the character of the same behavior**:

- | | | | |
|----|---------------------|---|---|
| 1. | $\frac{a, a}{b, d}$ | d, b
$\underline{c}, \underline{c},$ | with $b > a > c > d$ (original PD solved,
$\underline{B_i - V_i - B_i}$); |
|----|---------------------|---|---|
- | | | | |
|----|-------------------------|---|--|
| 2. | $\frac{a_1, a_2}{b, d}$ | d, b
$\underline{c}, \underline{c},$ | with either $b > a_1 > a_2 > c > d$ (<u>still a PD</u>)
or even $a_1 > b > a_2 > c > d$ (<u>no longer a PD for I</u>); <u>differential benefits!</u>
for I: <u>cerem.</u> , II: <u>instr.</u> , thus, <u>CE</u> : $\underline{B_c - V_c - B_i}$; |
|----|-------------------------|---|--|
- | | | | |
|----|--|-----------------------|--|
| 3. | $\frac{a', a'}{(a_1, a_2) \rightarrow (b', d')}$ | d', b'
$c', c',$ | further <u>redistribution/exploitation</u> :
with $a_1 = b' > a' > c' > a_2 = d'$, <u>free riding I</u> ,
again $\underline{B_c - V_c - B_i}$, a <u>new PD!</u> |
|----|--|-----------------------|--|

(for a full-fledged GT-model of VAFB-institutional change, see, e.g., Heinrich/Schwardt in *games* (2013).

3. *Ceremonial dominance and ceremonial encapsulation* in particular (cont'd.)

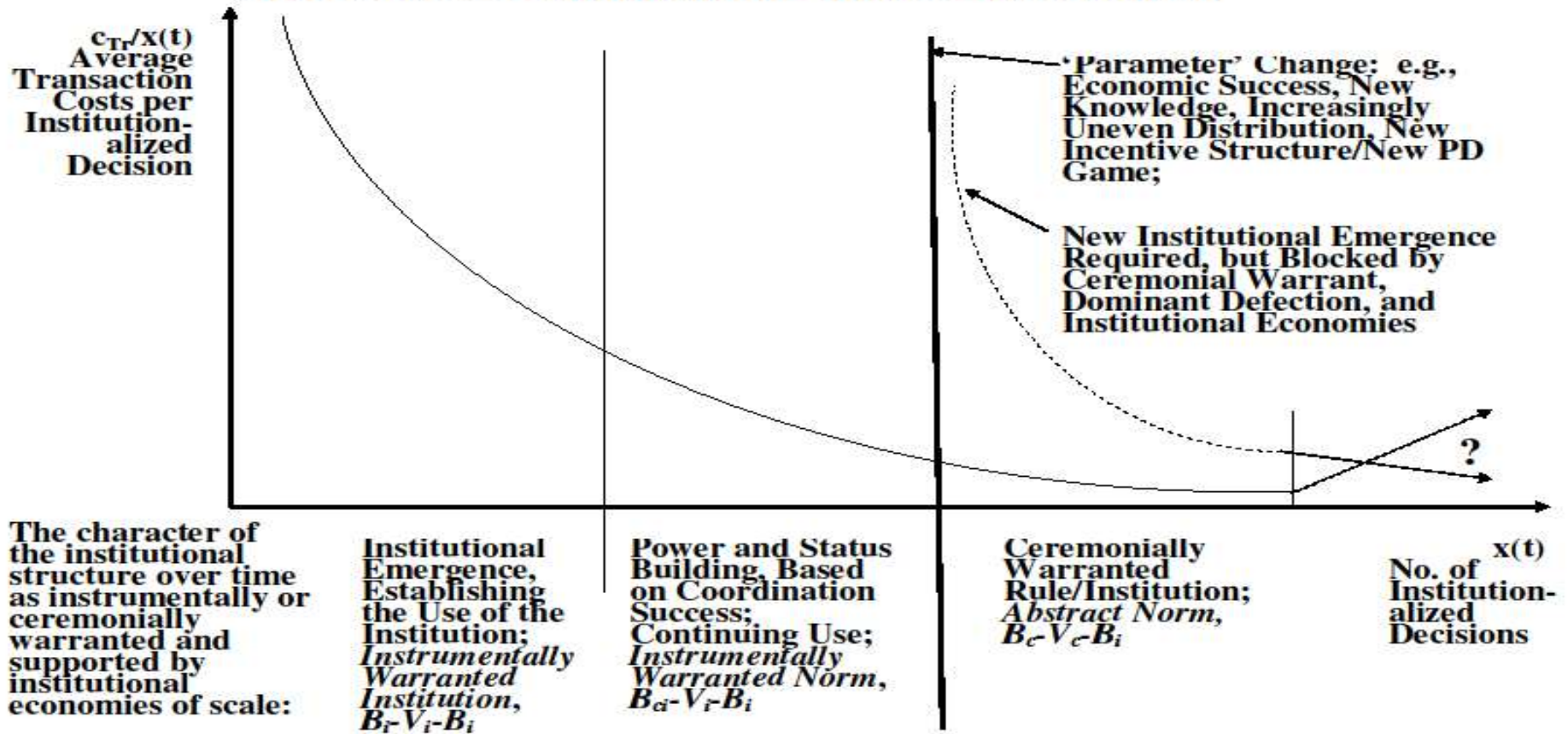
- **From instrumental to ceremonial warrant** – to CE: A '**regressive institutional change**'.
- What will happen next then? A switch back to common defection? I.e., more regressive institutional change? Later perhaps progressive institutional change again through learning of cooperation ... ?
- An **institutional life cycle**?

3. *Ceremonial dominance and ceremonial encapsulation* in particular (cont'd.)

- Another *specifically (EI-)GT-informed approach*: **'institutional economies of scale'** – **high initial fixed-cost investment** of trial and error / social learning, risk tasking of getting exploited, non-invidiousness when offering cooperation at first, ... thus, sticking to the institution overly long to realize economies of fixed cost per unit.
- Another institutional 'petrification', 'sclerotization', ...
- From an instrumentally warranted institution through a → still instrumentally warranted norm to a → ceremonially warranted (or abstract) norm. Again: an institutional life-cycle?
- An illustration:

3. *Ceremonial dominance and ceremonial encapsulation in particular, cont'd.*

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



4. Convergent Policy Conclusions

4. Convergent policy conclusions

Finally:

- The institutionalist policy conception is about initializing and supporting progressive institutional change according to the pragmatist/instrumentalist social value principle.
- A democratic, transparent, negotiated, participatory process ...
- Strengthening 'the process of inquiry upon which instrumental valuing depends' (Bush 1987, 1109).
- But the hardheaded persistence of CD implies that a process with discretionary public policy is required.
- Also, GT-based modeling and complex simulations of complex systems suggest that stable instrumental solutions usually **will not emerge in 'self-organization'**, at least not in reasonable time, speed, and stability.
- The starting points of the GT-informed policy approach: the socially ('Pareto'-) superior solution to be initialized, accelerated, and stabilized ...


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4. Convergent policy conclusions, cont'd.

- A modern theory of meritorization: **social valuation** (soc. val. princ.!) of the potential outcome according to the criteria 'lacking collective action capability' and 'reasonable speed and safety of provision' ...

- **Instrumentation**:

$$\delta \uparrow > [(b_{\downarrow} - a_{\uparrow})_{\downarrow} / (b_{\downarrow} - c_{\downarrow\downarrow})_{\uparrow}]_{\downarrow}.$$

Basic instrumental complexes: rewarding instrumental behavior ('cooperation') and enlarging the awareness (recognition) of interdependence, i.e. the importance of the common future ...

- Many specifications and case studies available ...
- An '**institutional policy**' arises ...
- A '**double interactive**' policy: Policy in a specific *interaction with the interaction system of the private agents* ...
- A qualitative policy, and a lean one in pecuniary terms, requiring a 'strong' state, though ...

5. Conclusion

5. Conclusion

- Surprising equivalences can be elaborated.
- Also, interesting complementarities with a potential for future synergies.
- (EI-)GT can benefit from Institutionalism re. the value bases of behavior, their asymmetry and specific forms, the conceptions of CD and CE, and of progressive/regressive institutional change, the social value principle (M.R. Tool) and the role of policy.
- Institutionalism can benefit from (EI-)GT re. the potential for a deeper logical analysis of problem-solving of specific complex structures, the endogenous explanation of CD and CE from an instrumental 'benchmark', the logic of meritorization, and the starting points, logic and instrumentation of 'institutional policy'.

5. Conclusion, cont'd.

- In all: Institutionalism may profit from the ***deeper logic*** and the ***specific story-telling*** of a proper use of (EI-)GT, and (EI-)GT may profit from the ***rich theoretical and epistemological tradition*** of Institutionalism. A more synergetic approach may generate greater efficacy for all.

Thank You
for your patience !