



Democracy by Design: Basic Democracy and the Self-Organisation of Collective Governance

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- An Act of Parliament in the Republic of Absurdistan
 - A Minister may by regulations make such provision as the Minister considers appropriate if the Minister considers that such provision should be in force
 - Regulations under this section may not – (a) impose or increase taxation, (b) make retrospective provision, (c) create a relevant criminal offence
 - But regulations under this section may make any provision that could be made by an Act of Parliament (including modifying this Act).

9 Implementing the withdrawal agreement

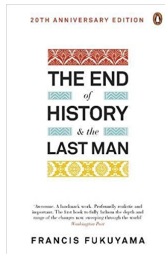
- (1) A Minister of the Crown may by regulations make such provision as the Minister considers appropriate for the purposes of implementing the withdrawal agreement if the Minister considers that such provision should be in force on or before exit day.

European Union (Withdrawal) Bill

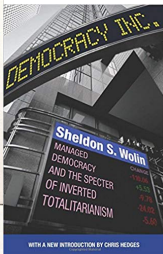
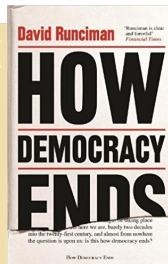
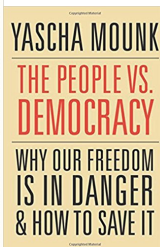
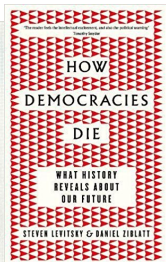
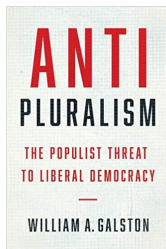
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- (2) *Regulations under this section may make any provision that could be made by an Act of Parliament (including modifying this Act).*
- (3) But regulations under this section may not –
 - (a) impose or increase taxation,
 - (b) make retrospective provision,
 - (c) create a relevant criminal offence, or
 - (d) amend, repeal or revoke the Human Rights Act 1998 or any subordinate legislation made under it.

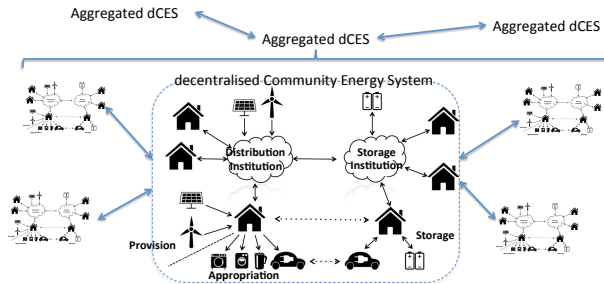
How did we get from this...



...to this?



Example: Community Energy Systems



- At least four 'levels' of interaction
 - Delegated
 - Programmable
 - Interactive
 - Attentive
- Issue of **governance** at every level

- How can live our digital lives, together, better?
- The 'digital transformation' and 'digital society' envision a new range of interactive applications
- Common requirement for collective self-governance
 - At multiple levels, satisficing multiple interests
 - Effective resolution of collective action problems
 - To ensure
 - "Security"
 - "Welfare"
 - The avoidance of "tyranny"
- Analysis of political regimes suggests 'democracy'
- **Supply**

Democracy by Design (DbyD)

- DbyD is an instance of value-sensitive design, which recognises that many new socio-technical systems in the digital transformation require some form of collective self-governance
- Eight foundational principles
 - **P1. Prevention rather than re-invention**
 - **P2. Democracy is not an end-state, nor the default**
 - **P3. Democracy embedded in design**
 - **P4. No compromises on democratic processes**
 - **P5. Visibility, inclusivity, transparency, and accountability**
 - **P6. Inter-dependence of diversity**
 - **P7. Education in the recognition of prosocial benefits**
 - **P8. Procedural evaluation**

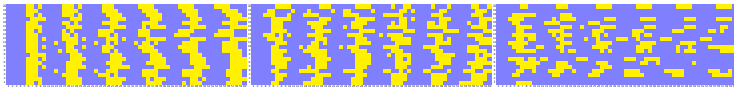
- Specification (and implementation) of an electronic institution
- Three sections
 - Facts
 - Rule overview
 - Knowledge codification
- Facts: 'brute' facts and 'institutional' facts
- Rule overview: mutable rules and immutable rules
 - Immutable rules (constitutional choice)
 - Enactment, amendment, repeal, and transmutation
 - Citizenship
 - Sanctioning
 - Mutable rules (collective and operational choice)
 - Participation, role assignment, access control, resource allocation, and minor claims
- Knowledge codification: call, roles, powers, degrees of freedom

- Multi-agent system
 - set of agents $\mathcal{A}$
 - Connected by social network $\mathcal{G} = \langle \mathcal{A}, p \rangle$
 - Multiple rounds of an *operational choice* ‘game’ – common-pool resource allocation (linear public good game)
 - Occasional invocation of *collective choice* rules – e.g. participation
- Avoidance of (entropic* tendency towards) various forms of tyranny
 - Civic participation (3 variations) vs. oligarchy
 - Legislation/representation vs. autocracy
 - Entrenchment vs. majoritarian tyranny

*‘Entropic’ =_{def} ‘a process of seemingly inevitable gradual degeneration’

Civic Participation 1 (Risk of Oligarchy)

- “All citizens have a duty to share, in one way or another, in making, adjudicating and enforcing the rules”
 - “in one way or another” == “equally”
 - Equal share of the roles computed using the Gini index
- Participation rule involves *opinion formation* and *voting* protocols



(a) $G = \langle A, 1.00 \rangle$

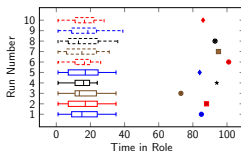
(b) $G = \langle A, 0.25 \rangle$

(c) $G = \langle A, 0.15 \rangle$

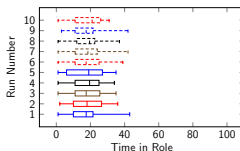
- Observations
 - Quasi-stable (P1/P2)
 - Connectivity supports observations about practice of democratic federalism in classical Athens (P6)

Civic Participation 2 (Risk of Oligarchy)

- 'Gaming' the participation rule
 - Refusing to accept a role (free riding) $\rightsquigarrow$ emergence of oligarchic tyranny by default
 - Refusing to resign from a role (power grab) $\rightsquigarrow$ emergence of oligarchic tyranny by intention
- Citizenship 'tendency'
- Violations resolved with *minor claims* protocols



(d) Without Minor Claims



(e) With Minor Claims

- Observations
 - Increased connectivity increases opportunities for misdemeanour (P2) and likelihood of being observed (P5)
 - Limitations of the Gini index; limitations of metrics (P8)

Civic Participation 3 (Risk of Oligarchy)

- Role assignment bias: most connected node
 - Re-assigns itself to *director* role
 - Appoints a member of its own social network to other roles

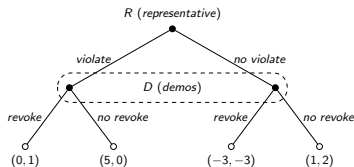


(f) Self-appointing agent

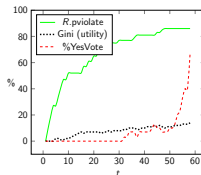
- Observations
 - Requires connectivity of the 'outgroup' to detect
 - Participation rule alone cannot prevent it, nor cure it (P7)

Legislation (Risk of Autocracy)

- Legislative processes
 - Enactment and repeal of legislation
 - Transmutation
 - Delegation of political authority from demos to representative



(g) Delegation Game Tree

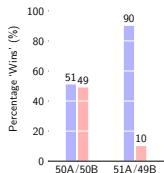


(h) Detection

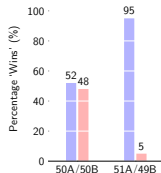
- Observations
 - *Bright lines*: use of immutable rules for the enactment and repeal of mutable rules is restraint on autocratic tendency (P3)
 - *Plug-and-play governance*: reconfiguration of rules at run-time

Entrenchment (Risk of Majoritarian Tyranny)

- 'MalDemopolis'
 - Assume all agents have a preference for non-tyranny
 - But assume another polarised preference: *TypeA* vs. *TypeB*
- Play partial good game, then play 'elimination' game
 - Citizenship rule has been made a mutable rule



(i) Quorum = 0.6



(j) Quorum = 0.66

- Observations
 - Separation of partial goods issues from citizenship issues (P4)
 - Protection of minority rights and recognition of diversity (P6)

- Thought experiment addressing a question about social order
 - How a human community can reliably realise the benefits deriving from social coordination and cooperation ...
 - ... without submitting to a ruling oligarchy or an autocratic monarchy
- Stage one: Founding
- Stage two: Agree on the basic rules on participation, legislation, and entrenchment
- Stage three: Concerns the making and enforcing of post-foundation rules

Basic Democracy

- Basic democracy: designing institutions for governance to prevent the occurrence (or recurrence) of tyranny
- Liberal democracy: concerns for justice, values, morality, autonomy, rights, etc.
- Basic democracy: Ober [2017]
 - is a reasonably stable form of collective self-government by a diverse group of citizens;
 - can be both legitimate and effective; and
 - demonstrates the importance of civic education
- Stability requires rules, which themselves must restrict the absolutist tendencies of the collective rulers and degeneration into different political regimes
- If we want to really understand, and implement, collective self-governance, we need a sound understanding of what 'democracy' is all about

- Research programme at intersection of self-org. socio-tech. systems and political science, history and philosophy
- Design: democratic platforms for the 'digital transformation'
- This operationalisation of historical processes from classical Athenian democracy
 - Specification of politically salient decisions (at a fairly high level of theoretical abstraction) in such a way as to make possible formalization and experimental implementation
 - Simulation as a form of validation rather than counterfactuals
 - Suggests that the Athenians really were learning and innovating institutions that worked, not because of some exogenous unobserved factor, but because properly designed to solve some key problems of collective self-governance

Why This Matters

- Insight into democratic theory
 - Knowledge to resist the slide from populism into extremism
- Reflection: restore collegiate and knowledge-based self-organisation of academia and science, as opposed to centralised, metric-based bureaucratic managerialism
- Protest: public understanding of science and democracy
 - Importance of responsible knowledge management
 - Importance of civic education and critical thinking
 - Importance of civic dignity
 - Distinction between democracy and majoritarian tyranny
 - Identify arrogation of political power and influence
- **We'd all prefer to live in a 'nice' liberal democracy – but this type of political regime is not the default, and needs preserving**

Do not cry tomorrow for that which you did not
have the courage and wisdom to defend today
– Ariel Dorfman