

Introduction to Complexity and Applied Complexity, Spring 2021

Module 20 — Localism

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Readings

- Nassim Nicholas Taleb — [Principia Politica](#) (draft)
- Nassim Nicholas Taleb et al. — [The Precautionary Principle](#)
- Joseph Norman — [Global Decentralization for Risk Mitigation and Security](#)
- Wendell Berry — [The Unsettling of America](#) (chapter 1)

Now is the time to put together all of the ideas that we've been exploring. But first, let's look at the readings.

The Readings

There are four separate readings for this module. The things we'll be exploring in this module aren't explicitly in any of these, but there are clear links that can be drawn.

We'll cover some of the same ground that's covered in Taleb's *Principia Politica* draft, but will also complement and fill in gaps where the opportunity presents itself.

The Precautionary Principle paper addresses what governments should be focussed on, and is strongly tied to our discussion today as well.

Global Decentralization for Risk Mitigation and Security was published in February 2020, as the COVID situation was beginning to unfold, and also captures a lot of ideas

relevant to this module. Specifically, it talks about why being globally centralized is a big risk and the implications that has for societal functions.

Wendell Berry's *The Unsettling of America* touches on the unsettling and disruption of settled communities in America.

Motivations

Here are the motivations for talking about localism:

- Human civilization and society depends on the interaction, coordination, cooperation and deconfliction of people. In a word: politics. Since humans are inherently political creatures, we have to get a handle on politics and figure out how it works. How does complexity fit into political theory? We'll be exploring that.
- Before any of this is considered, there are fundamental questions to be addressed. First we have to answer the question: what is “society” for? I would argue that it *ought* to be for the promotion of human individual and collective flourishing. Society should serve as a niche construction process — generating our own human ecosystem within which we can live well.

The state motto of Missouri encapsulates this sentiment: *salus populi suprema lex esto*. Translated, *the health of the people should be the supreme law*.

If we can accept that, then the next question is: how should society be structured to promote health and flourishing?

- Political discussions revolve around a variety of labels that indicate various kinds of arrangements: democracy, republicanism, left vs. right, capitalism, socialism, communism, etc. These discussions almost invariably leave out an essential variable: the *scale* at which we're looking to apply these systems. Is it a

group of 10 people? 100? 1,000,000?

In fact, scale might be ***the*** most relevant variable, as systems of certain scales, especially large scales, tend to begin resembling one another despite having different labels attached to them.

To quote Taleb: “*I am, at the Fed level, libertarian; at the state level, Republican; at the local level, Democrat; and at the family and friends level, a socialist. If that saying doesn’t convince you of the fatuousness of left vs. right labels, nothing will.*”

- When we refer to localism, what we’re really talking about is multiscale localism
 - it’s not a “system”, but rather a “meta-system” that suggests principles and constraints to promote a variety of system-instances.
- As we’ve seen in (other) biological systems, because the disturbances and challenges systems face are multiscale, their structure has to be as well. This is a restatement of multiscale requisite variety. This is also why anarchy is not stable — once you achieve anarchy, you start to have forces that impinge on the system at larger scales, and the system will have to organize itself to respond to those things, losing anarchy in the process.

The Foundations of Localism

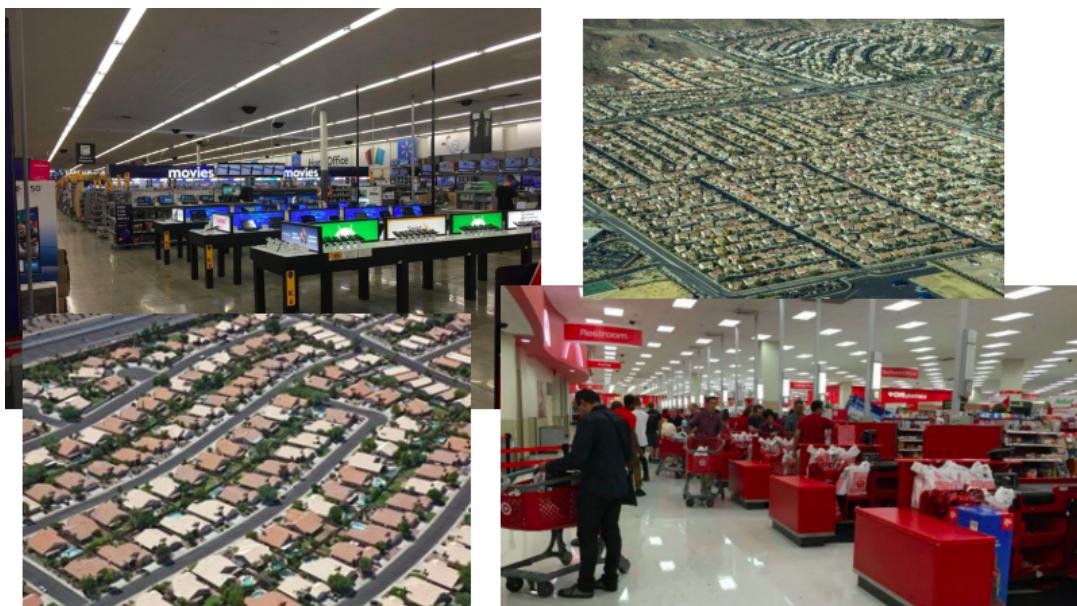
Localism is built on foundations originating from complexity theory. They are as follows:

1. Complex patterns form from local interactions among components typically following simple rules.

2. Central control is rapidly swamped in face of complexity, stifling organic adaptation.
3. Behavioral independence (in the sense of statistics) yields thin tails in macro — this is just a restatement of the Central Limit Theorem. We want to minimize fat tails for the purposes of risk mitigation.
4. Problems, challenges, and disturbances are structured at multiple scales. Hence, human social systems must be structured at multiple scales as well, in order to meet those challenges.

Everywhere and Nowhere

We might ask ourselves, what kind of a world would we like to see? Currently, we're creating a world that looks kind of like this:



It's everywhere, yet at the same time it's nowhere. Could you locate those neighborhoods? Could you say which state those supermarkets are in, let alone which country? There's a homogeneity to everything that sucks all character out of an area.

Places

On the other hand, take a look at these pictures:



Each of these are distinct *places*. Like individuals, places have character. No two places are the same, just like no two individuals are the same. This is what we should be shooting for.

Principles

Let's list out some principles of localism, to connect the ideas of localism to the rest of the course.

1. **Nothing can be discussed intelligibly without specifying scale.**

A question might be raised: does socialism work, or not? It can. For example, Kibbutzes do in fact work. But as we've seen time and time again, if you try to implement socialism on a larger scale, it fails. *Scale matters*.

2. **Systems at the *same scale* with *different labels* are typically more similar to one another than systems with the *same label* at *different scales*.**

There's this divorcing of labels that happens from how the system actually behaves. For instance, the hyperlocal commerce of a small village is more like a Kibbutz than it is like the global corporate conglomerates operating as "private businesses". Or, for example, we might say that the pizzeria down the street is a private business, and so is Monsanto, but they couldn't be more different — the label doesn't help here.

This phenomenon is more acute at scale: large global corporations are becoming indistinguishable from centralized socialism/communism/fascism. All organizations tend to become the same kind of thing when they get to a large enough scale.

3. **"Local" is a relational concept. What is local for one problem or situation is different from what is local for another. Hence, "local" is multiscale.**

For example, my family's neighbors are other households, my town's neighbors are other towns, my state's neighbors are other states. How local something can be depends on what you're trying to do and what you're talking about.

4. **Properties don't aggregate linearly.**

This is a different way of saying that there are emergent properties in the system.

To quote Adam Smith: "*It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest.*"

In a functioning market system, each agent is concerned with his own situation. When this happens at scale, this behavior ends up serving the community. The self-centered behavior leads to an emergent property at a higher scale — it doesn't scale to more self-centeredness. Of course, this works the other way as well. You can have a collective of well-intentioned people that produce

absolutely miserable effects on the larger social system.

Again, we're reiterating this idea that you cannot make statements about the system as a whole by looking at its component parts — in this case, the agents that operate within it.

5. Social systems are pattern forming processes.

Local interactions enable the emergence of a pattern that is larger in scale than the viewpoint of any of the participants. It's also worth noting that a given pattern that a system evolves to is typically not a unique minimum of a system, but rather, such systems are generally multistable. In other words, there might be multiple different ways to solve a problem that are equally valid.

In addition, pattern formation depends on repeated interactions, yet *not too many* interactions (if you have too many interactions, **mean-field approximation** holds).

6. Systems with behavioral independence produce thin-tailed behavior.

The greater the number of ways things are done, the less likely we are to generate large scale forces, causing disturbances in large-scale systems (e.g. ecosystems).

It is important to recognize that non-independence can be “induced”, not only forced.

7. Central control schemes fail in the face of complexity.

We saw the discussions from Ostrom, Scott, Hayek and others that touch on this issue. The bottom line is that a central controller gets swamped by complexity — there's just too much information for it to manage. If it tries to make the system conform to its idea of things, the central controller often ends up breaking

functioning parts of the system, simply because those parts are out of view.

8. Functional political structures and cultures are co-evolved, and are therefore inseparable.

This is an important principle that hasn't been mentioned explicitly elsewhere.

Both the politics and the culture are different aspects of one system, and are therefore inseparable.

As we mentioned before, we can't compare units at different scales. But an even stronger statement would be: we can't even directly compare units of the same scale, because they've evolved differently. A political structure that works in one country may not work in another due to the difference in culture.

Take this idea of “spreading democracy”, for example, and how well that worked throughout the early 2000s. Taking political structures and porting them over to other cultures — as if it were some machine instead of an organism — is the wrong way to go about it. Politics is entangled with culture.

9. Local, fine-grained, or high-complexity issues demand evolution and tinkering to discover a functional fit between the social system and the ecology that the system is embedded in.

Sometimes you have to “stay put” for a while and interact with the system for a long period of time. There's a depth and a fineness of granularity of the relevant variables — you cannot come in and quickly figure all of that out. In addition, the timescales on which ecosystems operate imply that multi-generational sensitivity is often necessary.

10. Threatening the self-determination of a unit causes it to behave in less responsible ways.

As Ostrom noted, when users of natural resources expect external authorities to impose restrictions, they tend to “get what they can while they can”.

Self-determination is crucial.

11. Larger-scale decisions imply larger scale risks.

In this context, the “scale” of a unit corresponds to the scope over which a decision is applied in a uniform way.

As a corollary, large-scale governance should be concerned primarily with risk mitigation, especially systemic risk.

12. The Principle of Subsidiarity, but with “pull down” mechanisms.

The Principle of Subsidiarity states that social and political issues should be dealt with at the smallest possible scale. Whatever the smallest scale unit in the system that can feasibly make a decision or take an action is, that’s the unit that should be doing it. Basically, what is the minimum viable scale for a decision or action?

In addition, we need mechanisms that help “pull down” functions from higher scales — we shouldn’t depend on the benevolence of large scale systems.

Federalism is one example of a “pull down” mechanism — the notion that the states should be on equal footing with the federal government. From the 10th amendment: *“The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.”*

13. A modest number of long-range connections reduce the global “diameter” of the network disproportionately.

This is a restatement of the small world effect. While it seems like you’re only connecting a few places, you’re actually shrinking the system massively.

If we want to maintain these long-range connections and still have a

well-functioning system, we need to deal with the problem of cascade effects spreading throughout the entire system (viruses, etc). We need to be willing to disconnect such networks temporarily to spare large portions of the system. For example, we should have shut down all international flights in January 2020 as a response to COVID-19.

14. Uncertainty demands variety.

When operating without understanding, we must leverage variety and “hedge” our bets.

In addition, evolution also demands variety. To figure out how to operate in a highly complex environment like ours, we have to use a tinkering / evolutionary process.

15. Despite the fact that “culture” indicates (information theoretic) constraints on individuals, we get a wider variety of individuals by having a wider variety of cultures.

Having multiple distinct cultures – each of which places certain kinds of constraints at certain scales of the system, thereby constraining individual behavior – creates a larger space of possible individuals because of the variety of niches that can be filled within those sociocultural systems.

16. At higher scales, you ought to renormalize via unit, not (only) mass. You need some balance of the two, in order to prevent capture of large systems by highly dense components.

For example, in the US you have the House of Representatives and the Senate. In the House, representation is proportional to population size, whereas in the Senate, things renormalize into units *despite* the population size of a state. Because of this, you get a kind of tension between these two means of renormalization, which results in stability and the opportunity for all voices to be heard.

The electoral college in the US is also an example of this principle — the number of delegates in each state does not depend on the population density of the state, thus keeping the dense population centers from imposing their will on the rest of the country.

17. **Negative externalities are easier to detect and mitigate locally. In large-scale systems, there is no good point to observe what harm is occurring, establish causal links, etc.**

Due to slowness (lag) and long-range connections, it is difficult to track any cause and effect through the system.

In a local, small-scale system, it is more likely for some agent to connect cause and effect. Moreover, in such a system, any harm caused is more likely to be absorbable or reversible. Finally, tort law can be applied easier in local systems as well.

18. **The larger the scale of a governance unit, the less it should prescribe. Rather, it should only constrain, with constraints increasingly focused on systemic risk mitigation.**

Systemic risk is risk that can cause irreversible damage in large-scale systems such as ecosystems. **Idiosyncratic risk**, that is, thin-tailed risk that doesn't grow and spread throughout the whole system, needs to be treated differently than systemic risk.

This relates to this coarse-to-fine grained idea we talked about — larger systems should worry about fuzzier, larger-scale pictures of things and let the details be managed by smaller systems.

19. **Large scale ‘corrections’ to the system cause more harm than good.**

It's best to 'get it right' going forward rather than endlessly adjudicating the past

(at social scales).

20. **Reliability of information is related to the ability to verify via an independent channel / convergence of signals across sources.**

Disinformation loves the non-local. Or as Nassim Taleb would say, it's easier to macroBS than microBS.

21. **Even with feedback / metrics / outcomes, it is impossible to say which of a surviving set of systems is most “fit” for the long haul.**

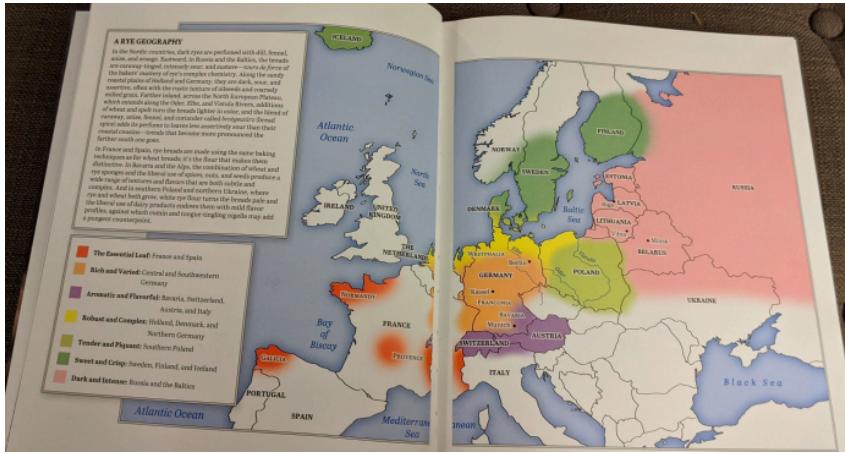
This has to do with the fact that the feedback can take a long time to come around. We see this clearly in evolutionary biology: things can appear advantageous in the short-run that ultimately undercut the logic of the system (e.g. a predator that over exploits its prey will die out).

22. **An aggregation is a unit to the extent that it manages its own physical and virtual boundaries.**

Political boundaries should align with socio-ecological boundaries. They can't be arbitrary.

Selective permeability is also an important concept here. Every living system with integrity has such boundaries.

Here's a neat example of this: this map overlays political borders with socio-cultural boundaries — in this case, for rye bread.



There are natural boundaries that exist and form within systems, and our political boundaries should aim to mirror those as much as possible.

23. Local closures (a.k.a. circular flows) create conditions for positive externalities that can instigate autocatalytic reactions.

This all helps create a win-win environment. Random interactions lead to circular flows more readily in smaller systems than larger ones. Sprawled and sparse transactions, as are common in modernity, do not lead to these positive externality loops and compounding effects.

It's important to note that systems are never fully "self-sufficient", so it is a matter of the degree/scale/density of closures.

It's also worth mentioning that a higher number of closed flows build more redundancy globally, which makes the whole system less fragile.

24. Local interactions are high-bandwidth relative to non-local ones.

We transmit information in both explicit and implicit ways. Local interactions are, simply, more information-rich.

25. Bottom-up, informal systems patch up and make viable top-down, formal systems (to the degree they are viable).

Think Soviet black markets. We also talked about Ostrom-esque self-organization — generating contracts in a wide-open possibility space. This contract negotiation is often very loose and informal.

26. Local interactions put skin in the game.

One of the benefits of skin in the game is that, in extreme cases, pathological agents filter themselves out of the system. But there are also more subtle benefits. For instance, conflicts can be sorted out more peacefully (e.g. through agonistic behavior / ritualized aggression), without physical confrontation, because the cost to fight is just too great.



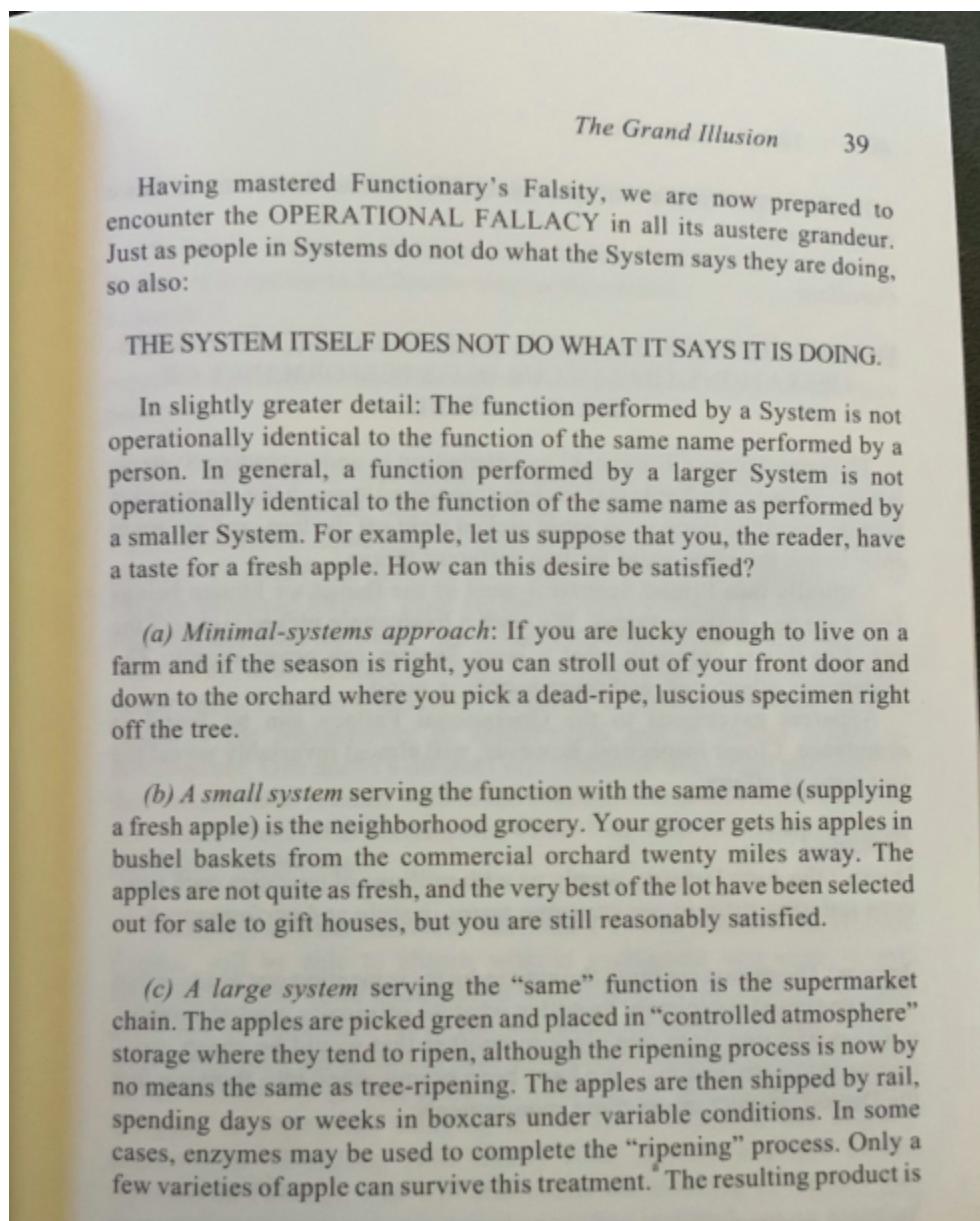
This kind of skin in the game gets lost when the consequences of an action are far removed from the decision-maker.

Case Study: COVID-19

To the extent that we've seen any success with COVID-19, it's been local, not global success. All nations that have handled COVID-19 relatively successfully have been very active in managing their boundaries, ignoring the global advice from the World Health Organization to keep travel open and unrestricted.

Minimalist Systems vs Large Systems

“Minimal systems” are necessarily local. Here’s a page from John Gall’s *Systems Bible* that highlights the difference between a minimalist system and a large system:



Takeaways

Like all living systems, human society must have multiscale variety to meet the challenges of the real world. As such, the **scale** of a sociopolitical unit is a crucial parameter. Moreover, due to nonlinear scaling behaviors, the “same” systems behave differently at different scales.

Ultimately, to navigate deep uncertainty we need as much variety as possible.

Finally, local activity is baked into **who we are**. Soul in the game: we all crave direct experience, and to be part of *tangible* wholes we are embedded within.