

The detrimental effect of low political truth literacy on democratic systems

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Biography:

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Montserrat Koloffon Rosas is a PhD student in sustainability and global governance at the Institute for Environmental Studies, with a focus, since the age of 13, on the world's continuing inability to achieve what are now the Sustainability Development Goals. Montserrat holds a Master's degree in Political Science with specialization on Global Environmental Governance from the Vrije Universiteit Amsterdam, and a BA in Political Science from the University of Mannheim. Her research explores the effectiveness of international (environmental) regimes through the lens of complexity science.

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It is NOT the final version, if accepted.**

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A precipitous backward slide from democracy to authoritarianism is underway. Root cause analysis and a system dynamics simulation model were used to analyse why the backward slide has occurred and how it can be reversed. The main root cause was found to be low political truth literacy. As long as this is low, democracy cannot function as intended because citizens are too easily deceived into voting against their own best interests. A sample solution element for raising political truth literacy, Truth Literacy Training, was empirically tested. Study results indicate average political truth literacy is currently low and can be raised to high with a surprisingly small amount of carefully designed training. This suggests the main root cause exists and can be resolved in a practical manner, though a collection of solution elements is required for complete root cause resolution.

Keywords: democratic backsliding; authoritarianism; root cause analysis; system dynamics; political truth literacy; misinformation; deception

Introduction

After centuries of democracy's long fitful rise as an alternative to autocracy, capped by collapse of the Soviet Union in 1991, Fukuyama¹ famously declared "the end of history" had arrived. Western liberal democracy had proven itself superior to all other forms of government and would eventually become the universal norm, based on the widespread assumption that high economic development requires the efficient mechanisms of liberal democracy.² This optimistic prediction was shattered by arrival of a steep third wave autocratization beginning in 1994.³ The trend continues today.

The topic of "why democracies break down" has drawn "huge amounts of attention" from scholars.⁴ However, despite this effort "we lack theories to explain backsliding, though we have long engaged in a perhaps interminable debate about the causes of democratic transitions, democratic breakdowns, authoritarian resilience, and democratic consolidation".⁵ Specifically, "there is a lack of work on the question of under which circumstances might instability arise".⁶ The literature offers no comprehensive explanation of democratic backsliding and thus no clear path to analytical solution. This presents an enormous gap, which the research reported here attempts to fill.

Our specific research questions are: *WHY is democracy susceptible to backsliding? HOW can the backslide be prevented and reversed?* We wish to make only a small but solid advance, which necessarily limits research scope. For example, we do not explain the timing or the causes of the three waves of autocratization. We examine only the case where fair elections still prevail.

Solving the democratic backsliding problem has proven immensely difficult, due to seemingly impenetrable system complexity. To cut through this complexity the authors took a multi-disciplinary approach by adapting root cause analysis, a tool normally used on business problems, to fit social problems. We then augmented that tool with another tool, system dynamics modeling, to reveal the essential feedback loop structure of the problem. This approach allowed identification of what appears to be the main root cause and the high leverage point for effective solutions to push on.

The main root cause was found to be low political truth literacy. We define political truth literacy as the ability to tell truth from falsehood in political statements meant to influence voters and to make correct voting decisions based on that information. As long as political truth literacy is low, democracy cannot function as intended because citizens are too easily deceived into voting against their own best interests. The high leverage point for resolving the root cause is raise political truth literacy from low to high.

To test the two key conclusions of the analysis (the main root cause and high leverage point), we conducted an empirical study using what appears to be a key solution element: Truth Literacy Training. Results were favorable, and provide some confirmation that the root cause exists and can be resolved in a practical manner by pushing on the high leverage point. However, the study needs to be replicated and how to best push on the high leverage point needs to be explored in greater detail before we can have high confidence in the main root cause and society's ability to resolve it. For complete root cause resolution, a collection of solution elements is required.

The paper begins with a review of the literature and identification of two gaps to fill. The bulk of the paper then presents five components of a single research project. The components are:

- (1) A suitable method to fill the method gap.
- (2) A comprehensive theory to fill the theory gap.
- (3) A feedback loop simulation model to support the theory.
- (4) An empirical study of a solution element to further support the theory.
- (5) A collection of solution components for complete root cause resolution.

The components work together as a single integrated whole to demonstrate how the democratic backsliding problem can be analyzed and solved in an efficient engineering-like manner. The paper ends with conclusions.

The third and fifth components are introduced in the paper and described in detail in the appendix. The fourth component is introduced in the paper, summarized in the appendix, and will be described in detail in a second paper.

This material should not be interpreted as *the* method, theory, or solution, but as a first-generation example of what is possible using root cause analysis as the central problem-solving paradigm.

Backsliding theory and the two gaps to fill

Waldner and Lust's⁷ review of the democratic backsliding literature found six theory families. These "emphasize political agency, political culture, political institutions, political economy, social structure and political coalitions, and international actors." Each offers a different set of loosely related factors that could logically contribute to backsliding. None offer a rigorous theory, forcing Waldner and Lust to conclude that "despite the existence of six well-populated theory families, we do not have an obvious theoretical framework for explaining backsliding." *This is the theory gap.*

Our review of the literature found a seventh theory family. This argues that backsliding occurs because the right solutions are not in place. What the right solutions are is framed in organized collections of prevention and response solutions, which may include solution gaps to fill. We label this Catalogues of Prevention and Response Theories. Catalogues of recommended policies tend to be mostly preventative, such as the Brookings Institution's series of Democracy Playbooks.⁸ The 2021 playbook lists ten policy groups containing a total of 77 specific policies, such as "Commit to protecting and deterring undue internal (domestic) and external (international) interference in the stages of the election process." A second example of prevention and response gaps to fill is the resilience school.⁹ "Democratic resilience is the ability of a political regime to prevent or react to challenges without losing its democratic character. ... There are multiple entry points to intervene...." Each entry point is a gap to fill with specific solutions.

In addition to these theories, we found two particularly insightful non-theories.

Fukuyama's latest work does not attempt to provide a comprehensive theory, but rather to find the backsliding problem's main causes. He found three:¹⁰

- (1) A polarizing divide based on identity politics. The left represents oppressed minorities and those who believe in quality of life for all. The right represents intolerant populist nationalism, based on ethnic superiority and belief that "our country is being taken over by a cabal of immigrants, foreign competitors, and elites who are complicit in the theft."
- (2) Appearance of the global internet and social media. The right exploits reinforcing feedback loops that reward "conspiracy stories and fabricated information" more than the truth and encourage echo chambers of confirmation bias.
- (3) The decline in authority of trusted traditional social institutions (like large news organizations) for facts and news. The void has been filled by social media, which is much less trustworthy.

While the first cause falls into the fifth theory family, social structure and political coalitions, the second and third causes do not fit any theory family. Yet they offer a powerful partial explanation for the decline. Fukuyama acknowledges a

“democratic recession” is underway and must be reversed, but offers no advice allowing practical solution. Instead, he recommends further investigation into the relationship between democracy, corruption, and state capacity.

Hannah Arendt, in her seminal work on *The Origins of Totalitarianism*,¹¹ addressed the fundamental question (concerning Russian Stalinism and German Nazism, both extreme forms of backsliding) of “Why did it happen?” The main precondition was found to be susceptibility to propaganda, which agrees with our own analysis. However, she too was unable to offer a solution.

Drawing a simple cause-and-effect diagram (Figure 1) for each of the above theories and works allows them to be more easily evaluated. While all have useful concepts, none attempt to find the problem’s minimum causal structure (as shown), which would include the problem’s important intermediate and root causes. Instead, all are collections of related factors and plausible intermediate (proximate) causes loosely connected by problem stories. Their conclusions are intuitively derived, causing nine strikingly different diagrams, despite the fact that all attempt to explain the same problem. All lack a viable path to solution.

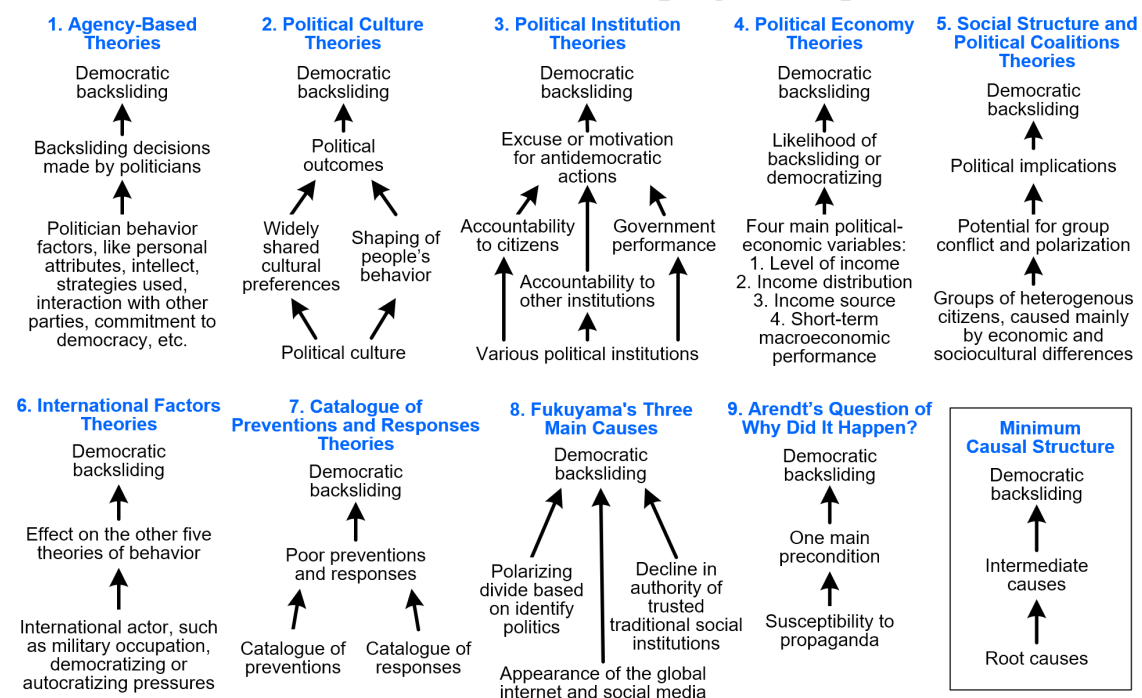


Figure 1. Cause-and-effect diagrams for Waldner and Lust's six theory families, one additional theory family, two works, and minimum causal structure. For a detailed comparison of the analysis to this Figure, see the Appendix.

Even the most sophisticated policy proposal we found, the 2021 Brookings Institution Democracy Playbook, has had no significant effect since the first version in 2019. Its strategy is “To resist the illiberal toolkit, pro-democracy forces must be empowered with a dynamic playbook of their own.”¹² No analysis or empirical proof is offered to

show this theory is better than any other. Its 77 specific solutions, like those of the other theories, are intuitively derived.

From the viewpoint of root cause analysis, Figure 1 allows us to see at a glance why the theory gap that Waldner and Lust found exists: we lack a theory that explains the root causes of backsliding and how they can be resolved. This is because backsliding researchers have committed what Jones¹³ found to be the most common reason for complex problem-solving failure: lack of a properly structured analysis. *This is the method gap, which has caused the theory gap.*

The next section describes one approach for filling the method gap, followed by the analysis section, which applies the method to fill the theory gap.

Method

The standard method for solving difficult business problems is some version of root cause analysis (RCA), since all causal problems arise from their root causes. Of all the problem analysis tools we are aware of, RCA is the only one capable of efficiently solving difficult large-scale social system problems. Democratic backsliding is a member of this class.

A causal problem occurs when problem symptoms arise from one or more root causes, each of which must be resolved (rectified) to solve the problem. Examples are illness or a car that won't start. Examples of non-causal problems are math problems, scientific discovery, information search, and puzzle solving. Because all causal problems arise from their root causes, RCA is the basic process all of us follow when solving a causal problem, whether RCA terminology is used or not. RCA employs hundreds of supporting tools and techniques.¹⁴

A root cause is the deepest cause in a causal chain (or the most basic cause in a feedback loop structure) that can be resolved with practical solutions, without side effects that create other equal or bigger problems. Resolved means the problem will probably not recur due to that root cause. If no resolvable root cause can be found, the problem is unsolvable. If this is the case, the problem definition can sometimes be relaxed to make the problem solvable, such as raising the maximum allowable global temperature rise for the climate change problem to make the problem solvable. RCA is the systematic practice of finding, resolving, and preventing recurrence of the root causes of causal problems.¹⁵

Root causes are found by applying some form of the Five Whys method.¹⁶ Starting at problem symptoms, the analyst asks "WHY does this occur?" until the root causes are found. This reveals the causal chain (or the feedback loops structure in more complex problems) running from symptoms to intermediate causes to one or more root causes. For difficult problems this requires asking why many times.

Examples of mature RCA-based processes are Total Quality Management, Lean Production, ISO 9000, NASA's Root Cause Analysis Tool, Six Sigma, and MECE issue trees. Six Sigma, the world's leading quality control process, is used by 100% of

aerospace, motor vehicle, electronics, and pharmaceutical companies in the Fortune 500.¹⁷ MECE issue trees¹⁸ are the primary problem-solving tool for the world's top three management strategy consultancies: McKinsey, Bain, and BCG. These examples serve as proof that once RCA is mastered, it can be used with near surgical precision to solve a vast variety of the most difficult problems a business may encounter.

RCA is generic and for difficult problems must be wrapped in a process tailored to the problem class. Surveying the literature, we found no RCA-based method was available for difficult large-scale social problems so we were compelled to develop one, a common occurrence on novel classes of problems. For example, "After extensive review, NASA found that none of the commercially available tools and methods would support a comprehensive root cause analysis of all the unique problems and environments NASA faces," causing NASA to create RCAT, their own Root Cause Analysis Tool.¹⁹

For our problem class we created a tool called social force diagrams. This is a modified form of cause-and-effect diagrams (Figure 2). Social force diagrams use standard RCA terminology and a standard fill-in-the-blanks template (Figure 3) for diagramming a problem's high-level causal structure in an efficient manner.

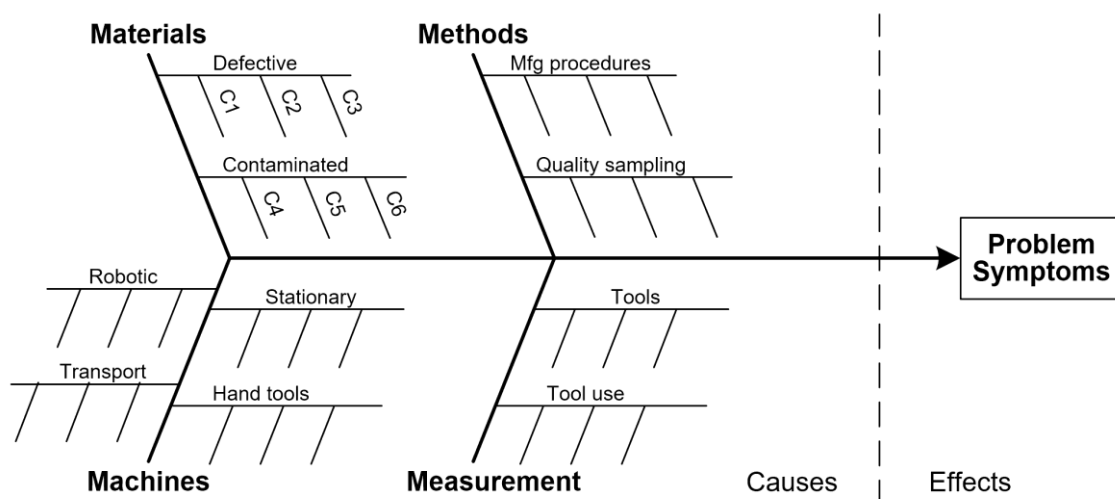
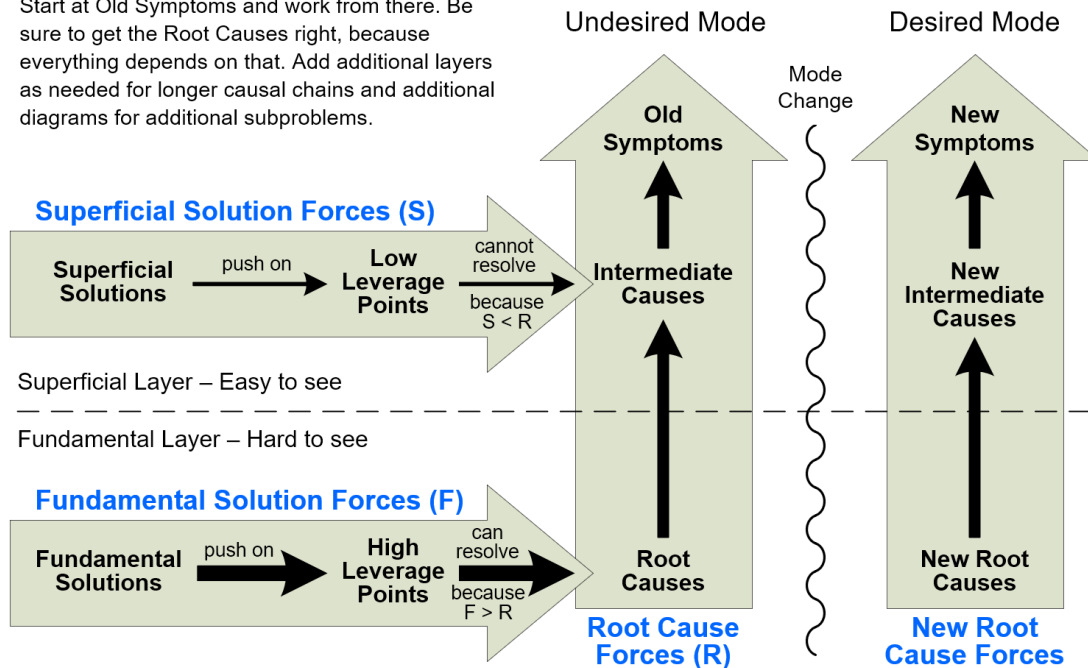


Figure 2. Cause-and-effect (aka fishbone) diagram example, using the original 4 Ms of manufacturing.²⁰ The four main areas are present in all manufacturing problems and are hence reusable. Each area must be examined to search the landscape thoroughly in the search for root causes. C1 is Cause 1, etc. The diagram has been partially filled in as an example of a company's reusable template to standardize and speed use of RCA.

Standard Social Force Diagram and Standard Terminology of RCA

Start at Old Symptoms and work from there. Be sure to get the Root Causes right, because everything depends on that. Add additional layers as needed for longer causal chains and additional diagrams for additional subproblems.



Autocratic Ruler Problem

A retrospective example of how a difficult large-scale social problem can be analyzed using root cause analysis.

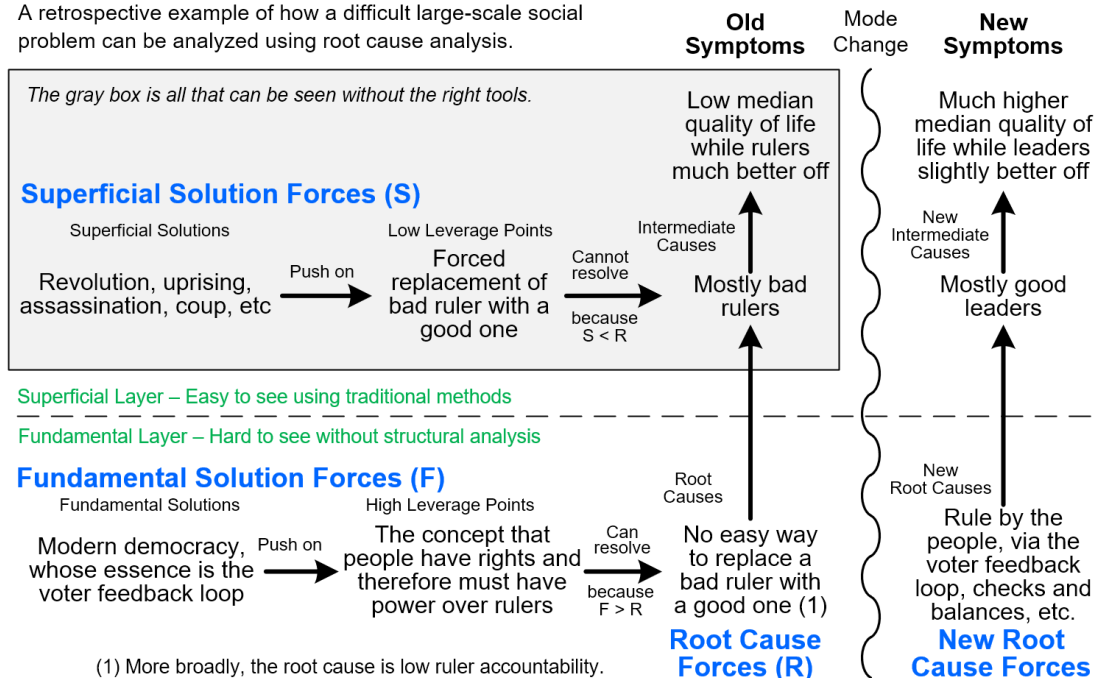


Figure 3. Standard social force diagram template, with an example of how the tool may be applied. One of history's most intractable problems was autocratic rule by countless warlords, dictators, and kings. The Autocratic Ruler Problem was eventually solved by invention of modern democracy, a feedback-loop-based solution. This took thousands of years and much painful trial and error because the root cause was unknown for so long. Once the first few countries adopted the solution, the benefits were so attractive that a systemic mode change occurred and democracy swept most of the world.

Social force diagrams are organized into two layers: (1) the superficial (symptomatic) layer of the problem, where intermediate causes are so easy to see they are routinely assumed to be root causes, and (2) the deeper fundamental layer, where by understanding the problem's feedback loop structure its true root causes may be found.

The superficial layer contains one or more intermediate causes. Some problems require multiple diagrams, since they contain multiple subproblems (defined by multiple symptoms) and thus multiple root causes. Difficult problems usually require construction of a feedback loop model to analyze the fundamental layer. Without analysis of the fundamental layer, difficult problems tend to stay stuck in the superficial layer for a long time, as the Autocratic Ruler Problem did for thousands of years.

Social force diagrams are built by starting at problem symptoms and identifying the causal chain with "WHY does this occur?" questions until the root causes are found. As this is done, why past superficial solutions have failed is diagrammed. This is important knowledge, as it indicates the intermediate causes are indeed intermediate rather than root causes. After the superficial layer of the problem is understood, the analyst follows the causal chain down into the fundamental layer to find the root causes and fundamental solutions.

Knowledge of the superficial layer and why past solutions failed is mandatory for solving difficult problems, because as Popper²¹ explains (*italics in the original*):

We are always learning a whole host of things through falsification. We learn not only *that* a thing is wrong; we learn *why* it is wrong. Above all else, we gain a *new and more sharply focused problem*, and a new problem, as we already know, is the starting point for a new development in science.

After the superficial layer is built a new problem that could not be seen before comes into sharp focus: What is the feedback loop structure that identifies the root cause of the lowest intermediate cause in the superficial layer? What is the high leverage point for resolving the root cause? What practical solutions can push on the high leverage point in a manner so well-engineered that the root cause stays resolved and the mode change is relatively permanent? Because each question is so sharply focused, the answer landscape is relatively small and quickly searched.

Social force diagrams center on understanding *four key forces*: S, F, R, and new R. Superficial solutions (force S) fail because force S is always less than root cause forces (force R), indicated on Figure 3 by $S < R$. By contrast, fundamental solutions (force F) can succeed because if the solutions are properly designed (especially their impact on feedback loop structure), force F can exceed force R, indicated by $F > R$. This leads to a systemic mode change, during which the old R is replaced by a new R.

Once all four forces are understood and all key assumptions have been measured or tested, the analyst has a sufficiently complete theory of the problem. Each of the four forces provides an explanatory tenet of the theory. This gives *the standard social-force-diagram-based theory* of problem behavior:

- (1) Force S. Why past solutions have failed ($S < R$).
- (2) Force R. Why the problem occurs (force R is unresolved).
- (3) Force F. Why fundamental solutions can be expected to succeed ($F > R$).
- (4) New Force R. Why the mode change will be relatively permanent (new force R is present, due to the way force F fundamentally changes critical feedback loop structure and loop dominance).

This suggests that any comprehensive theory of how to solve a difficult social problem must explain all four forces. The above list thus serves as *the four requirements for a comprehensive theory of backsliding*. The theory must identify the four forces and clearly explain them.

Because all causal problems arise from their root causes and the fact that backsliding is a highly complex causal problem whose solution requires a systemic mode change (as did the Autocratic Ruler Problem), we see no other productive set of requirements. A social force diagram is not required. A story approach will do. But a social force diagram makes a persuasive story much more explicit and identifies the backbone of the causal structure.

None of the seven theory families in Figure 1 meet these requirements. Nor does the work of Fukuyama and Arendt, or any other research we found.

However, Waldner and Lust sense the third and fourth requirements. They concluded that: (*italics added*) “Democracy is possible only if there exists a *social force* with the incentives and the capacity to impose democracy over the objections of social forces with antidemocratic preferences.” We heartily agree. That social force can be provided by social force F, which if properly designed solves the problem and leads to new social force R.

Analysis results

Social force diagram

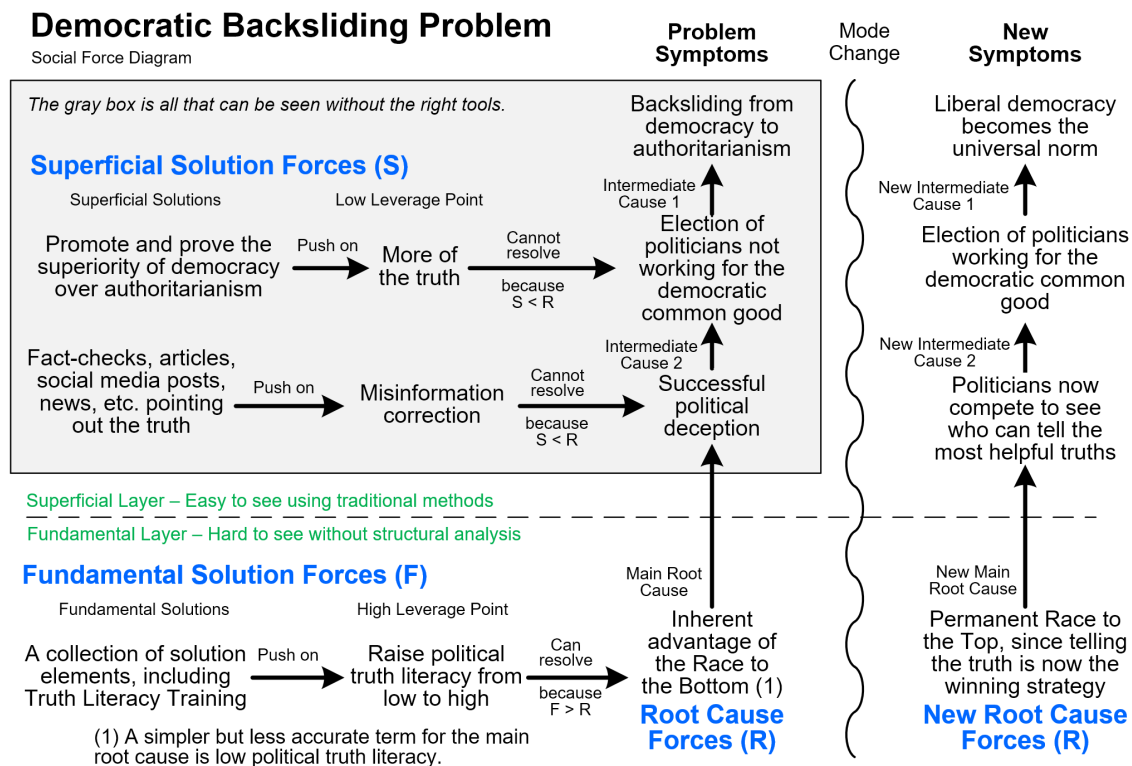


Figure 4. Social force diagram of the analysis. The collection of solution elements and the feedback loops that could solve the problem and cause the mode change are described in the appendix.

The social force diagram for the backsliding problem (Figure 4) was developed by asking a rigorous series of WHY questions:

1. The first WHY question: After summarizing problem symptoms as *backsliding from democracy to authoritarianism*, we asked: WHY do the symptoms occur? Svoblik²² reports that 197 democratic backslides occurred from 1973 to 2018. Of these, 46 were military coups and 88 were executive takeovers via election, with takeovers averaging about 80% of all backslides after the end of the Cold War in 1991. In an examination of *How Democracies Die*, Levitsky and Ziblatt²³ summarize this change: “Democratic backsliding today begins at the ballot box.” Thus, the main first intermediate cause of backsliding is *election of politicians not working for the democratic common good*. Too many citizens are voting instead for politicians working for the uncommon good of powerful special interests, such as authoritarians.

Note the RCA paradigm at work. When addressing the backsliding problem, many scholars begin building theories of how elected leaders weaken democracy. This is so common it is the first of Waldner and Lust’s six theories: Agency-Based (Figure1).

The theories all describe WHAT is happening. So much is happening it's easy to develop many different theories, each of which is somewhat plausible.

Instead of asking WHAT is happening, RCA asks WHY does this occur? This leads to a more productive analysis. Here it has allowed identification of the first intermediate cause. To solve that cause, the solution used now is the same one used before to hasten the spread of democracy before the backslide began. The solution attempts to *promote and prove the superiority of democracy over authoritarianism*.²⁴ This is a form of *more of the truth*, the traditional general-purpose process used to solve public interest problems, and is a low leverage point.²⁵

The solution no longer works because since about 2000, authoritarian state capacity (government effectiveness, regulatory quality, rule of law, and control of corruption) has improved so much worldwide, notably in China, that there is no longer proof democracy is superior.²⁶ “Of the twenty fastest growing countries of the past two decades, fifteen have been autocratic regimes. Of the fifteen wealthiest economies in the world today by per capita income, almost two-thirds are nondemocracies.”

2. The second WHY question: Next, we asked: WHY does *election of politicians not working for the common good* occur? The answer is the second main intermediate cause: *successful political deception*. Other factors are less effective as explained later. Deception is the main technique used to convince an electorate majority to act against their own best interests.

All authoritarians depend heavily on deceptively provoking a wide range of false beliefs and emotions, especially fear. McCarthy²⁷ describes how this involves “bellicose rhetoric,” false promises of forceful solutions to complex long-term problems, populist and racist appeals, fanning the flames of fear and hate against false internal and external enemies, and more. Authoritarian regimes employ increasingly sophisticated forms of deception, such as control of the media to spread state propaganda, simulated democratic institutions like fake or weak civil society organizations and political parties, censorship of the truth, etc.²⁸

Again, note how RCA has taken the analysis to more useful conclusions. Without an RCA mindset, intermediate causes are routinely assumed to be root causes. This has occurred here for decades. If the “cause” is *successful political deception*, then the solution is intuitively obvious: some form of *misinformation correction*, a low leverage point.²⁹ The reasoning is that if people believe statements that are not true, then that can be corrected by providing citizens with corrected versions of deceptive statements pointing out the truth. Superficial solutions to do this are *fact-checks, articles, social media posts, news, etc. pointing out the truth*.

These superficial solutions have worked so poorly we are now living in the post-truth age of politics, where: “The post-truth politician manufactures his or her own facts. The post-truth politician asserts whatever they believe to be in their own interest and they continue to press those same claims, regardless of the evidence amassed against them.”³⁰ Recent examples are the “policy deception” behind the disastrous Brexit vote,³¹

Donald Trump's 30,573 false or misleading claims while in office,³² and Putin's outrageous lies justifying Russia's invasion of Ukraine.³³

While intuitively it should work, in practice *misinformation correction* has little effect for two main reasons. (1) Motivated reasoning research has found that partisan beliefs are highly resistant to change once formed.³⁴ "The motivational component of political misinformation implies that the prospects for correcting false beliefs are dim".³⁵ (2) Misinformation correction has never solved the problem of how to get corrections to the people that need them. "We almost never observe respondents reading a fact-check of a specific claim in a fake news article that they read."³⁶ This explains why *misinformation correction* is a low leverage point.

3. The third WHY question: Next, we asked: *WHY* does *successful political deception* occur? Answering this was so difficult it required construction of a system dynamics simulation model. System dynamics is a modeling language for understanding how feedback loops cause a problem's behavior and how that behavior can be corrected, and is widely used on difficult complex business problems.³⁷

The system dynamics model

Model construction (Figure 5) was highly iterative. The goal was to answer the third WHY question and to structurally explain the social force diagram.

The Dueling Loops of the Political Powerplace

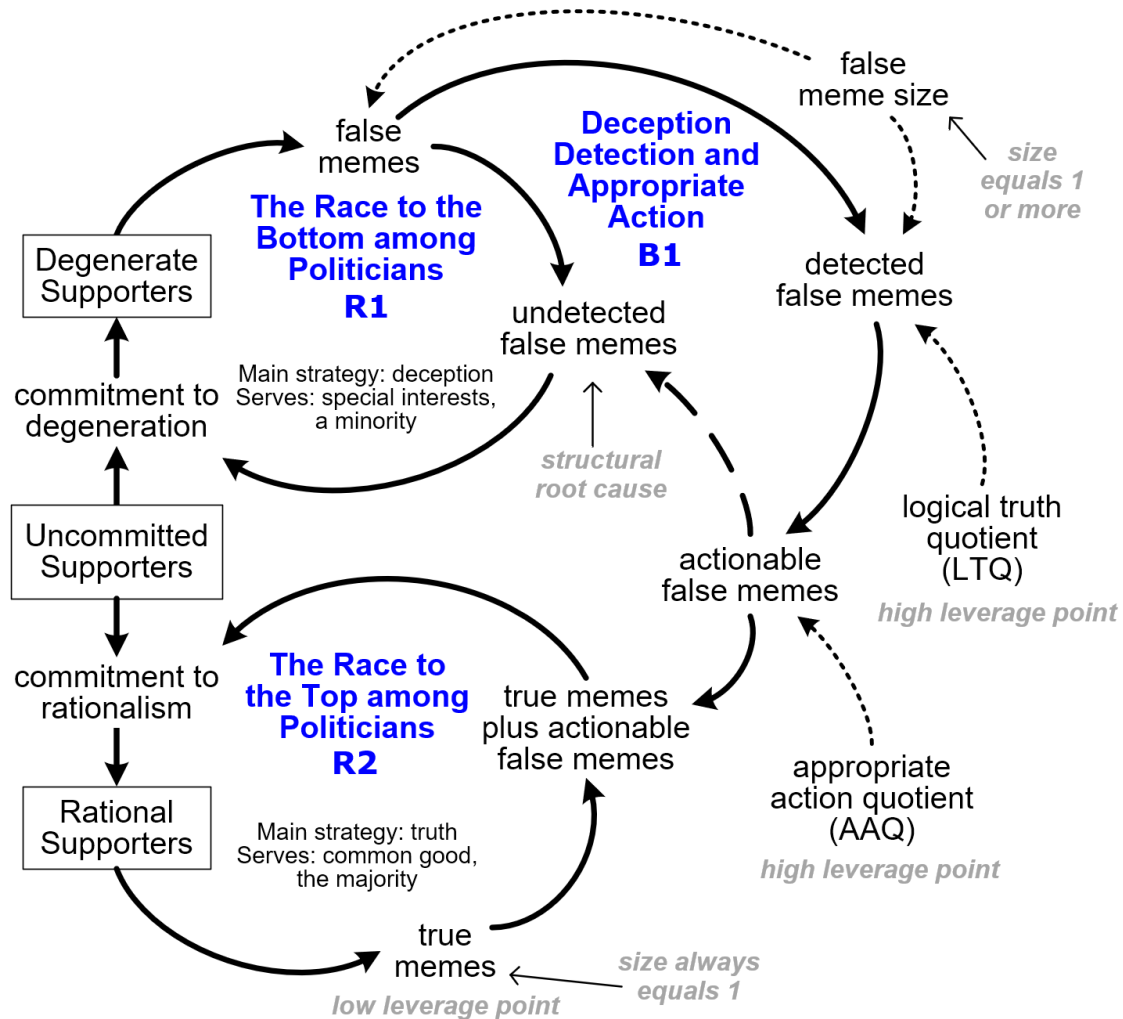


Figure 5. Feedback loop structure of the backsliding problem. This is a simplified causal loop diagram version of the system dynamics model, described in the appendix.

In causal loop diagrams,³⁸ an arrow from node X to node Y means X causes change in Y. Solid arrows are a direct relationship, meaning as X increases so does Y, or as X decreases so does Y. Dashed arrows are an inverse relationship, meaning as X increases Y decreases and vice versa. Dotted arrows are constants, indicating X remains constant. R and B signify reinforcing and balancing loops.

The Dueling Loops of the Political Powerplace model captures the essence of the left-right political spectrum, consequential because “global politics is first and foremost a debate between the left and the right. ... The left-right dichotomy occupies a special place, as the most enduring, universal, and encompassing of all political strategies”.³⁹ The backbone of the model is the two opposing feedback loops dueling for

the same *Uncommitted Supporters*. Race to the Bottom politicians (the right) use deception to gain supporters, while Race to the Top politicians (the left) use the truth. For example, despite lack of evidence, 68% of US Republicans (the right), 26% of independents, and 6% of Democrats (the left) believe The Big Lie that the 2020 US election was stolen from Trump.⁴⁰

The model uses Dawkins' concept of memes.⁴¹ A meme is copied information capable of affecting behavior, such as a fact or an opinion. In the model a meme is a statement that is true or false.

Truth literacy is the ability to tell truth from deception, i.e., to be able to “read” the truth. The analysis uses three variables to measure aspects of *political truth literacy*. All range from zero to 100%:

- LTQ (*logical truth quotient*) is the ability to logically tell if a deceptive political claim is true or false.
- AAQ (*appropriate action quotient*) is the ability to take appropriate action, given the perceived truth (using LTQ) of a deceptive political claim.
- DTQ (*democratic truth quotient*, aka political truth literacy) is the ability to take correct democratic system action (such as voting correctly) given a possibly deceptive political claim.

A person's DTQ uses the two-step process of (1) determine the truth (using LTQ) and then (2) take action given that perceived truth (using AAQ). For example, “I can see that statement is false because it uses the cherry picking fallacy.” And then “Now I need to vote against that politician because they cannot be trusted to tell me the truth.” Because of the two-step process, the three variables are related by $DTQ = LTQ \times AAQ$, though DTQ is not in the model. The single high leverage point in the social force diagram, *raise political truth literacy from low to high*, becomes two high leverage points in the model: LTQ and AAQ.

Let's walk through the model (Figure 5) to understand how each of the three feedback loops work.

The Race to the Bottom feedback loop works like this: *Degenerate Supporters* transmit lies (*false memes*) in an effort to win more supporters than the opposition. Some become *detected false memes*. The rest are *undetected false memes*, which increases *commitment to degeneration*, which causes some *Uncommitted Supporters* to become *Degenerate Supporters* and the loop starts over again.

The Race to the Top loop works in a similar manner. *Rational Supporters* transmit true statements (*true memes*) in an effort to win supporters. This increases *true memes plus actionable false memes*, which increases *commitment to rationalism*, which causes some *Uncommitted Supporters* to become *Rational Supporters* and the loop starts over again. The two reinforcing loops are locked in a perpetual duel to see which side can attract the most supporters.

The **Deception Detection and Appropriate Action** loop models how people follow the two-step process of DTQ described above. What percentage of *false memes* (lies) become *detected false memes* depends on a person's *logical truth quotient* (LTQ). The higher that is, the more lies detected. This is the first of the two steps.

The second step is to take appropriate action if you have detected a lie. What percentage of *detected false memes* become *actionable false memes* depends on a person's *appropriate action quotient* (AAQ). The higher that is, the more appropriate action taken.

As *actionable false memes* go up, *undetected false memes* go down. This is because *undetected false memes* equals *false memes* minus *actionable false memes*. As *undetected false memes* go down, the Race to the Bottom doesn't do as well. Fewer *Uncommitted Supporters* become *Degenerate Supporters*.

Something else happens as *actionable false memes* go up. That causes *true memes plus actionable false memes* to increase, because people have more information. They can see the truth about how degenerate politicians have attempted to deceive them. That causes more people to become *Rational Supporters*. This completes how the three feedback loops work.

We have shown how two constants work, LTQ and AAQ. The third constant is *false meme size*. This represents how large a lie is and is one or more. The size determines the attractive power of a *false meme*. As *false meme size* increases, so does the attractive power of the lie. A size of one means no deception. In that case the attractive power of a *false meme* equals that of a *true meme* and neither side has an advantage.

In an ideal world no one would lie. But real-world politics is full of lies to gain more supporters. Deceptive (degenerate) politicians increase the attractive power of political statements by lying, represented by *false meme size* of greater than one. This gives The Race to the Bottom an advantage, but only if *logical truth quotient* and *appropriate action quotient* are low. If they are high, most lies are detected and The Race to the Top has the advantage.

The Race to the Bottom feedback loop (the right) represents powerful special interests pursuing their own narrow self-interest goals, such as the rich, managers of large for-profit corporations, authoritarians, and elite ruling groups of many kinds, e.g., the ruling class. All are a small percentage of the electorate. In a democracy, the main ways a minority can persuade a majority to vote for them are by force, threats, rigged elections, voter suppression, favoritism, bribes, or deception. Force, threats, and rigged elections are illegal. Voter suppression is mostly illegal. Favoritism doesn't work on large populations, since there are not enough favors (like jobs or contracts) to dole out. Bribes are inefficient, as even the rich lack the resources to bribe millions of voters. This leaves deception as the main preferred strategy and explains why deception is so common in right-wing politics. Jeremy Bentham, the father of utilitarianism, reached the same conclusion in 1824:⁴²

“...it is impossible by fair reasoning ...to justify the sacrifice of the interests of the many to the interests of the few.... It follows that for effecting this purpose they must have recourse to every kind of fallacy, and address themselves, when occasion requires it, to the passions, the prejudices, and the ignorance of mankind”.

The Race to the Top loop (the left) represents those seeking to cooperate in optimizing the long-term common good of all. Politicians appealing to the left use a strategy of the truth about how they can achieve that goal.

In reality there are many loops (each with its stock of supporters) along the political spectrum, such as Bobbio's⁴³ extreme right, moderate right, moderate left, and extreme left. For simplicity we have modeled only two loops. Both sides lie at least a little. But the data show the right lies much more. For simplicity we have modeled only one side lying.

The low leverage points of *more of the truth* and *misinformation correction* on the social force diagram are attempts to increase the attractive power of *true memes* on the model. While intuitively this should work, it has little effect as seen in the continued failure of superficial solutions. This occurs due to the unresolved root cause.

Identification of the main root cause

The key model insight is that the size (and hence the attractive power) of a lie (*false memes*) can be inflated, while the size of the truth (*true memes*) cannot.

For example, a virtuous politician may gain supporters by stating, “I know we can’t balance the budget any time soon, but I will form a panel of experts to determine what the best we can do is.” Meanwhile, a deceptive politician is garnering supporters by saying, “Economics is easy. You just put a firm hand on the tiller and go where you want to go. I can balance the budget in four years, despite what the experts are saying. They are just pundits. Don’t listen to them. A vote for me is a vote for a better future.” The deceptive politician is also telling numerous different groups, “Yes, I can do that for you. No problem.” Guess who will usually win?

From a mathematical perspective, the size of a falsehood can be inflated by saying that $2 + 2 = 5$, or 7, or even 27, but the size of the truth is always 1. It can never be inflated by saying anything more than $2 + 2 = 4$. Deceptive inflation is used to create fear when there is nothing to fear, doubt when there is nothing to doubt, the false promise of I can do so-and-so for you when I really cannot, a large flaw in one’s opponent when there is only a small flaw or no flaw, etc. This insight leads to identification of the main root cause of backsliding: the *inherent advantage of the Race to the Bottom*, represented on the model by *undetected false memes*. The inherent advantage exists because the opposing loop, the Race to the Top, has no corresponding node because there are no inflated *true memes* to detect. For simplicity we usually say the main root cause is *low political truth literacy*.

If this is the main root cause, one would expect to see universal reliance on political deception by right wing governments and politicians. Evidence of this is considerable.

China and Russia are infamous for dependence on state-sponsored propaganda, both internal and external.⁴⁴ In the US a well-financed “Right-Wing Propaganda Machine” has dominated political debate for decades.⁴⁵ These are isolated cases, however. A comprehensive examination of the evidence is required.

Using the V-Party dataset (which covers 1,943 political parties across 1,759 elections in 169 countries from 1970 to 2019), Luhrmann et. al.⁴⁶ identified four key characteristics of anti-pluralism. All require political deception to implement:

- (1) *Unwillingness to commit to the democratic process as legal means for gaining power.* – Merloe⁴⁷ found that “The spread of disinformation... is essential to authoritarian attempts to control the electoral narrative” in order to allow rigged election results to be accepted. The Big Lie of Trump that the US 2020 election was stolen uses deception to foster the idea that bypassing the democratic process is okay, since the election process is rigged against Trump and Republicans.
- (2) *Denial of the legitimacy of dissenting parties and opponents.* – Luhrmann et. al. describe the standard approach: “delegitimize, severely personally attack, or demonize [or dehumanize] their opponents.” This is accomplished with lies about why the opposition is not legitimate, *ad hominem* attacks, and lies to demonize and dehumanize.
- (3) *Toleration, encouragement, or endorsement of the use of violence against political opponents.* – Deception is required to justify violence against people who are not dire threats. Doing this takes two steps. The first is accomplished with the second characteristic by deceptively portraying the opposition as illegitimate and inhuman. The second step deceptively justifies violence as the best means to eliminate or intimidate that opposition. Examples are Mussolini’s blackshirts, Hitler’s brownshirts, and Trump’s incitement of the Oath Keepers, Proud Boys, and other groups and individuals in the January 6, 2021 US Capitol insurrection. In every case, deceptive rhetoric is used to justify and motivate. Mussolini championed the “virtue” and “supreme morality” of political violence against socialists and other demonized opponents, carried out by the blackshirts.⁴⁸ In 1932 Germany, the Nazi press justified the infamous murder of Pietrzuch, “a Polish rogue and sub-human,” by a gang of brownshirts “as an act of lynching—a practice [that was] the only possible corrective to an unnatural law.”⁴⁹
- (4) *Support for curtailing the civil liberties of minority groups.* – This is accomplished by falsely painting a minority group as an extreme threat, which justifies curtailing their civil liberties. Common scapegoats are religious groups, racial minorities, immigrants, and gays. Examples are Hitler’s extermination of

the Jews, Russia's homophobic laws,⁵⁰ and the rise of far-right racist populism in Europe, the US, and Australia.⁵¹

Evidence of existence of the Dueling Loops itself exists. Benkler et. al.⁵² in an effort to understand the effect of propaganda on politics, analyzed four million messages in the US using their Media Cloud platform. America's political spectrum has evolved into two opposing feedback loops, a right-wing "propaganda feedback loop" where politicians "compete on identity confirmation" regardless of the truth, versus a centrist/left-wing "reality-check" loop that follows "institutionalized truth-seeking norms" where politicians "compete on truth quality and the scoop". The propaganda and reality-check loops correspond exactly to the Race to the Bottom and Top loops. Freelon et. al.⁵³ found that "in the US and throughout the industrialized West... available evidence suggests that the right has invested far more than the left in disinformation and conspiracy theories as core components of its activist repertoire..."⁵⁴ Also in the US, while both parties use forms of deception like anti-elitism, anti-immigration, and demonization of political opponents, the data show Republicans do so much more frequently than Democrats.⁵⁵

Fukuyama's three main causes of backsliding, listed earlier, confirm the Dueling Loops structure. (1) The "polarizing divide" is the two opposing loops. Polarization is discussed further in the appendix. (2) The amplification of certain false memes by social media has increased the attractiveness of false memes. (3) The decline of traditional media (which filtered out lies and provided citizens with just the truth) and the rise of social media (which does the opposite) has caused the number of false memes to be amplified. Citizens are exposed to many more false memes.

The effect of social media false meme amplification has become quite large and continues to grow.⁵⁶ However, this amplification only gives the Race to the Bottom a further advantage because of the unresolved root cause of low political truth literacy. Once the root cause is resolved, amplification no longer works. See run 13 in the appendix for further examination of amplification.

Because of its inherent advantage and the fact political truth literacy is low, the Race to the Bottom is currently the dominant loop most of the time, though this varies between states. Resolving the root cause would lead to a systemic mode change (Figure 4), where the Race to the Top is now not just the dominant loop most of the time—it is relatively permanently dominant. If the new feedback loop structure is properly engineered to be self-managing, telling the political truth about what is best for the common good is now always the winning strategy. This suggests that in states where the fundamental solution can be implemented, the end result would be those democracies now work as intended and are no longer subject to backsliding.

The key analysis finding was that the main root cause exists and can be resolved in a practical manner. To test this hypothesis, we performed:

The Truth Literacy Training study

The purpose of the study was to test if political truth literacy (DTQ) is currently low and can be raised to high in a practical manner. If so, we have preliminary evidence the root cause exists and can be resolved.

Results were positive. 93 subjects were randomly assigned to treatment groups. Average DTQ for the untrained group was very low, 2%, with a 95% confidence range of zero to 22%. This offers initial confirmation the root cause of low political truth literacy exists. Average DTQ for the trained group was 67%, a 65-point rise. This suggests that Truth Literacy Training is capable of pushing on the high leverage point of *raise political truth literacy from low to high* successfully, though much further research is required.

A follow up questionnaire 26 days later showed DTQ for the trained group dropped slightly, from 67% to 60%. This rose to 70% with 30 minutes of refresh training, indicating that regular refresh training of some type can work and will be required. Or it may be that like reading and writing literacy, once political truth literacy matures, becomes the reasoning default and is exercised often enough, little decline will occur.

The study is described in partial further detail in the appendix. It will be fully described in a later paper.

Conclusions

Given analysis and study results, we conclude that the main root cause of democratic backsliding, low political truth literacy, exists. We also conclude that the root cause can be resolved with practical solutions. Due to the limitations of a single laboratory experiment and training on only a small set of fallacies, these conclusions are tentative. We look forward to replication, broadening of the training, real-world testing, and further research by others.

We therefore conclude that the democratic backsliding is analytically solvable, if a suitable form of root cause analysis is used.

In his examination of the global threat posed by the soft power wielded by authoritarian trendsetters, led by China and Russia, Walker⁵⁷ sombrely concluded that “established democracies so far have had no coherent answer to the authoritarian surge.” Building on the tools and results presented here, perhaps now they do.

For further conclusions please see the appendix.

Notes

¹ Francis Fukuyama, *The End of History and the Last Man*.

² Arsel, Adaman, and Saad-Filho, “Authoritarian Developmentalism.”

³ Luhrmann and Lindberg, “A Third Wave of Autocratization Is Here.”

- ⁴ Bermeo, “On Democratic Backsliding.”
- ⁵ Waldner and Lust, “Unwelcome Change.”
- ⁶ Wiesner et al., “Stability of Democracies.”
- ⁷ Waldner and Lust, “Unwelcome Change.”
- ⁸ Corke, “Democracy Playbook 2021: 10 Commitments for Advancing Democracy,” 6.
- ⁹ Merkel and Lührmann, “Resilience of Democracies.”
- ¹⁰ Fukuyama, “30 Years of World Politics.”
- ¹¹ Arendt, *The Origins of Totalitarianism: Part Three*.
- ¹² Corke, “Democracy Playbook 2021: 10 Commitments for Advancing Democracy,” 18.
- ¹³ Jones, *The Thinker’s Toolkit: 14 Powerful Techniques for Problem Solving*, 6–12.
- ¹⁴ George et al., *The Lean Six Sigma Pocket Toolbook: A Quick Reference Guide to 100 Tools for Improving Quality and Speed*, 100 tools; Pyzdek, *The Six Sigma Handbook: A Complete Guide for Green Belts, Black Belts, and Managers at All Levels*, over 100 tools; Tague, *The Quality Toolbox*, 136 tools.
- ¹⁵ For an introduction to RCA we refer the reader to: Anderson and Fagerhaug, *Root Cause Analysis: Simplified Tools and Techniques, Second Edition*; Doggett, “A Statistical Comparison of Three Root Cause Analysis Tools”; Okes, *Root Cause Analysis: The Core of Problem Solving and Corrective Action*.
- ¹⁶ Imai, *Kaizen: The Key to Japan’s Competitive Success*, 50. Note that “Five Whys” does not mean asking WHY exactly five times, but to persist in asking WHY until the true root cause(s) is found.
- ¹⁷ Marx, “Six Sigma Saves a Fortune.”
- ¹⁸ Chevallier, *Strategic Thinking in Complex Problem Solving*.
- ¹⁹ The quote about NASA is from <https://nsc.nasa.gov/RCAT/>, though we note with dismay this link is no longer working and we cannot find a substitute. The software tool is available at <https://software.nasa.gov/software/LEW-19737-1>.
- ²⁰ For the creator of cause-and-effect diagrams, see Ishikawa, *Guide to Quality Control, 2nd Revised Edition*, 18–29. The original 4 Ms of Manufacturing are on page 19, which we have modified for this article.
- ²¹ Popper, *All Life Is Problem Solving*, 13. Popper is justly famous for adding falsification to the scientific method paradigm. Basically, he says that if a hypothesis cannot be falsified, it’s not science. It’s something else. This is a polite term for rubbish.
- ²² Svolik, “Polarization versus Democracy.”
- ²³ Levitsky and Ziblatt, *How Democracies Die*, 5.
- ²⁴ For an example promoting the superiority of democracy, see Halperin, Siegle, and Weinstein, *The Democracy Advantage, Revised Edition*.
- ²⁵ Harich, “Change Resistance as the Crux of the Environmental Sustainability Problem.” The paper does not mention “more of the truth,” a phrase developed later. The process has four steps: 1. Problem definition, 2. *Find the truth* (what solution will work), 3. *Promote the truth* (tell people about the problem and solution), and if that fails to work, 4. *Magnify the truth* with exhortation, inspiration and bargaining.
- ²⁶ Foa, “Modernization and Authoritarianism,” 133.
- ²⁷ McCarthy, “Authoritarianism, Populism, and the Environment.”
- ²⁸ Walker, “The Authoritarian Threat: The Hijacking of ‘Soft Power.’”
- ²⁹ Persily and Tucker, “Misinformation Correction,” 163–98.
- ³⁰ Lockie, “Post-Truth Politics and the Social Sciences.”

- ³¹ Baines, Brewer, and Kay, “Political, Process and Programme Failures in the Brexit Fiasco.”
- ³² Kessler, Rizzo, and Kelley, “Trump’s False or Misleading Claims Total 30,573 over 4 Years.”
- ³³ Myers and Thompson, “Truth Is Another Front in Putin’s War.”
- ³⁴ Lodge and Taber, *The Rationalizing Voter*.
- ³⁵ Jerit and Zhao, “Political Misinformation.”
- ³⁶ Guess and Nyhan, “Selective Exposure to Misinformation: Evidence from the Consumption of Fake News during the 2016 U.S. Presidential Campaign,” 11.
- ³⁷ Sterman, *Business Dynamics: Systems Thinking and Modeling for a Complex World*.
- ³⁸ For more on how to read causal loop diagrams see these online articles: Frangos, “Learn to Read Causal Loop Diagrams”; Rushing, “Causal Loop Diagrams: Little Known Analytical Tool.” From the second article: “How does CLD apply to Six Sigma? Quite simply, it is the causal loop diagram’s unique ability to identify and visually display intricate processes and root causes.”
- ³⁹ Noel and Therueb, *Left and Right in Global Politics*, 3.
- ⁴⁰ PPRI Staff, “Competing Visions of America: An Evolving Identity or a Culture Under Attack? Findings from the 2021 American Values Survey.”
- ⁴¹ Dawkins, *The Selfish Gene*, 189–201.
- ⁴² Larrabee, *Bentham’s Handbook of Political Fallacies*, xxi.
- ⁴³ Bobbio, *Left and Right*, 34:xvii.
- ⁴⁴ Diamond, *Ill Winds: Saving Democracy from Russian Rage, Chinese Ambition, and American Complacency*, 109–46.
- ⁴⁵ Conason, *Big Lies: The Right-Wing Propaganda Machine*.
- ⁴⁶ Luhmann, Medzihorsky, and Lindberg, “Walking the Talk: How to Identify Anti-Pluralist Parties.”
- ⁴⁷ Merloe, “Election Monitoring versus Disinformation,” 143.
- ⁴⁸ Ebner, *Ordinary Violence in Mussolini’s Italy*, 12.
- ⁴⁹ Siemens, *Stormtroopers: A New History of Hitler’s Brownshirts*, xxi.
- ⁵⁰ Kurtanidze, “Dismantling LGBT+ Rights as a Means of Control in Russia.”
- ⁵¹ Vieten and Poynting, “Contemporary Far-Right Racist Populism in Europe.”
- ⁵² Benkler, Faris, and Roberts, *Network Propaganda: Manipulation, Disinformation, and Radicalization in American Politics*, 77, 79.
- ⁵³ Freelon, Marwick, and Kreiss, “False Equivalencies.”
- ⁵⁴ Conason, *Big Lies: The Right-Wing Propaganda Machine*.
- ⁵⁵ Luhmann et al., “New Global Data on Political Parties: V-Party.”
- ⁵⁶ For example, see Fisher’s description of how Facebook’s recommendation engine amplifies false memes and how large the effect has become. “The more incendiary the post, the more widely the platforms spread it. . . . Our algorithms exploit the human brain’s attraction to divisiveness.” Fisher, *The Chaos Machine: The Inside Story of How Social Media Rewired Our Minds and Our World*, 5, 9.
- ⁵⁷ Walker, “The Authoritarian Threat: The Hijacking of ‘Soft Power.’”

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(To be added later.)

Disclosure statement

The authors report there are no competing interests to declare.

Appendix

This contains further conclusions, a comparison of the analysis to contemporary theories, description of the system dynamics model, description of additional solution elements, a summary of the Truth Literacy Training study, and the simulation model itself. The appendix may be found in the online version of this article at the publisher's website.

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