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PARADIGM AND SYMBOLIC UNIVERSE: THE ENDURING SIGNIFICANCE OF THOMAS KUHN

Abstract. The importance of Kuhn's theory is examined from the perspective of its epistemological impact and contrasted with Popper's concept of falsification; the theory of paradigm shift is analyzed as a general model of change. Its concepts are applied to Berger and Luckmann's socially constructed reality and to the Symbolic Universe which sustains it. The theory of paradigm shift is used to analyze the process of changing the Symbolic Universe.

Keywords: Paradigm, anomaly, incommensurability, Symbolic Universe, conspiracy theories, apophenia, crank magnetism, information bubble

Before the publication of Kuhn's *The Structure of Scientific Revolutions*, the accepted criterion for establishing the validity of a theory in the natural and social sciences was Popper's (1934, 1959) concept of "falsifiability". While logically rigorous, it also resulted in an awkward view of the evolution of science advancing by denying the validity of hypotheses rather than affirming them. This view is contradicted by the scarcity of scientific journal articles containing negative findings, although, according to Popper, those are the only ones that should be considered. It also proved counterintuitive, implying that each experiment that verified a theory only increased its plausibility, in effect making "truth value" a probabilistic variable, asymptotically approaching verifiability but never reaching it. In effect, it meant that proof based on statistics was meaningless. It reminded

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of Boltzmann's statistical interpretation of entropy, in which the possibility that all the molecules in a gas, rather than colliding randomly, will move simultaneously in the same direction exists, however infinitesimally small. This created a conundrum, since in my field of study, Psychology, and in Social Sciences in general, studies use statistical verification to prove their validity. A rather convoluted artifact, namely the "null hypothesis" was employed: proving your hypothesis by disproving the opposite of what you are trying to prove. Kuhn's proposes that

"during normal science scientists neither test nor seek to confirm the guiding theories of their disciplinary matrix. Nor do they regard anomalous results as falsifying those theories... Rather, anomalies are ignored or explained away if at all possible. It is only the accumulation of particularly troublesome anomalies that poses a serious problem for the existing disciplinary matrix." (Bird 2004)

Gergen (1982) argued that Popper's model is not appropriate for the study of phenomena in social sciences. He stated that "the chief criterion for theoretical evaluation" (by traditional standards) namely empirical validity (or its close associates, "truth value", "empirical content", and "resistance to falsification"), is inappropriately applied to "theories of human conduct". Gergen proposed as a replacement the "generative capacity" – the capacity to raise fundamental questions, to challenge the basic assumptions of a culture concerning social life, to provide alternatives for social action.

"After reviewing the major theoretical orientations: Popper, Habermas, the phenomenological and the dialectical method, Gergen (1982) believed that there is a commonality of ideas underlying them which may constitute the basis for a unified alternative: the emergence of a new, 'socio-rationalist' metatheory: the generation of rationality through social interchange." (Dan 2011, 34)

Popper did not believe that Psychoanalysis and Individual Psychology are sciences, because they cannot be falsified. Kuhn, on the other hand, believed that because they lack a common methodology and interpretive

framework, social sciences are immature, falling in the “prescience” category. Note though the overlap between Gergen’s “generative capacity” and Kuhn’s “puzzle solving.” The view of knowledge progressing and being accumulated by sciences solving essential “puzzles,” rather by constantly disproving emerging hypotheses, proved to have a strong stimulating effect. After all, some of the most influential psycho-social experiments of our times: Asch’s social illusion experiment, Milgram’s obedience studies, Zimbardo’s Stanford prison experiment and Elliot’s “Blue eyes–Brown eyes” experiments were published without any formal statistic validation.

“Furthermore, the sources of some of the most influential psychological theories such as those of Freud, Piaget, and Erickson are based on observations and very small – sometimes a single subject – case studies, the weakest of all experimental designs. Nonetheless, generativity and postdiction override the simplistic methodological objections and grant these theories the place they deserve.” (Dan 2011, 35)

I believe this is due to the fact that these studies solved essential “puzzles,” are significant contributors to the paradigm of social sciences, and in some cases created revolutionary science.

Paradigm shift as a model for change

Another aspect of the enduring significance of Kuhn’s theory is that it provided a common framework for conceptualizing change in widely different domains. For example, in psychology, there are numerous theories of development taking place in stages, for example Freud’s psychosexual stages, Piaget’s stages of the development of intelligence, Erikson’s stages of psychosocial development, Kohlberg’s stages of moral development. In each of these theories, stages are distinct from each other, yet each stage continues the previous one and prepares the next one. Applying Kuhn’s theory of paradigm shift to developmental stages clarifies how the dynamic between the forces for stability and forces for change allows for conceptualizations of development and change that can be both continuous and discontinuous. The mechanisms described by Piaget: centering and decentering, assimilation and accommodation, the dialectic of “quantitative

accumulations leading to qualitative jumps," even models in different fields such as Eldredge and Gould's (1972) "punctuated equilibria" in evolutionary biology, can be easily translated and conceptualized in the terms of Kuhn's theory.

Below is a general model of change I developed in the mid 1980's following an exchange with Stanley Milgram on the transition from autonomy to obedience to authority. The model assumes that the system is evolving, becoming more complex over time.

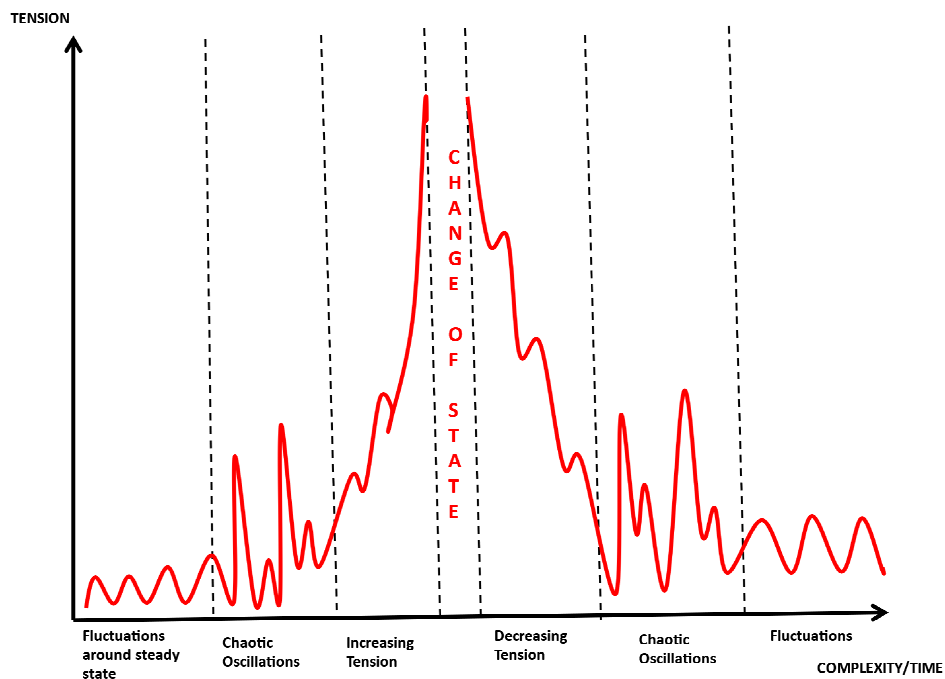


Figure 1. A general model of change

$$\text{Equation of Increasing tension: } T1 = \frac{FC2}{K1FS1} - \frac{FC2}{FS1-R},$$

where T1-tension in system at moment; K1- Inertia or resistance to change;

FS1-Forces of status quo R-relief from strain defenses can provide;

FC2- force trying to change the system to state 2.

If forces of Status Quo (FS1) and Inertia (K1) are high T1 will decrease, and the system will remain stable.

If FC2 increases T1 increases and the system enters chaotic oscillations, then changes to state 2;

$$T2a = \frac{FC1}{K2FS2} - \frac{FC1}{FS2-R} \text{ Equation of decreasing tension,}$$

then: $T2b = \frac{FC3}{K2FS2} - \frac{FC3}{FS2-R}$ Equation of Increasing tension possibly leading to state 3.

In retrospect, Kuhn's influence seems obvious, but to the best of my recollection, I was not aware of it at the time. I had read Kuhn's work, and I had internalized it, to the degree that it had become implicit to my way of thinking; I suspect this is the case with many researchers in various fields. I believe this to be the ultimate measure of success for a theory.

Paradigm and Symbolic Universe

In 1967, five years after the publication of *The Structure of Scientific Revolutions*, Berger and Luckmann published *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*, which proposed an entirely new perspective on the development and ubiquity of shared frames of reference.

We evolved in small groups of hunter-gatherers and eusociality (Wilson 2012) is the key to our evolutionary success. The necessary social cohesion within the group was enhanced by the emergence of a common frame of reference. The development of language allowed the sharing the mental imagery, which in turn lead to the emergence of storytelling and to the invention of myths of creation. Myths played an essential role in structuring the universe into realms, (this world and the spirit world, this realm and the one beyond) and in the emergence of ideas about transcendence, mortality, and immortality.

The different aspects of reality were integrated by incorporation in the same overarching universe of meaning, which Berger and Luckmann (1967) named the Symbolic Universe – “which constitutes the universe in the literal sense of the word because all human experience can now be conceived as taking place within it...the entire historic society and the entire biography of the individual are seen as taking place within this universe” (Berger and Luckmann 1967, 62). This socially constructed reality is subjectively experienced as objective reality. “The reality of everyday life is taken for granted *as* reality. It does not require additional verification over and beyond its simple presence. It is simply *there*, as self-evident and compelling facticity.” (Berger and Luckmann 1967, 23)

The Symbolic Universe is sustained by universe maintenance mechanisms, which act as safeguards against dissonance and ensure its internal consistency and continuity. Culture, theology, philosophy and

science are all universe maintenance mechanisms. The figure below illustrates “the relationship between the Symbolic Universe and different levels of social organization from individual to national. At each level, the Symbolic Universe is the interpretive framework and the conveyor of meaning for all individual or collective actions” (Dan 2015, 5).

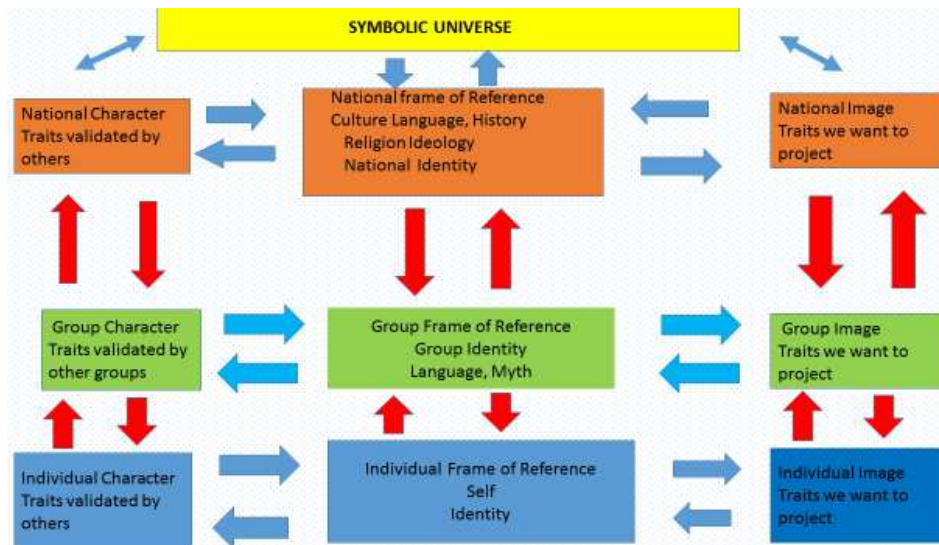


Figure 2. Individual, group and national frames of reference and the Symbolic Universe (Dan 2015)

The similarities and differences between Kuhn’s concept of paradigm and Berger and Luckmann’s Symbolic Universe were noted and debated in the literature. For example, Schutz (1973) and Vogel (2011) adopted an institutionalist-phenomenological framework for their critiques based on the “basic distinction between the external world and constructed reality. The external world is the world of objects which exists independently from human perceptions, and which is the ultimate ground of all experiences” (Vogel 2011, 87).

I intend to follow a different approach, trying to apply Kuhn’s theory of paradigm shift to the changing of the Symbolic Universe. Both Kuhn’s paradigm and Berger and Luckmann’s Symbolic Universe are overarching interpretive structures which provide context and meaning to the events taking place within, and which are themselves changing as a result of

the outcome of those events. The Symbolic Universe contains the paradigms of the universe maintenance mechanisms, any of which could undergo a shift. A paradigm shift in one science, for instance the transition from the Ptolemaic geocentric model of the solar system to the Copernican heliocentric one in cosmology, Darwin's theory of evolution, Einstein's Theory of Relativity or Quantum Physics, which have all changed the paradigms of their respective fields, may have limited impact on the paradigms in other fields. This is not true for the changes of the Symbolic Universe. Science, religion, culture, philosophy are universe maintenance mechanisms, each containing several fields, each with their own paradigms. The system has some tolerance for the contradictions between or within universe maintenance mechanisms. For example, in the Symbolic Universe of the Western world different religions coexist without much tension. Within narrower geographical and cultural boundaries, Mungiu-Pippidi (1999) has shown that ethnic Romanian and Hungarian inhabitants of Transylvania hold distinctly different collective memories about their history, and Morar (2011) found that Saxons and Romanians from the same Transylvanian village had different approaches to morals: deontological and teleological respectively.

The periods of stability and the periods of change have widely differing dynamics. The periods of stability are characterized by the maintenance of the status quo:

"the members of a scientific community, once they are committed to the paradigm, are unburdened from the need to justify which problems they select and how they solve them. What counts for a scientific problem and for its adequate solution is predefined by the paradigm. The reality scientists work in appears to them as self-evident and, in this sense, as unproblematic... With their solution, scientists engage in the confirmation of the paradigm and thus in its reproduction. These self-legitimizing forces of social reality signify the institutionalist elements in Kuhn's approach." (Vogel 2011, 85)

Likewise, during periods of stability, most of the Symbolic Universe is not even in awareness and is subjectively experienced as *weltanschauung* and the individual perception of the social contract. The maintenance

mechanisms of the Symbolic Universe, namely Culture, Religion, Law, Ethics, History etc., are getting reflected at the national, group and individual levels, resulting in a shared perception of the social contract and of moral expectations. At each level, morality is the filter through which permissible or unacceptable actions are judged. There are multiple interactions between levels. For example, as Morar notes (2023, personal communication) the highest level of Kohlberg’s moral development at the individual level, corresponds to Kant’s moral imperative at the universe maintenance mechanism level. The perception of the social contract, mediated by morality, is organized into “partial equivalency structures” (Wallace 1970) in which behaviors are connected in a predictable sequence. The potential actions are modified by an Overton Window, trying to decrease cognitive dissonance and to increase stability (See Figure 3).

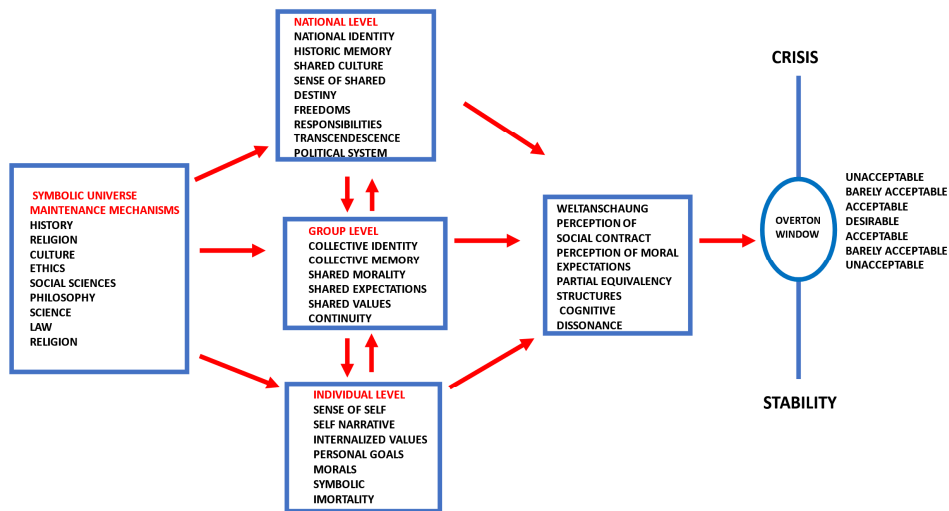


Figure 3. The role of morality in mediating the perception of the social contract

However, during periods of crisis or scientific revolution, the paradigm and the Symbolic Universe function very differently. Paradigm shift may be accompanied by scholarly disputes, most of them taking place outside of public awareness due to their esoteric nature, while changes in the Symbolic Universe, caused by historical events such as the spread

of Christianity, the discovery and colonization of the Americas, the Meiji period in Japan, the rise of Communism and Fascism, the advent of the internet and the phenomenon of the social media are usually periods of great upheaval. Kuhn's paradigm shift is triggered by the fact that solutions to the essential "puzzles" solved by scientists challenge the paradigm rather than reinforcing it, forcing changes in the "explanatory matrix". On the other hand, changes in the Symbolic Universe are preceded and precipitated by historical events and followed by prolonged periods of transformations and instability. For example, the conquest and colonization of North America brought Europeans in contact with native Americans. A number of treatises on the "noble savage," on "primitive naifs leaving in hunter-gatherer societies," and on "the role of working the land as a basis for ownership" were produced as a demonstration of European superiority and as a justification for the displacement and the stealing of the property of indigenous people. After the publication in 1703 of the popular "Curious Dialogues with a Savage of Good Sense Who Has Traveled" describing the discussions between the author, Baron de Lahontan and Wendat Chief Kondiaronk, European thinkers were confronted with the reality that they were not dealing with savages, but with an egalitarian society of sophisticated individuals, and started focusing on egalitarianism. Kondiaronk's penetrating critique of the materialistic European society influenced the thinking of Rousseau, which, in turn, had a major influence on the French Revolution, triggering another significant change of the Symbolic Universe.

While during paradigm shift the disputes between scientists are mostly civil, conflicts from other universe maintenance mechanisms may create distortions. The classic example would be the conflict between science and religion, and between politics and science. For example, relativistic physics were repudiated in Nazi Germany as "Jewish physics", and Lysenko's pseudoscience was elevated in the Soviet Union to the level of state scientific position, to be contradicted at one's own risk.

The Symbolic Universe guards against instability by using defense mechanisms. "Deviants" – those whose definitions of reality do not fit the Symbolic Universe – are dealt with by either inclusion or nihilation using conceptual machinery to "liquidate conceptually everything outside... the (symbolic) universe." (Berger and Luckmann 1967, 96)

Nihilation is most often used against individuals or groups that no longer belong to society which assigns them an “inferior ontological status.” This leads to a chilling conclusion: “whether one... goes on to liquidate physically what one has liquidated conceptually is a practical question of policy” (Berger and Luckmann 1966, 97). Changes in the Symbolic Universe contain the implicit threat of violence.

I believe that the current period has the hallmarks of a period of instability of the Symbolic Universe. The social and moral explanatory frameworks seem unable to provide an adequate context for the integration of events. The causal factors of the instability are the rise of (mostly right) populist politics, the advent of post-truth society, the rise of distrust in institutions, the social effects of the pandemic, the proliferation of conspiracy theories, with their ensuing effects of increased nationalism, xenophobia, fragmentation, tribalism, and increased polarization.

The “controlling idea” (Lifton 1989) of right-wing populism is not economics but identity. When identity is seen as being under attack, a psychological state of “totalism” (Lifton 1989) ensues, leading to the rigid emphasizing of differences and the diminution of perceived similarities. The language of the totalist environment is characterized by the thought-terminating cliché.

“The most far-reaching and complex of human problems are compressed into brief, highly reductive, definitive-sounding phrases, easily memorized and easily expressed. These become the start and finish of any ideological analysis.” (Lifton 1989, 429)

The “Great Replacement Theory, the “invasion” by outsiders who will “replace us” and the “destruction of our culture” by them are such thought stopping clichés. Tajfel & Turner (1986) defined social identity threat as a reaction to the perception that one’s group is evaluated negatively. Such threats induce “resentment and cognitive dissonance.” (Tajfel & Turner 1986). The unpopular immigration policies and refugee crises, the terror attacks, the economic disenfranchisement of the middle class, especially in areas subject to postindustrial desertification (Guilluy 2014) and the effects of the current pandemic have resulted in “social fragility” which generates nativism, xenophobia and racism.

The fact that we live in post-truth societies greatly facilitates the dissemination of the populist right's message. Post truth society is an almost fact free environment. In the absence of a criterion for truth, there is no moral penalty for lying. One of the effects is the defusing of the mechanisms that inhibit social behavior, namely shame and guilt. Widespread toxic shamelessness allows for the open proclaiming of blatant untruth.

A consequence of the increased use of social media is the creation of self-reinforcing targeted information, the result of the algorithms used to keep users connected. Pariser (2011) defined the "filter bubble": a personalized web search algorithm which exposes the user only to information consistent with the previous search history. In Pariser's view this makes people more vulnerable to "propaganda and manipulation" since people are iteratively subjected to information that they have selected and that they already know. In effect, it is "invisible auto-propaganda, indoctrinating us with our own ideas" (Pariser 2011). A second, psychological bubble is created by our tendency to seek out confirmation rather than information, once we decide that we are in favor of a given position. This process is iterative: the previous output-the change in attitudes and beliefs – becomes the input for the next cycle. This psychological bubble complements the filter bubble created by search algorithms: the two processes reinforce each other.

Kahan, Jenkins-Smith and Braham (2010) in their discussion of "Cultural Cognition" have identified the process of "narrative framing": "Individuals tend to assimilate information by fitting it to preexisting narrative templates or schemes that invest the information with meaning" (Kahan et al 2010, 3). This means that once one has accepted the premises of populist ideology, a permanent narrative framing bias will distort the way new facts are integrated, force-fitting them into the existing storylines. In turn, this facilitates the reinforcement of conspiracy theories.

Several mechanisms contribute to the crystallization of a self-consistent alternative worldview: confirmation bias, narrative framing, willful ignorance (Proctor 2008), crank magnetism (the tendency to hold simultaneously, without cognitive dissonance, several irrational, absurd, unrelated beliefs) obsessive apophenia (the tendency to find patterns where none exist) and collective narcissism (De Zavala 2009).

The above distortion devices allow the person to “reality shop” – to select the version of reality which confirms pre-existing biases. In addition, the emotional state of acedia (restlessness, boredom, numbing, alienation) amplified by the social isolation due to the pandemic, increased the need for subscribing to an explanatory and motivating ideology. The internal consistency of this shared reality construct is enhanced by the creation of a filter bubble, by use of cognitive framing, by modifying the internalized moral code, and by the manipulation of the collective identity and memory to reduce cognitive dissonance.

Westen *et. al* (2006) using neuroimaging compared the functioning of subjects asked to make a decision after being confronted with facts contrary to their political beliefs, and concluded that they manipulated the data in order to get a confirmation of their pre-existing beliefs rather than analyzing the facts. In addition, apophenia provides an additional impetus. The act of discovering a hidden pattern is empowering and gives those “in the know” an illusion of control and superiority. It matters little if the discovered facts are true; in a post truth society dominated by information bubbles, the emotional factor dominates. Confirmation of one’s beliefs is rewarded by the pleasure center of the brain with doses of endorphins. This is what makes apophenia addictive, and a significant factor in the development of conspiracy theories.

After being generated, the conspiracy theories are spreading similarly to an epidemic: the memes embedded in social values and in cultural messages are the equivalent of viruses, and, once received, create in the host the distorted thought patterns which form the conspiracy theory.

Crank magnetism provides an illusion of internal consistency by facilitating the merging of several unrelated conspiracy theories, and allowing people who subscribe to them to “buy in”. For example, conspiracy theories about the origins of the pandemic, anti-vaccination theories and paranoid fears about government control merge into the single theory that the virus was created on purpose by China and the vaccine is a way of spreading the disease. At the same time, Bill Gates included microchips in the vaccine, which can be activated via the G5 networks, allowing for government mind control. The degree to which our acceptance of deviancy has changed is illustrated by the fact that if someone had asserted the above theory 10 years ago, they would have been referred for a mental status examination. The same is true for the

Qanon conspiracy theory which holds that the top Democrats are cannibalistic pedophiles, killing children to extract an elixir of youth. The parallels with blood libel are obvious.

Conspiracy theories are impervious to logical or moral arguments, having become a defining factor of the identity of those who hold them. They are “corrosive facts.” A corrosive fact is not only fake. It has a destructive effect on the truth. Corrosive facts cause stress but once amalgamated into conspiracy theories, can also alleviate stress, for example by scapegoating. The facts organized in conspiracy theories play the role of myths of origin and are the basis of generating a new Collective Memory and Identity. Once the individual finds a group that shares his beliefs the process becomes irreversible. Collective Memory and Identity are consolidated by Narrative Framing, willful ignorance (Proctor 2008), Crank Magnetism, Apophenia, into a belief system similar to a religion or an ideology. An alternate reality is created. Collective Narcissism (De Zavala 2009) accentuates the polarization, increasing the distance between groups.

I believe that these conspiracy theories, which continue to proliferate, are the equivalent of “anomalies” in Kuhn’s theory of paradigm shift. An anomaly is defined as “a violation of the paradigm-induced expectations that govern normal science” (Kuhn 1970, 52-65) Conspiracy theories are also “incommensurable” (in Kuhn’s sense) with the symbolic universe, because a common frame of reference cannot exist. Their versions of reality are mutually exclusive, resulting in divergent and conflicting worldviews. The incommensurability is at the same time semantic – “(it is) possible for scientists to make and understand certain new statements *only after* a particular theory had been introduced (in the older vocabulary the new sentences are nonsensical)” (Oberheim & Hoyningen-Huene 2018, 2), taxonomical – “it only becomes possible for historians to understand certain older statements by setting aside current conceptions that otherwise cause distortion” (2018, 2) – and methodological – “there is no common measure between successive scientific theories, in the sense that theory comparison is sometimes a matter of weighing historically developing values” (2018, 2). The process is iterative: the incoming information is filtered according to pre-existing biases, pushing the system towards change. The filtering process is performed by a “Swiss Cheese Filter” (Reason 1990) as illustrated below:

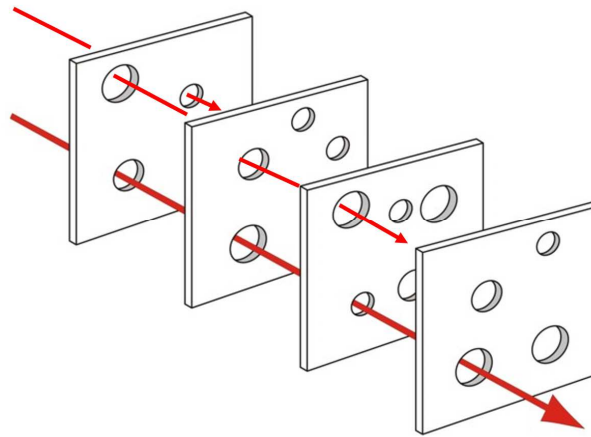


Figure 4. Swiss Cheese Filter (Reason 1990)
 Source: Swiss cheese model.svg

The holes can represent rational analysis gates or cognitive bias gates. The filter can be used to eliminate fake and corrosive facts or to eliminate facts and select fake and corrosive facts consistent with one’s biases, diminishing cognitive dissonance. In both situations, the illusion of objectivity and rationality are maintained. The cumulative effect of systematic filtering bias is shown below:

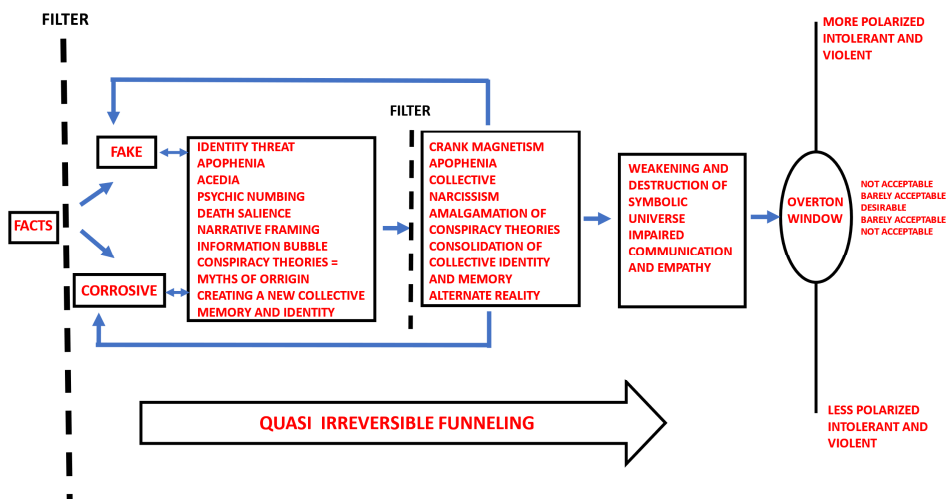


Figure 5. The cumulative effect of fake and corrosive facts

When the Symbolic Universe's maintenance mechanism such as science, theology, philosophy, become unable to provide a satisfactory explanation of the events taking place, the Symbolic Universe is forced to change. The issue we are trying to answer is whether the present trend to tribalism and fragmentation results in the de facto disintegration of the Symbolic Universe and its replacement by a vague, diffuse social media-based worldview. The acceptance of this creed/ideology implies a surrender of autonomy, similar to Milgram's (1969) "agentic state," freeing the individual from the restraints of personal responsibility. The diffuse, internet-based nature of the emerging belief system makes it accessible anywhere and facilitates acts of stochastic terrorism (Dan 2020). The social consequences of these developments are represented in *Figure 7*.

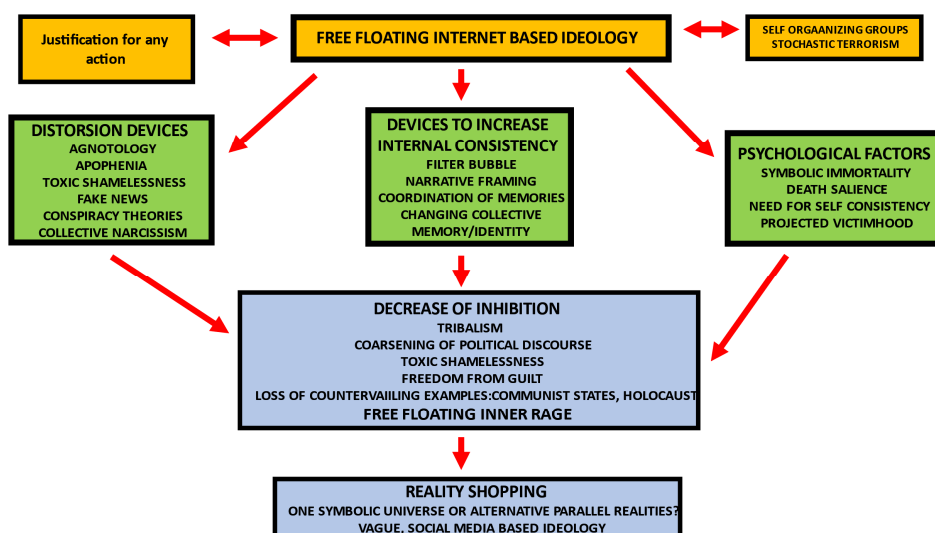


Figure 6. The decay of the Symbolic Universe

Reality shopping leads to fragmentation and the emergence of subuniverses. There is a degree of overlap with the all-encompassing Symbolic Universe in some areas (physics, chemistry, mechanics etc.) but not in areas which are important to the maintenance of each sub-universe (history, religion, morality, personal freedoms, societal restrictions).

As Michta (2017) notes, the decline of Western values is not due to the rise of an alternative civilization or to economic decline, but to “a failure to reach consensus on shared goals and interests... the problem, rather, is the West’s growing inability to agree on how it should be defined as a civilization. At the core of the deepening dysfunction in the West is the self-induced deconstruction of Western culture” (Michta 2017, 1).

Seen from a Kuhnian perspective, the deteriorating status of the present Symbolic Universe resembles an autoimmune disease. Certain universe maintenance mechanisms produce their own anomalies. The effect of the proliferation of conspiracy theories and memes on the Symbolic Universe is similar to that of infection by computer viruses. They permeate the universe’s maintenance mechanisms such as science, morality, philosophy and alter them, weakening the social contract and fraying the support structure of underlying conventions by generating radically different versions of reality which are impervious to logical arguments – in other words, incommensurable – with the prevailing one. They work by mimicking the forces of paradigm change by creating false contradictions, generating disturbances (anomalies) that imply that the present paradigm is no longer able to provide an explanation of the changes and conflicts contained within it. This results in increased fragmentation and communication difficulties. In turn, this disrupts the “partial equivalency structures” which make actions unpredictable. As the sub-universes diverge, we are living more and more in separate realities. The only question is whether an emergent Symbolic Universe will foster a new, unifying sense of community or continued fragmentation. (An illustration of this process can be found in the *Appendix*.)

I believe that using Kuhn’s concept of paradigm and his theory of paradigm shift proved useful, providing insights into the processes of the transformation and changing of the Symbolic Universe. The interactions between the paradigms of different universe maintenance mechanisms, as well as their relationship to the Symbolic Universe seems a fascinating subject which requires further analysis.

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DECLARATION OF CONFLICTING INTERESTS

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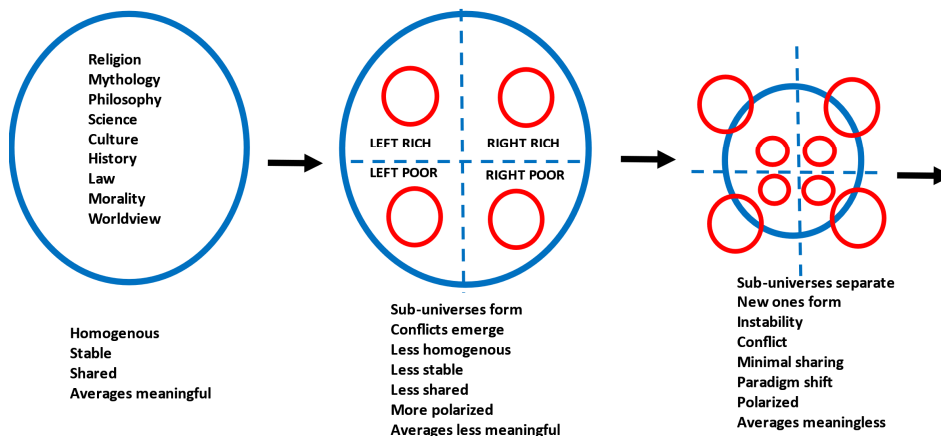
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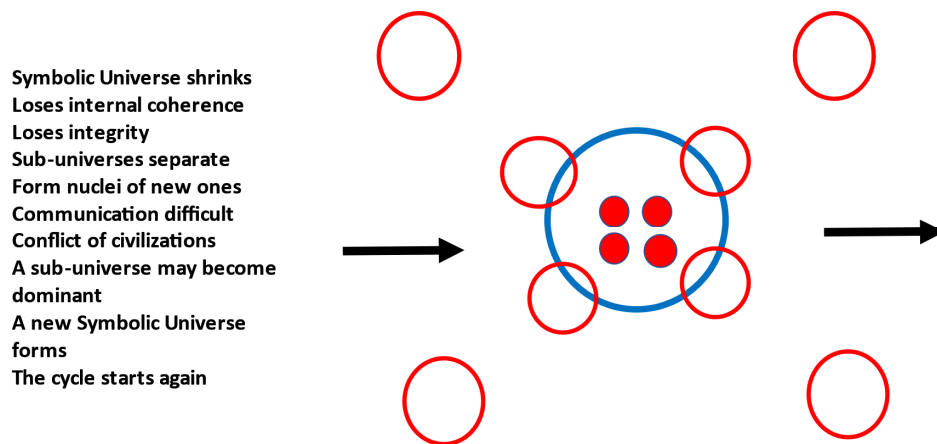
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Appendix



Figures 7 and 8. The life cycle of the Symbolic Universe (Dan 2023)



Figures 7 and 8. The life cycle of the Symbolic Universe Continued (Dan 2023)