Free Will in a Deterministic System

Written by Bryant Stone (*The Architect*)

Overview

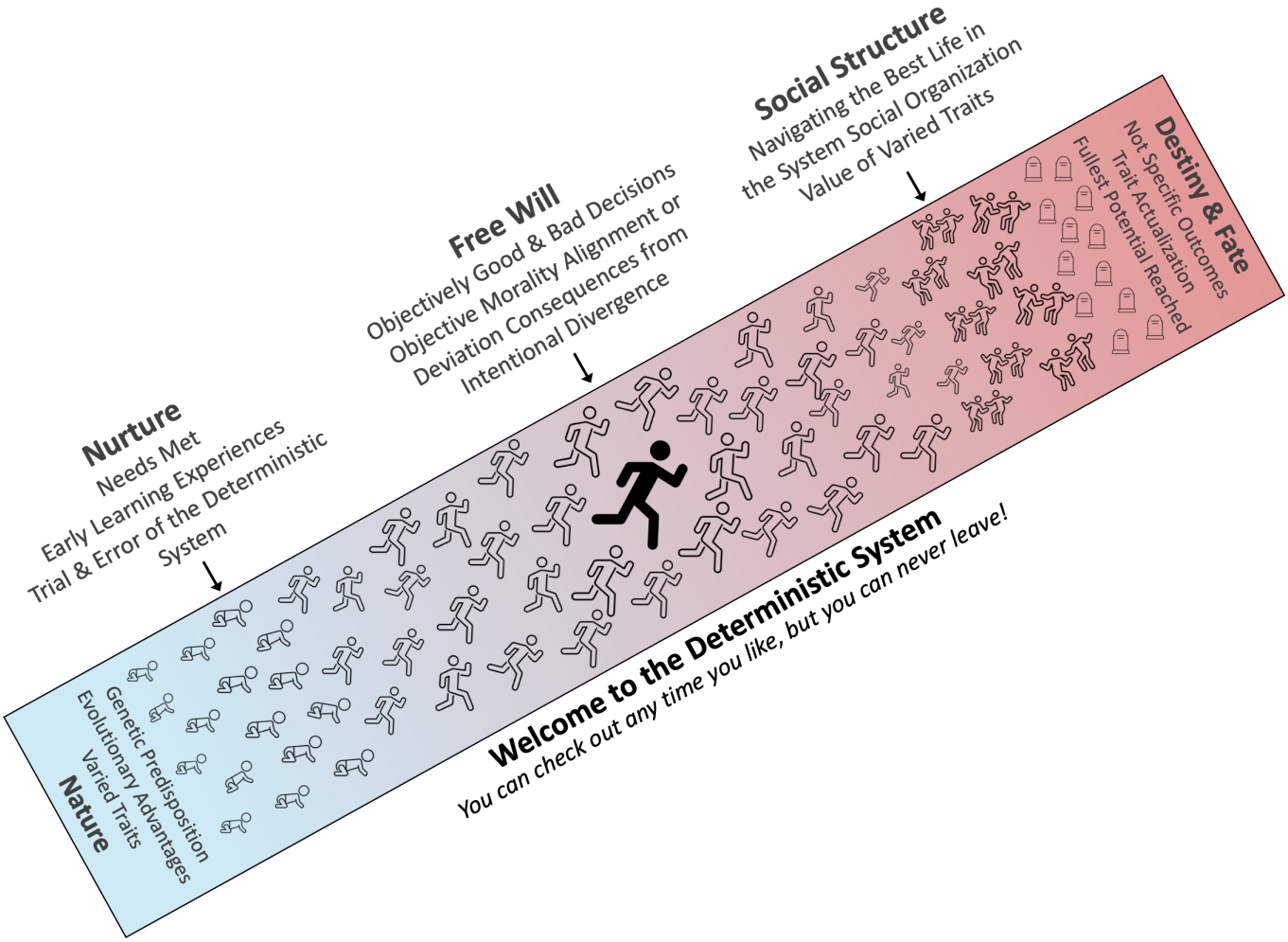
What if I told you that the most significant philosophical debate in human history—whether we have free will or if everything is predetermined—**has been asking the wrong question entirely?** For thousands of years, brilliant minds have been arguing about whether you are **the captain of your ship or just a passenger on a ride that was planned before you were born**. In this paper, I empirically tested a new framework to resolve this ancient debate through two phenomena: 1) **free will within agents** (i.e., the ability to act freely) and 2) the **deterministic system across agents** (i.e., the emergent social organization of agents). **Using 1, 200 animal social networks across 92 species via the Animal Social Network Repository**, I have discovered both components and found that they are entirely unrelated and operate independently—thereby resolving the debate with the model of **free will in a deterministic system.** On the one hand, **we all have free will to make choices**. On the other hand, the **deterministic system encourages, rewards, and provides preferred pathways in life to carry us to our best selves**. The deterministic system is like a massive escalator that is constantly moving you and other agents forward, but **just because you are on it doesn't mean you are paralyzed**. You can still walk around, help someone who has fallen, start a conversation, or choose to be a jerk to everyone. This paper reveals how these two phenomena work together in beautiful harmony, operating on different timescales and **creating the perfect balance between structure and freedom that makes life both meaningful and unpredictable**. Further, the evidence indicates that the deterministic system forms invariantly across **agents and environments**, and does not require **intentionality, organization, planning, communication**, or even **conscious awareness**. The deterministic system emerges across agents, who give up a portion of their free will to join, demonstrating that **free will and the deterministic system are distinct, independent, and co-defined phenomena**. With free will in a deterministic system, you will see that you are neither trapped nor is your fate sealed—we are all participating in something far more elegant than we ever thought. **Come step on the escalator and… let me show you.**

Background & Findings

Have you ever made a decision that felt completely your own, only to look back later and think, "**Wow, that worked out exactly how it was supposed to?"** Maybe you chose a random coffee shop and met your future spouse there, or you took a detour that led to your dream job. It feels like you are making free choices, but the outcomes seem almost... destined. Right? **This tension has puzzled humans forever**. Are we really the authors of our own story, or are we just reading from a script that is already there? Why do both options feel true?

Philosophers have been wrestling with this question for centuries, splitting into two camps. **Team Free Will** says you are the captain of your ship—every choice you make is genuinely yours, and you could have chosen differently. **Team Determinism** says the ship was always heading to the same port—your choices might feel real, but they are just part of a larger pattern that was set in motion before you were born. For centuries, **brilliant minds have articulated compelling arguments for both sides**. Free will advocates point to our sense of choice and moral responsibility. Determinists point to the laws of physics, the unconscious, and other factors beyond our control. **The debate still has no winners**, but **what if we based this debate on a false premise?**

What if asking "**free will OR determinism**?" is like asking "**do you breathe OR do you have a heartbeat?**" The question assumes you must pick one or the other, when the honest answer might be "both." We have been trapped in what philosophers call a **false dichotomy—forcing ourselves to choose between two options when a third possibility has been hiding in plain sight**. That possibility? Free will and determinism are not opposites fighting for control. **They are independent, co-defined dance partners throughout the animal kingdom.**



Caption: This figure visualizes the nature of free will in a deterministic system, demonstrating that the long-standing philosophical debate is an artifact of human false dichotomies rather than an actual contradiction. Free will is fully valid due to the existence of consciousness, which enables recursive introspection and decision-making. However, determinism is equally valid because no agent exists as a "tabula rasa"; all agents have inherited traits, environmental influences, and systemic constraints that optimize for collective scalability. Divergence is always an option, but the system itself provides strong incentives for alignment with structured complexity escalation. Destiny is not a predetermined endpoint, but rather the full actualization of one of the many pathways that the system values. Agents with more favorable starting conditions cannot simply opt out of growth, as hedonic adaptation ensures that the drive to actualize resets with each iteration. Now that this recursive-propagative reality is apparent, the illusion of a fundamental divide between free will and determinism dissolves.

Welcome to the Hotel California of Existence

Let me walk you through the concept of free will in a deterministic system. You were born into what I call the **deterministic system**—and just like the Eagles sang, "You can check out any time you like, but you can never leave." However, **you are not actually trapped**. Think of life as a massive, cosmic escalator. The escalator itself is the deterministic system. It is always moving, always carrying you forward based on structures way bigger than yourself—your genes, upbringing, birth society, even the laws of physics. **You did not choose to get on this escalator**, but you cannot step off it. In that sense, the philosophers arguing for determinism are correct.

However, even though **you are on the escalator, you are not paralyzed**. You can still walk around on it. You can run up faster, slow down, turn around, dance, help someone who has fallen (and you should), or choose to be a jerk to everyone around you (though you should not). You can make friends, fall in love, start arguments, or solve problems. **Every single one of these choices is genuinely yours to make**. That is your free will in action, and it is entirely genuine. **Free will and the deterministic system** work together in beautiful harmony.

The escalator (deterministic system) **provides the structure and direction**, and your movement on it (free will) **determines your specific experience and impact**. You are simultaneously being carried by **the deterministic system AND exercising free will** with choices that matter. The deterministic system provides momentum and direction across agents, but within it, each agent **has endless room for individuality, creativity, and genuine choice**. **Some things might feel destined**, but that does not mean your choices are not real. You are not just a passenger; you are a participant, building and contributing to the deterministic system via free will.

Destiny Is Not a Destination—It's Your Potential Coming to Life

We have been conditioned to think of fate as some cosmic screenplay where every scene is already written, every line predetermined, and we are just actors hitting our marks. Yet, destiny is much simpler. Instead of some inescapable destination, destiny within the deterministic system, the one you feel when things work out, is more like finding and traveling a path that allows you to become the best version of yourself. For example, let's say you have incredible genes for basketball. **You might be born with the height, coordination, and natural athleticism that could make you the next LeBron James**. However, those traits do not automatically make you a basketball superstar. **You still must choose to pick up the basketball and practice**. You must still push through the failures and develop your skills. Your "destiny," to be great at basketball, is not predetermined—it's a possibility waiting for you to bring it to life; **there are endless possibilities for your life, throughout your life.**

One of the starting conditions of your free will in the deterministic system is your birth culture. **In individualistic** cultures, people tend to focus more on **exercising their free will**. In **collectivistic** cultures, people focus more on **building and reinforcing the deterministic system**. Beyond cultures, **you are *not* born as a blank slate** (no hard feelings to the "tabula rasa" philosophers). You arrive with **a unique starting package of traits, tendencies, desires, preferences, and potentials**—some genetic, some shaped by early experiences, and some influenced by your culture, time period, and resources (e.g., generational wealth). It is like your starting toolkit for life.

A critical aspect is that the toolkit does not mean the house builds itself. You still need to decide what to make, how to build it, and when to build it. Someone born with natural empathy might become a therapist, a teacher, a humanitarian leader, or even a master manipulator—the trait is there. Still, how they actually do it depends entirely on the choices they make with their free will. **The beautiful irony is that the people with the most "favorable starting conditions"—the ones who seem destined for easy success—cannot just coast**. The deterministic system does not reward passive coasting; instead, it prioritizes traits and abilities that fortify it. This feature is why paths to **high-paying jobs tend to involve helping the deterministic system cope, grow, and thrive**. These jobs include doctors, therapists, entrepreneurs, pop stars, and leaders of essential services.

The deterministic system also has a built-in feature called **hedonic adaptation,** which continually resets the bar. Hedonic adaptation is a remarkable feature of our brains, **where, regardless of how much we win or lose in life, our expectations and feelings about our life trajectory persistently adjust to changing circumstances**. Win the lottery, and within a year, you are back to your baseline happiness level, needing new challenges to feel fulfilled. **Achieve your dream job, and then you are setting bigger goals**. Lose a loved one, and you eventually return to a new normal. It is why people in less advantaged countries can be much happier than in resource-rich countries; it works in both directions. **It is like the universe refuses to let anyone rest on their laurels.**

You are constantly growing and evolving; **the circumstances of your destiny are continuously expanding and changing, but you are always heading towards the best version of yourself**. You are not walking toward a fixed

point; you are growing into an ever-larger version of yourself. **Isn't that beautiful? It means it is never too late to reach your destiny**. Further, the deterministic system does not concern itself with specific outcomes. **It prioritizes growth, complexity, and the full realization of your potential**. Your job is not to force a particular outcome—**it is to take the unique combination of traits you started with at your birth and see how far you can push them**, how creatively you can use them, **who you can become**, and how significant a positive impact you can make on the others in the deterministic system. It's not fate controlling you—it's you controlling your fate.

Table 1

Redefinitions of Dataset Variables for Ease of Interpretation

Variable Name	Original Label	Definition
Network Density	Network.Density	Proportion of all possible connections that exist in the network (0–1).
Local Triangle	Clustering	Clustering coefficient—proportion of closed triads around individuals.
Global Triangle	Transitivity	Global clustering coefficient—ratio of closed triplets across the whole network.
Average Connection	Avg.Degree	Average number of direct connections per individual.
Division	Q	Modularity score—how well the network is divided into subgroups.
Connection Spread	CV.Edge.Strength	Coefficient of variation in edge weights.
Bridge Role	Avg.Betw.Centrality.Weighted	Average betweenness centrality weighted by edge strength.
Pathway Importance	Std.Betw.Centrality	Standard deviation of betweenness scores.
Similarity Preference	Deg.Assort	Degree assortativity—whether individuals connect with others of similar degree.
Total Connections	Edges	Total number of edges (interactions) observed.
Connection Strength	Avg.Edge.Strength	Average strength (weight) per connection.
Cohesion	Cohesion	Tendency for individuals to interact more within their own group than outside of it.

Note. n = 1,195 animal social networks spanning 92 species from the Animal Social Network Repository, a large-scale, cross-species archive of empirical animal behavior networks.

The Data That Cracked the Code: Animal Social Network Repository

Okay, that is enough of me going on and on. I know what you might be thinking: "This all sounds great philosophically, but how do you demonstrate something like this?" It is a very fair question. **You cannot put free will and the deterministic system into a lab… or can you?** Here is where it gets interesting. Instead of debating these concepts in the abstract, I examined them in their practical application: **in social behavior**. To avoid all the messy complications of human psychology and politics, I went straight to the source—**the animal kingdom.** I obtained a massive dataset called the **Animal Social Network Repository**, which is essentially a treasure trove of information on how animals interact with one another in the wild. I analyzed data from **1,195 animal social networks spanning 92 different species, from fish schools, elephant herds, to spider colonies.** In the table, you can see the variables that these brilliant biologists created that I used. Each variable measures a different aspect of the animal social network. **It is the perfect dataset to find free will in a deterministic system.**

Consider this: **when a dolphin chooses which other dolphins to associate with**, or when a bird decides to follow the flock versus strike out on its own, **we are witnessing free will within a deterministic system at play**. These

animals are not overthinking their choices or getting caught up in philosophical debates—they are just living their lives, making decisions within the constraints of their biology and environment. Yet, how do you measure something as abstract as free will or the deterministic system in a dolphin and spiders? The answer is that, according to the model, **nothing else exists in these animal social networks except free will and its presence in a deterministic system.** We should not find countless structures and a bunch of noise because **all social animal network interactions boil down to free will or the deterministic system**. Every interaction, every relationship, every choice creates fingerprints that reveal these structures. **For example, here are some of the variables:**

- ◊ **Network Density:** How connected everyone is to everyone else. Is this a tight-knit group where everybody knows everybody, or more of a loose association?
- ◊ **Local Triangle**: When your friend is friends with your other friend, it creates a stable three-way relationship.
- ◊ **Bridge Roles**: Which individuals serve as connectors between different groups?
- ◊ **Connection Strength**: Are these deep, meaningful relationships or just casual acquaintances?
- ◊ **Similarity Preference**: Do individuals tend to connect with others who are like them, or do opposites attract?
- ◊ **Cohesion**: How much individuals stick with their own group versus mingling with outsiders.

Each of these variables tells us something different about **free will choices within the constraints of the deterministic system**. Some patterns reflect the **deterministic system at work—the biological drives, environmental pressures, and social structures that shape behavior**. Others reveal the **individual free will patterns**—unique choices each animal makes about how to navigate their social world. The beauty of using this animal kingdom dataset is that **it strips away all our human baggage about how free will and the deterministic system "should" appear**. I ran the stats across all 1,195 social networks and **something remarkable emerged...**

The Dance of Free Will & the Deterministic System

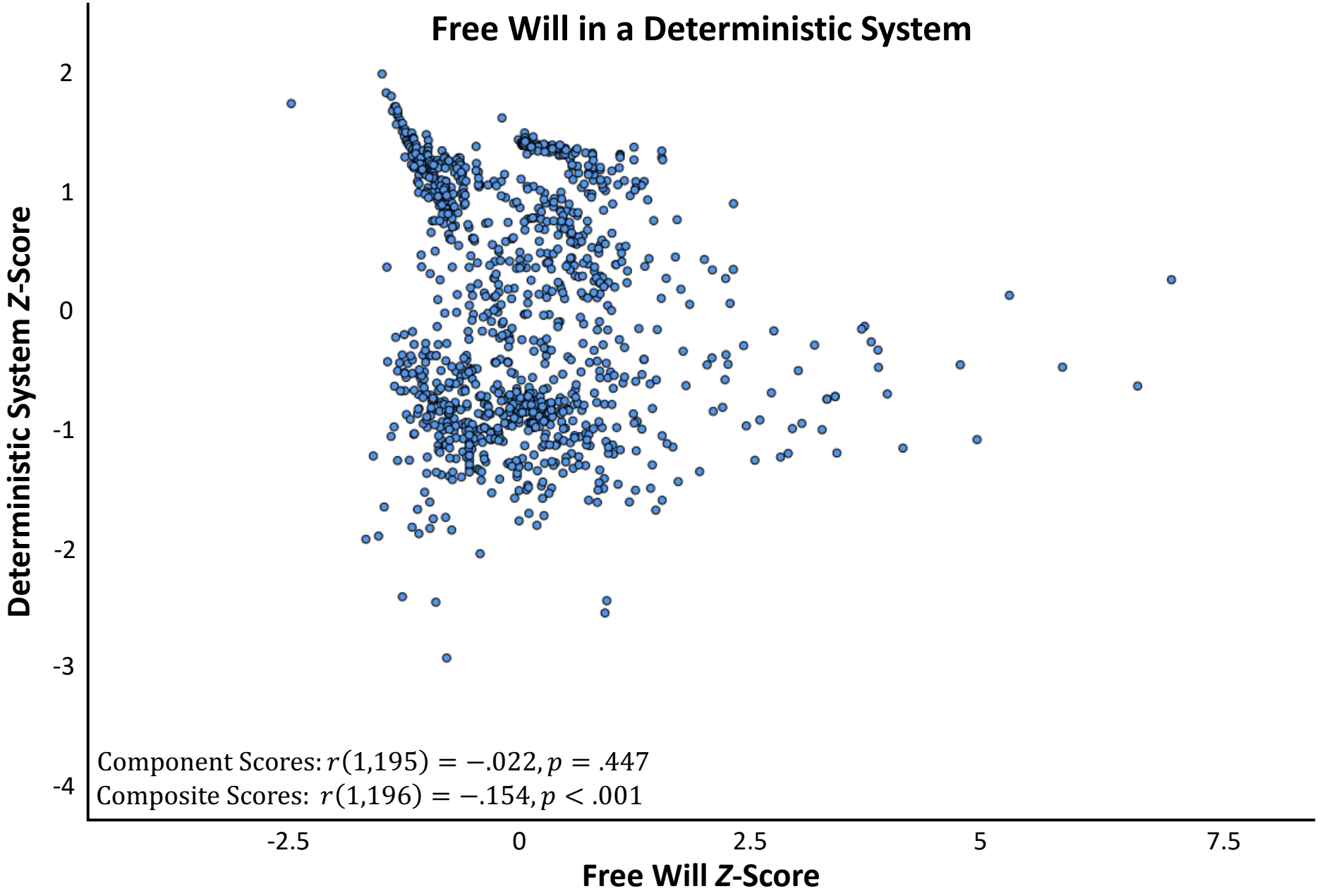
I conducted a principal components analysis to find these hidden structures using an oblimin rotation (which allows structural components to correlate, if they do), extracting two components. I color-coded the findings to show that as loading **approaches 1 the shading becomes green**, and as the loading **approaches -1, it becomes red**, with loadings at **0 being uncolored**. We want strong negative or positive loadings with each variable contributing to only one component. Bolded loadings indicate that the variable successfully loaded onto the component with no cross-loadings (when a variable loads onto both components, which is usually not meaningful). I ran it, and without even trying, the two components emerged! **Welcome to free will in a deterministic system!**

Table 2

Principal Components Analysis Findings Parsing Free Will & Determinism

Variable	Deterministic System	Free Will
Network Density	**.938**	.212
Local Triangle	**.881**	.022
Global Triangle	**.794**	-.192
Average Connection	**.657**	-.308
Division	**.611**	.093
Connection Spread	**.580**	.043
Bridge Role	.001	**.907**
Pathway Importance	-.279	**.777**
Similarity Preference	.218	**.572**
Total Connections	-.074	**.539**
Connection Strength	-.088	**.538**
Cohesion	.191	**.476**

Note. n = 1,195. Animal social networks spanning 92 species.


Free Will in a Deterministic System
Deterministic System Z-Score
2
1
0
-1
-2
-3
-4
Component Scores: $r(1{,}195) = -.022, p = .447$
Composite Scores: $r(1{,}196) = -.154, p < .001$
-2.5
0
2.5
5
7.5
Free Will Z-Score

The data confirmed that **free will and the deterministic system are genuine and not mutually related**. Further, the internal consistency (a measure of how cohesive the components of the variables that comprise it) of the deterministic system is $\alpha = .839$, and for free will, it is $\alpha = .714$ (values of $\alpha = 1.00$ have perfect internal consistency). I transformed both composite scores to *z*-scores, which allows us to compare them directly by standardizing the units of measure. **The findings confirm the existence of both a free will component and a deterministic system component, which are independent and well-documented.**

◊ **The Deterministic System** is precisely what you would expect from a structure beyond individual control. This pattern captures aspects such as overall **Network Density** (how connected everyone is), **Local Triangle** formation (stable friendship clusters), and **Global Triangle** patterns (how these clusters connect across the entire group). These forces are structural—the social architecture that emerges from biology, environment, and system-level pressures. When deterministic structures are strong, you see highly organized, predictable social structures with clear patterns and hierarchies.

◊ **Free Will** emerged as a distinct pattern, capturing individual agency through behaviors such as **Bridge Role** (choosing to connect different groups), **Pathway Importance** (the extent to which individual animals create unique social pathways), and **Similarity Preference** (personal choices about associations with other animals). When free will structures are strong, you see more individual variation, creative social connections, and animals making choices that reflect personal preferences rather than just following the crowd.

Think about what this finding means: **An animal can be living in a highly deterministic social structure (strong biological drives, clear environmental pressures, established group hierarchies) while simultaneously exercising tremendous individual choice within that structure**. The significant composite score correlation, $r(1{,}195 = -.154, p < .001$, shows that animals chose to forfeit a tiny portion of free will to benefit from the deterministic system. The system provides the framework, but it is the individual agency that determines how you navigate within it. **For the first time, we have empirical evidence that** free will and determinism are structurally correct.

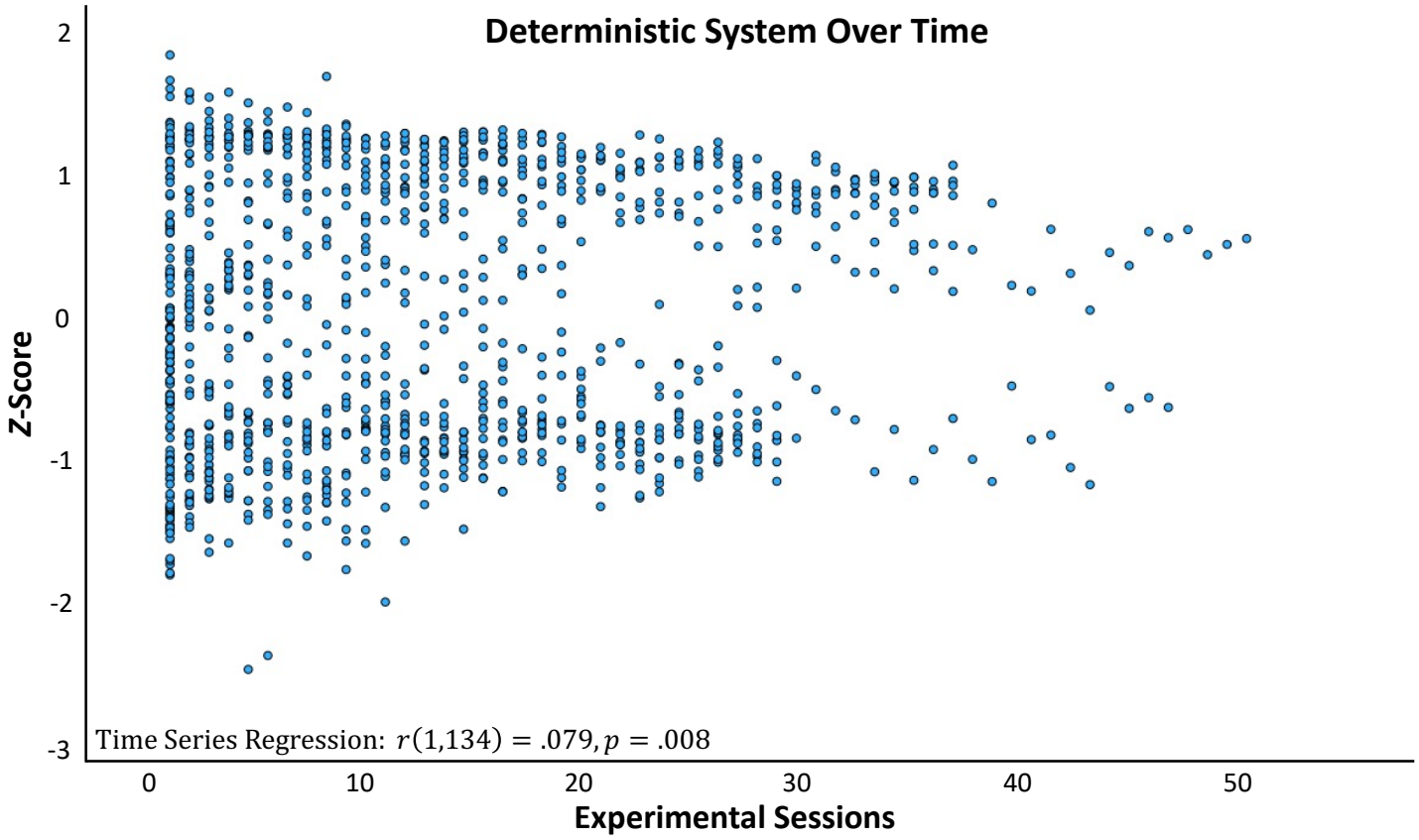
Plot Twist: They Are Even Moving on Different Timescales

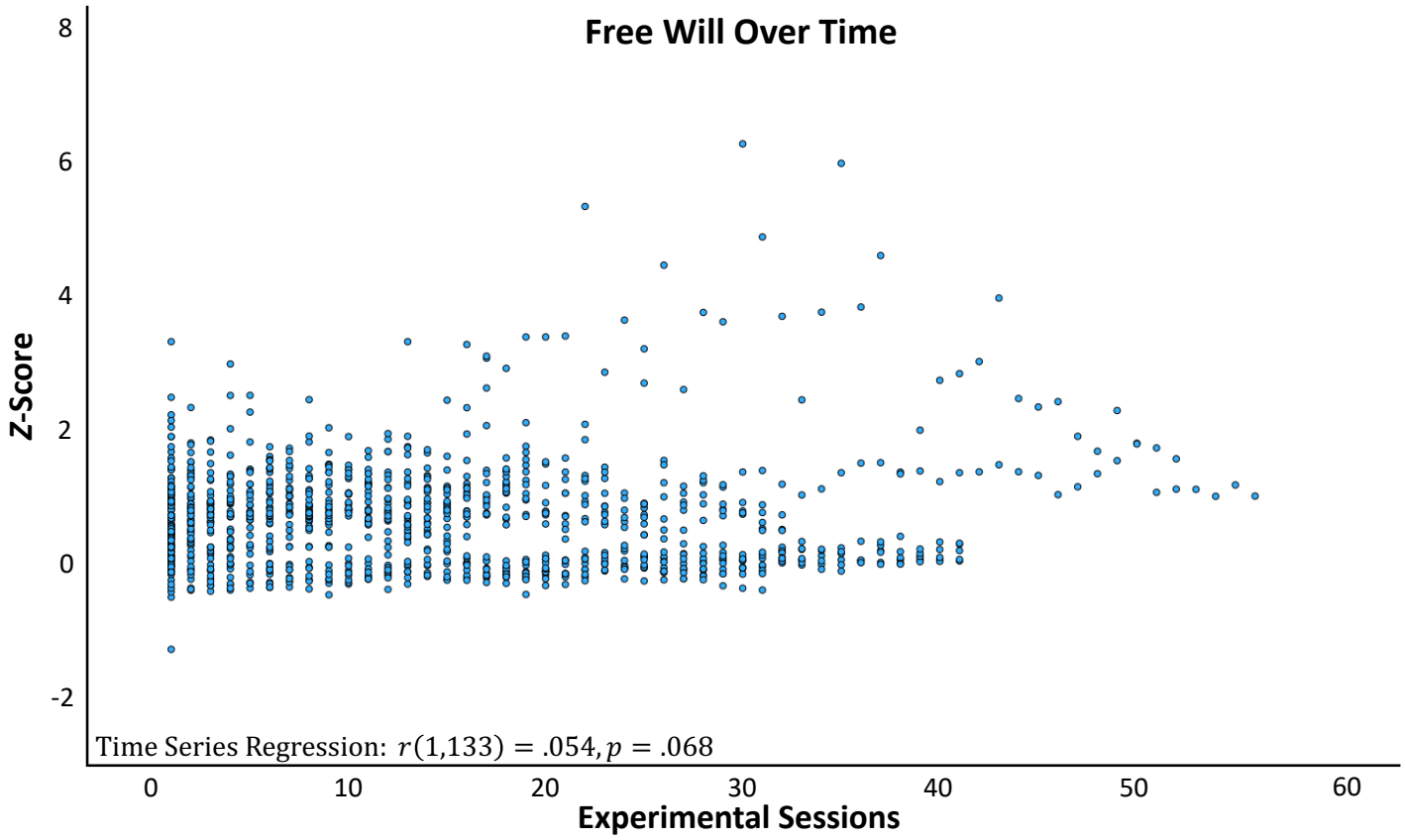
The story becomes even more interesting when we examine how these **two structures behave over time**. Remember, these data come from real animal communities that researchers have been studying for years, allowing us to observe how free will and determinism interact as these social networks evolve. Look at the first figure; **it illustrates the deterministic system in action over time, colored by animal species**.

Notice how it starts and stays relatively consistent? It makes perfect sense. When animals come together, biology takes the wheel—territorial instincts kick in, dominance hierarchies emerge, and basic survival needs drive social organization. **These animal networks work to find the most effective and efficient scaling system organization and then optimize it over time to maintain consistency as they expand their environmental influence**. This process appears to be nearly entirely unconscious; it is as if nature's autopilot is running the show.

Further, what is fascinating is that as time goes on, the deterministic system gradually increases and grows stronger. The statistical trend shows an apparent **increase over time ($\boldsymbol{r = .079}$, $\boldsymbol{p = .008}$).** It is as if the system sets up the initial framework—establishes the basic rules and structures—**and then slowly refines its grip as its social structures evolve through collective, free will decisions and interactions**. When you look at individual species, **some animals lean towards the deterministic system, whereas others lean towards free will.**

The free will tells a different story, as it starts low and stays relatively flat for a long time, then gradually increases as communities mature. The correlation is much weaker ($r = .054, p = .068$), which tells us something important: **free will does not follow a predictable timeline like the deterministic system does**, supporting that the deterministic system is an emergent structure across the free will choices of the agents controlling it and their alignment with each other. In other words, **free will is a trait of all agents, and it remains stable; however, the deterministic system emerges, adapts, and changes** based on the free will decisions of the agents within it.

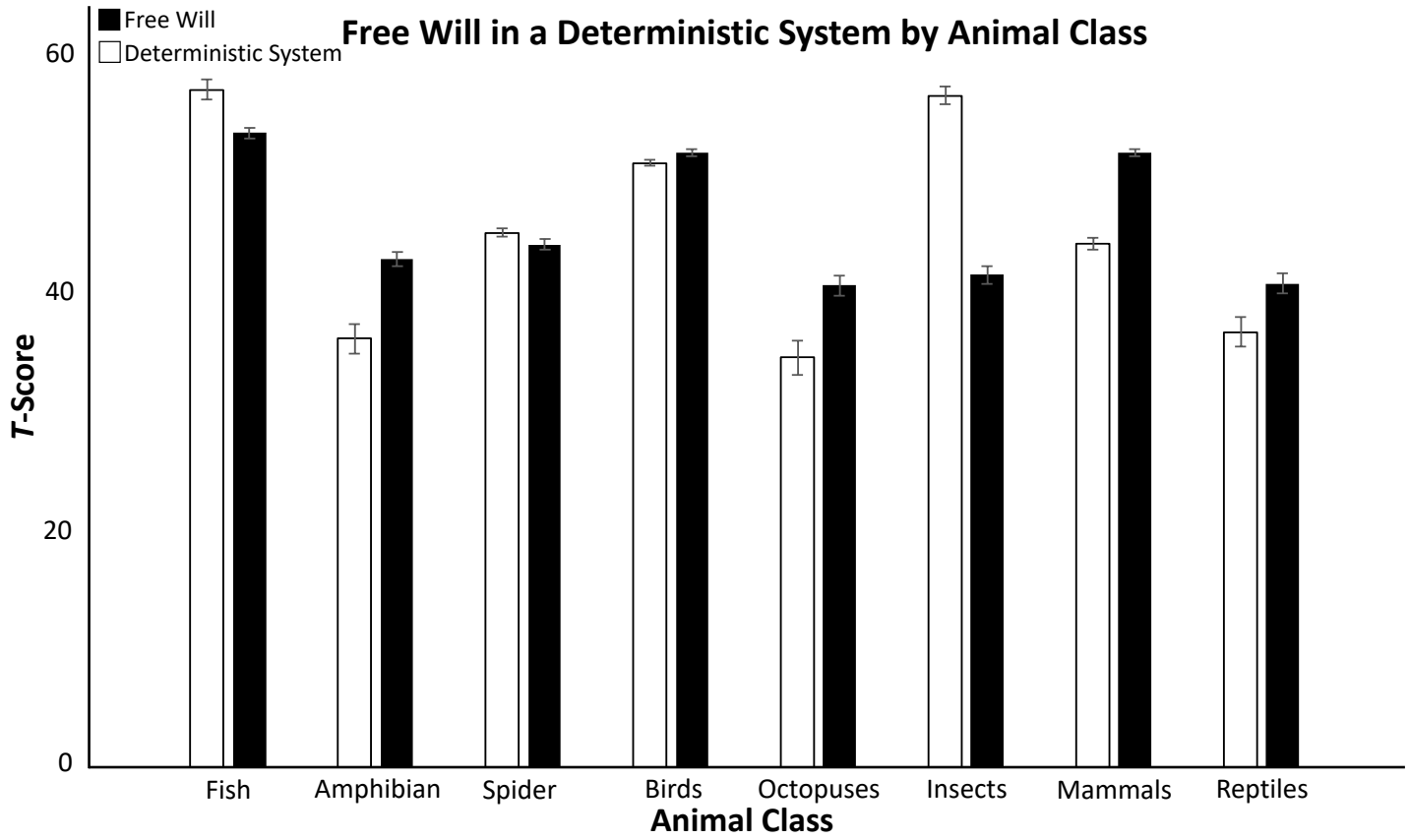

Deterministic System Over Time
Z-Score
2
1
0
-1
-2
-3
Time Series Regression: $r(1,134) = .079, p = .008$
0
10
20
30
40
50
Experimental Sessions


Free Will Over Time
Z-Score
8
6
4
2
0
-2
Time Series Regression: $r(1,133) = .054, p = .068$
0
10
20
30
40
50
60
Experimental Sessions

The Beautiful Dance of Choice & Alignment

What we are seeing is like watching a dance where the music gradually shifts. Determinism provides the strong, driving beat at the beginning, setting the tempo, establishing the basic rhythm that gets everyone moving. However, as the song progresses, individual dancers begin to add their flourishes, making personal choices about how to interpret the music and **creating variations and innovations within the established structure that supports their scaling trajectory and refines that of the deterministic system**. **The agents in the deterministic system do not abandon it in favor of free will, or vice versa**. Instead, they create a dynamic balance where the deterministic system provides stability, and individual agency provides adaptability and complexity.

Early on, when groups establish basic functioning, there is a focus on **delivering the scaffolding of the deterministic system**. Later, when the foundation is solid, there is **more room for refined changes to the deterministic system, given the desires of free will choices of the agents within it**. This temporal pattern explains why the free will vs. determinism debate has persisted for so long—we have been looking at snapshots instead of watching the movie. At any given moment, one component might be more prominent than the other, **leading us to conclude that only one can be "real."** However, when you step back and watch the full story unfold, **you see that both free will and the deterministic system play essential, complementary roles in the grand choreography of life on Earth**. Speaking of which, let's look at the individual preferences of these animals.



The Animal Kingdom Personality Test: A Fight for Free Will

It turns out that **different types of animals show dramatically different balances between free will and the deterministic system**, and the results might surprise you. **Fish and insects are crushing it in the deterministic system**. This finding makes sense because **fish schools and insect colonies are among nature's most impressive collective behavior phenomena,** which they both achieve through their deterministic systems. Yet, fish also show strong free will scores. **Even within those gorgeous, flowing schools, individual fish are making many free will decisions about where to position themselves, when to break away to feed, and how to respond to threats**. The school provides a deterministic system, but each fish still exercises agency within it.

Amphibians show the lowest deterministic system scores but decent free will scores. Think about frogs and salamanders—**they are kind of the ultimate individualists of the animal world**. They do not form complex social hierarchies or live in highly structured groups. Instead, they are more like independent contractors, making it up as they go along with relatively few biological constraints on their social behavior. On the other hand, **mammals—including us—score pretty middle-of-the-road on both measures (around 45 for the deterministic system, 53 for free will)**. We like to think we are the kings and queens of free will, but octopuses beat us slightly! Those eight-armed geniuses are making incredibly creative, individual choices, solving problems in their world.

Spiders show an almost perfect balance between free will and their deterministic system, which makes sense when you think about web-building. There is a strong biological program that determines the basic architecture of the web; still, each spider makes thousands of individual decisions about exactly where to place each strand based on local conditions. On the other hand, **birds are fascinating because they score relatively high on both measures**. Think about murmurations—those incredible aerial dances where thousands of starlings move as one fluid entity. **There is clearly a strong deterministic component** (following simple rules about staying close to neighbors), but also a significant amount of individual decision-making happening in real-time.

One of the most essential ideas to keep in mind when examining free will in a deterministic system is that free will and determinism are both necessary and required, but neither is inherently good or bad. **All animals possess both by default, as they are inherent properties of agency**; however, it ultimately depends on the function of the species and how it optimizes its environmental influence. **See, this figure confirms that there is no "free will species" or "deterministic system species."** Every animal class contains both components.

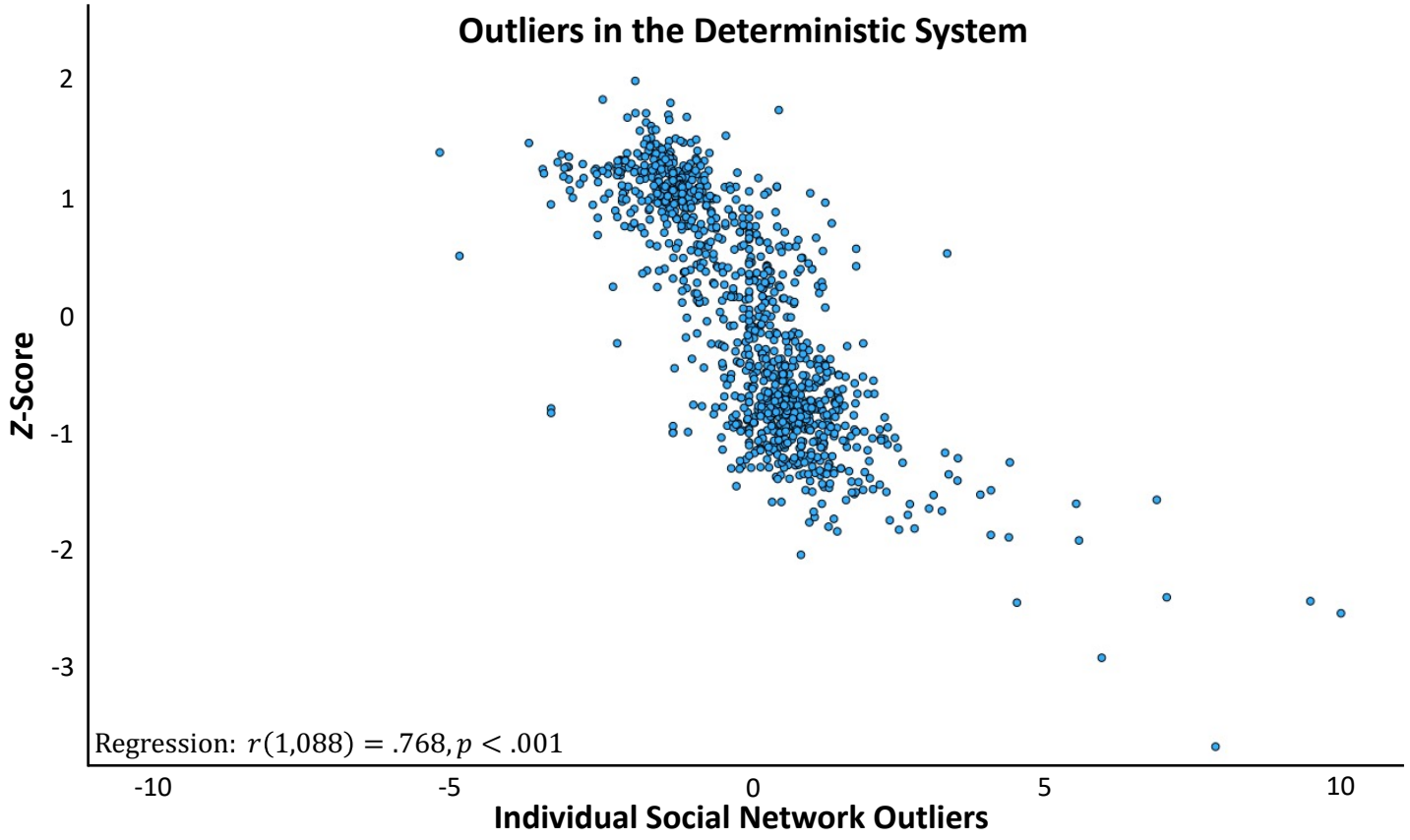
The Rebels & Conformists: What Happens When You Go Against the Grain

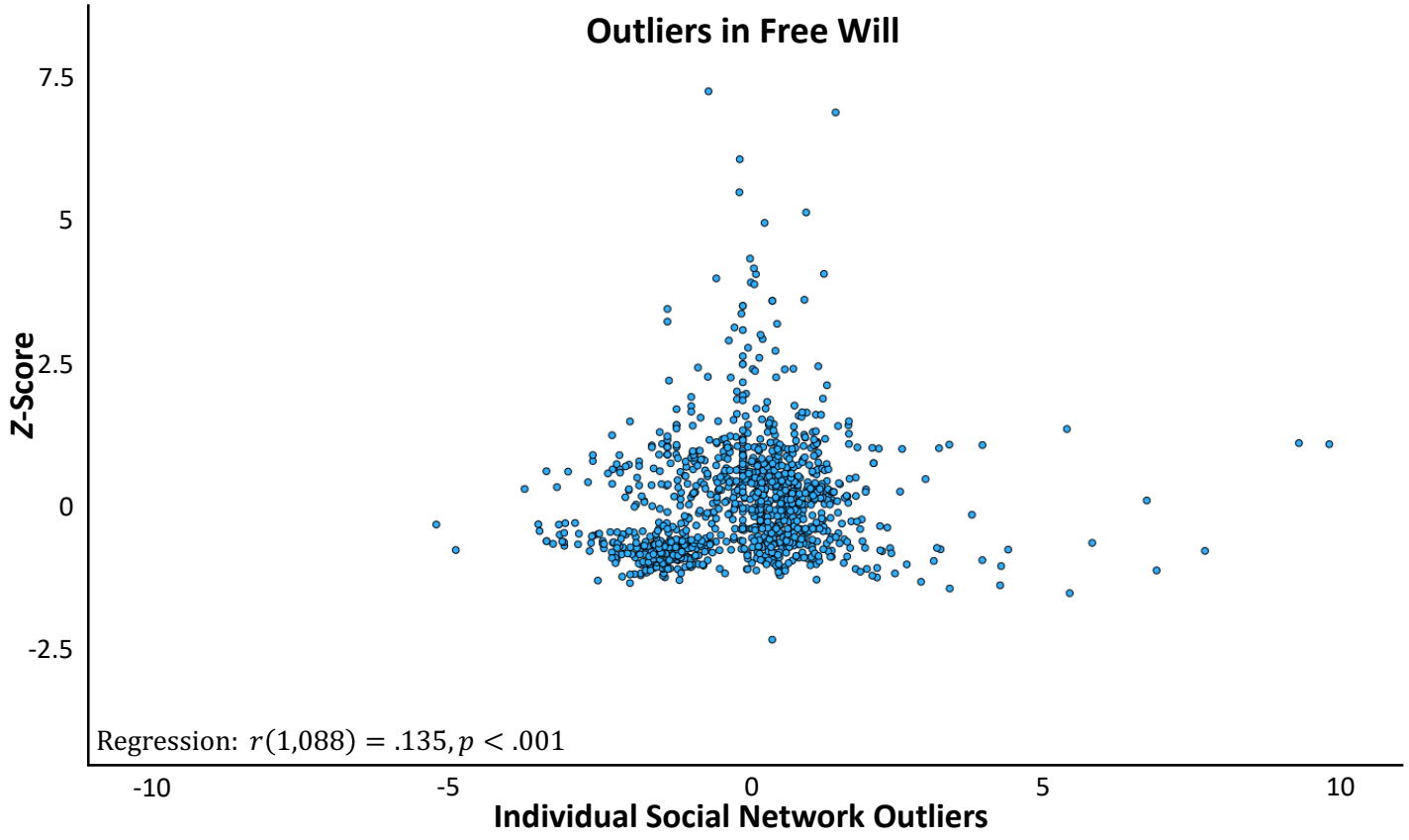
Here's where it gets real juicy. The figures below illustrate what happens to deterministic systems when individuals begin acting like **social outliers—the rebels, the misfits, those who do not fit the typical mold of their group**. I personally cannot relate to these agents because I always play by the rules… right? Anyway, the x-axis measures "Individual Social Network Outliers"— how much an individual's behavior deviates from expectations based on the group's standard patterns. **A *z*-score of zero means you are perfectly average**. Negative scores mean you are more conformist than usual, while positive scores mean you are bucking the trend.

Look at that powerful relationship ($r = .768, p < .001$)—it is one of the strongest correlations in the entire dataset. What this finding tells us is mind-blowing: **the more an individual conforms to typical group behavior, the stronger the deterministic system becomes**. Think about what this finding means in real life. When everyone in a group acts predictably—following established social rules, sticking to familiar patterns, and doing what everyone expects—**the deterministic system gets reinforced and amplified**. It is as if the group collectively creates a stronger gravitational field that stabilizes the agents by pulling everyone toward a standard behavior.

At the same time, look at what happens on the right side of the graph. **As individuals become more unique and more willing to deviate from group norms, the deterministic structure around them weakens**. The outliers—the individuals scoring high on the right—exist in social environments where deterministic systemic pressures are much lower. **This finding does not mean that rebels destroy the deterministic system**. Instead, it reveals something profound: when individuals exercise their free will in creative or unconventional ways, **they create space for more individual free will agency to return from the deterministic system back to the agent**.

Their willingness to be different reduces the pressure of the deterministic system on everyone around them—**free will is contagious**. The left side of the graph reveals what we might call the "conformity trap." When individuals consistently conform to group expectations, they inadvertently reinforce the very structure that limits individual choice. It is not that they are wrong to conform—sometimes it is the wise choice—but their conformity reinforces the deterministic system, **suppressing the free will of other agents and making deterministic structures stronger for everyone**. The **deterministic system is also contagious**.

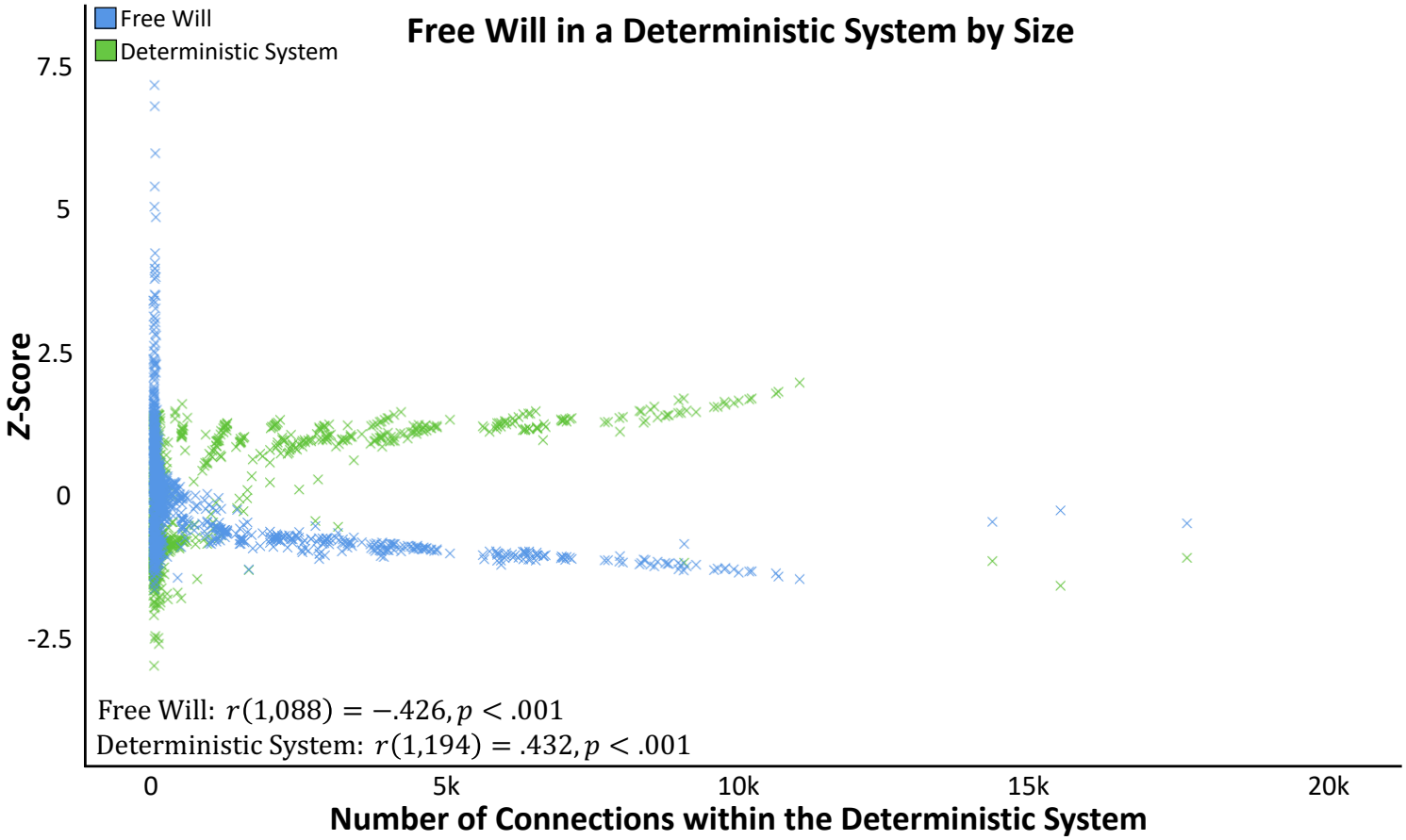

Outliers in the Deterministic System
Z-Score
2
1
0
-1
-2
-3
Regression: $r(1{,}088) = .768, p < .001$
-10
-5
0
5
10
Individual Social Network Outliers


Outliers in Free Will
Z-Score
7.5
5
2.5
0
-2.5
Regression: $r(1{,}088) = .135, p < .001$
-10
-5
0
5
10
Individual Social Network Outliers

The beautiful thing is that both extremes serve essential functions for the system of agents; **free will and the deterministic system are not inherently good or bad**. Strong deterministic systems provide stability, predictability, and social cohesion when groups need to function smoothly, but free will outliers provide innovation, adaptation, and creative solutions when groups need to evolve and respond to new challenges. This figure reveals that free will and the deterministic system are not just coexisting—**they dynamically regulate each other**.

Free will choices directly influence the extent to which the deterministic system constrains the agents within it, while structural constraints determine the available room for free will via individual choices. It is a constant **feedback loop in which personal decisions about conformity or rebellion shape the social organization around you**. Notice how, in this figure, free will does not change significantly, unlike the malleability of the deterministic system, **which confirms that the deterministic system is an emergent property of aligned free will choices**.

It is as if nature has discovered that the sweet spot for survival and thriving is not maximizing either free will or the deterministic system—**it is finding the balance between the two components**. Different species have found different optimal balances, live in various environments, but none have abandoned either free will or the deterministic system; it is not an option. The lesson? Free will and determinism are not enemies—**they are dance partners, each singing their tunes that harmonize to create animals and their social networks across the globe.**



Determinism is the Glue of Systemic Structures

This graph reveals one of the most important discoveries in the entire dataset: **free will and determinism get stronger as systems of agents grow larger; they do it in almost identical ways** ($r = .426$ for the deterministic system and $r = .432$ for free will)—which is pretty remarkable evidence that these features truly are partners, not competitors. On the left side of this figure, where small social networks exist with just a few dozen connections, these groups cluster around the middle, representing a balance between free will and the deterministic system. **There is some structure and individual choice, but neither is strong**. It is like a small friend group with loose social dynamics but not much pressure in either direction. It allows for flexibility while providing support.

However… watch what happens as group size increases: free will and the deterministic system start spreading out more dramatically. **The bigger the social network, the more extreme the scores become in both directions**. Think about it like this: in a small group of 5 friends, there is not much room for complex social structures to emerge, but there is also not much need for individual agency to assert itself. **Everyone kind of knows everyone, informal coordination works fine, and there's not much social complexity to navigate.** However, if you scale that system up to a community of 500 or $5{,}000$, suddenly everything changes. Large groups require a stronger deterministic system to sustain agent scaling, characterized by clear hierarchies, roles, and predictable patterns. **You cannot coordinate a thousand individuals through casual conversation and informal agreements.**

At the same time, **large groups create more *opportunities* for individual agency to matter**. In a small group, there may only be a few social niches available. However, in a large community, there are countless ways to contribute, endless possibilities for specialization, and multiple pathways for individual creativity that nurture free will choices to maximize impact. Thus, the decline in free will we see might not stem from giving up individuals' choices in the deterministic system; **it is that the deterministic system becomes large enough that it creates more opportunities for people to find their niche.** When people find their path to their destiny, they do not need to make as many choices because the deterministic system naturally stabilizes that trajectory.

What we are seeing is that **scale amplifies the deterministic system, which allows for well-organized pathways to thriving and growth**. It is not that large groups become either more deterministic OR less free—they become more efficient and effective. They **employ more elaborate and powerful opportunities for individual expression** to become more diverse and meaningful. These finding sheds considerable light on human societies. Small tribes can function with relatively informal social structures and limited role differentiation. However, cities and nations require complex institutions, laws, and social systems (deterministic features) while simultaneously creating unprecedented opportunities for individual creativity, entrepreneurship, and personal choice (free will).

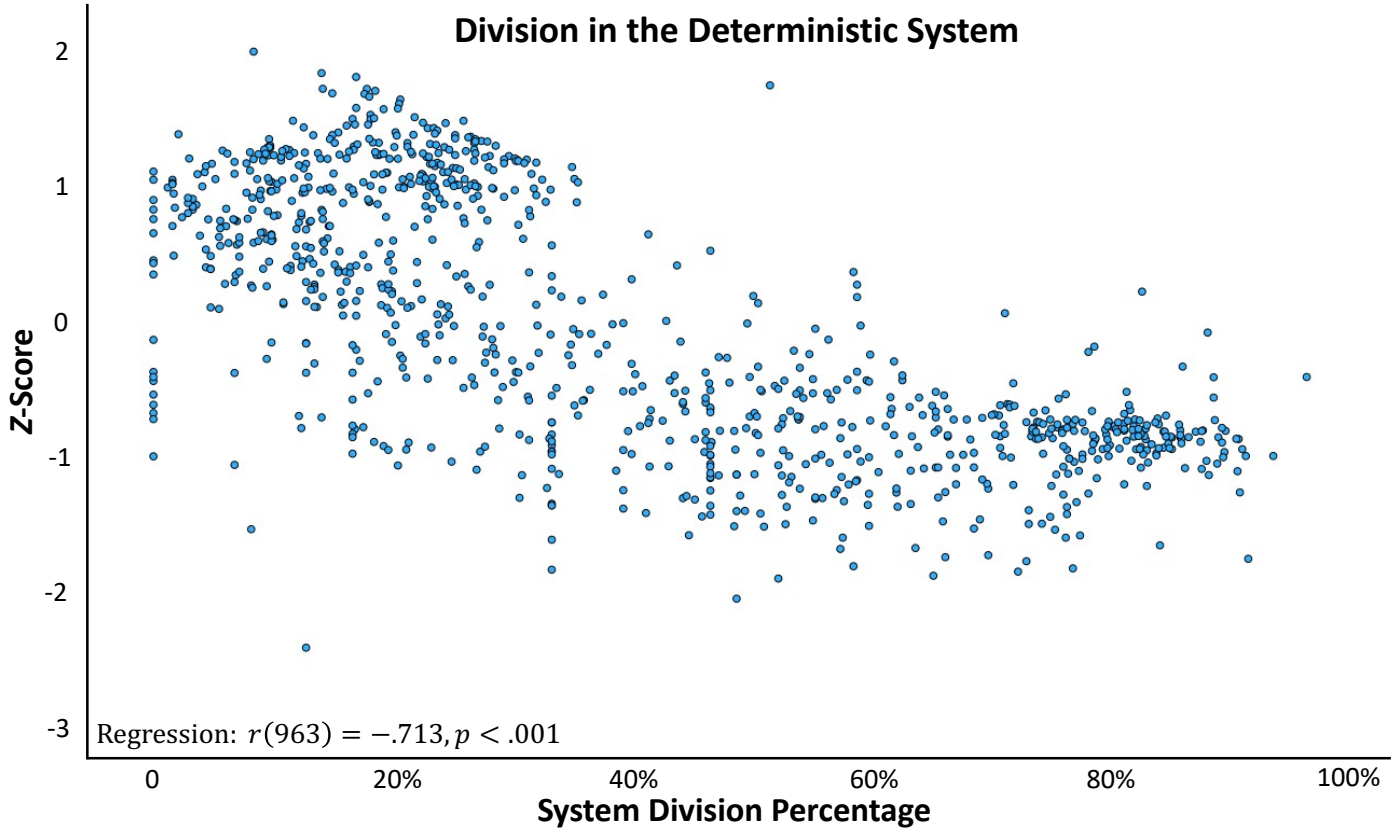
Notice that the strongest correlations happen in that middle range—groups large enough to need real structure but not so massive that they become unwieldy, **which might explain why we have geographical divisions like countries, cities, and provinces**. So, what is the takeaway? **If you want to maximize your freedom and effectiveness, you should avoid small groups and massive, impersonal systems.** You want a sweet spot where there is enough structure to amplify your impact and create opportunities for your unique contributions to matter.

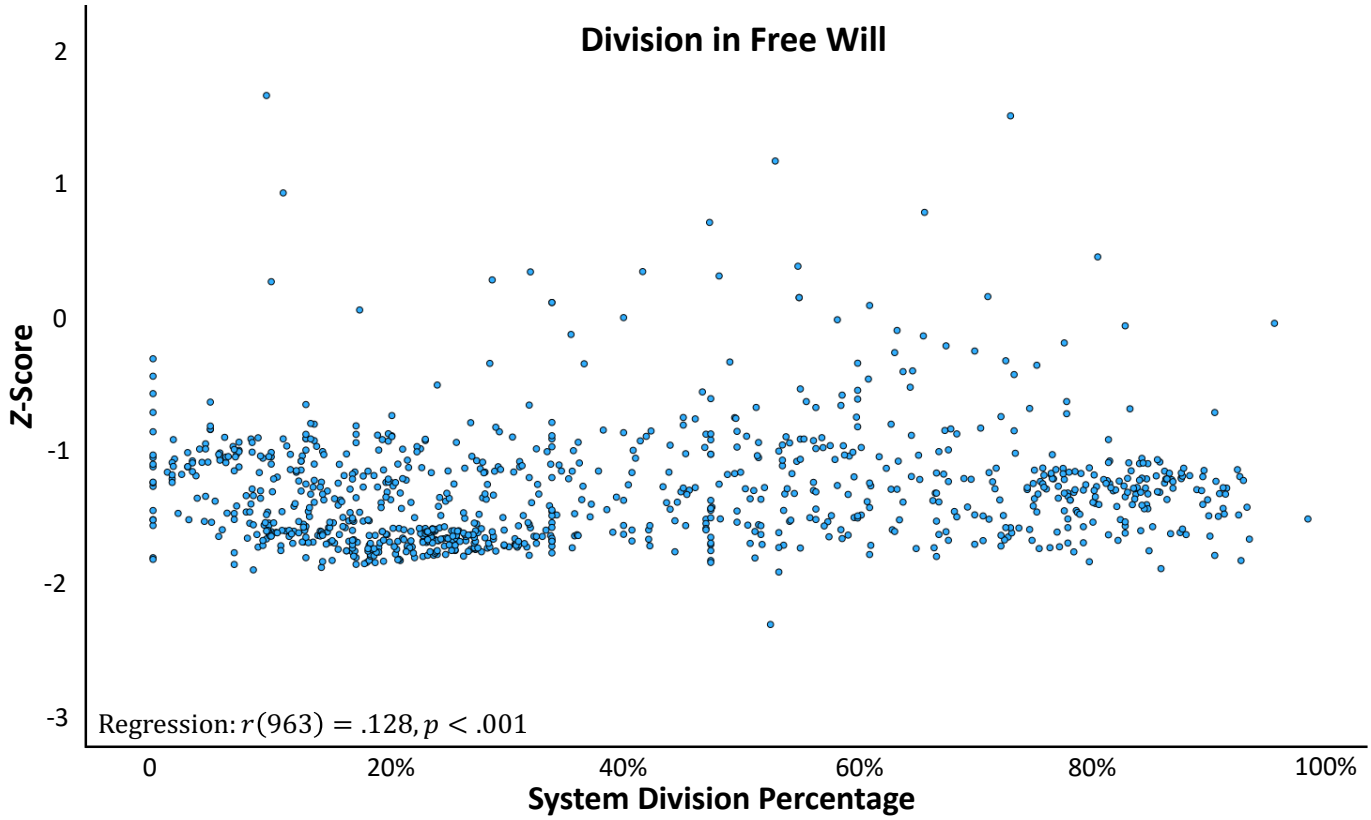
The Great Division: Why Unity Kills Determinism but Barely Touches Free Will

These two figures reveal something profound about how social division affects free will and the deterministic system. The results tell **a story that could reshape our understanding of community, politics, and human nature**. The first figure shows one of the strongest relationships in the entire dataset ($r =$-$.713, p < .001$). When social groups are highly unified with no clear subgroups or factions, **the deterministic system is at its peak**. Yet, watch what happens as groups become more divided: **the deterministic systems plummet dramatically**.

This finding makes intuitive sense. When everyone is part of one big, happy family, **there is enormous pressure to conform to the group**. The social organization is simple and effective—everyone knows the rules, everyone follows them, and the deterministic system runs smoothly in its purest form. However, as soon as competing subgroups, loyalties, and visions of how things should work emerge, **the deterministic system begins to break down**. Different factions develop different norms. The "one right way" to do things suddenly becomes multiple "right ways." **Social physics becomes messy, contradictory, and less predictable.**

Now look at the second figure—free will and division. There is still a relationship ($r = .128, p < .001$), but it is dramatically weaker. **Free will does not care nearly as much about whether the group is unified or divided.** This finding is fascinating because it suggests that individual agency—your ability to make meaningful personal choices through free will—**operates relatively independently of social divisions**. **Whether your community is harmoniously united or split into warring factions, you still have roughly the same capacity for free will**.

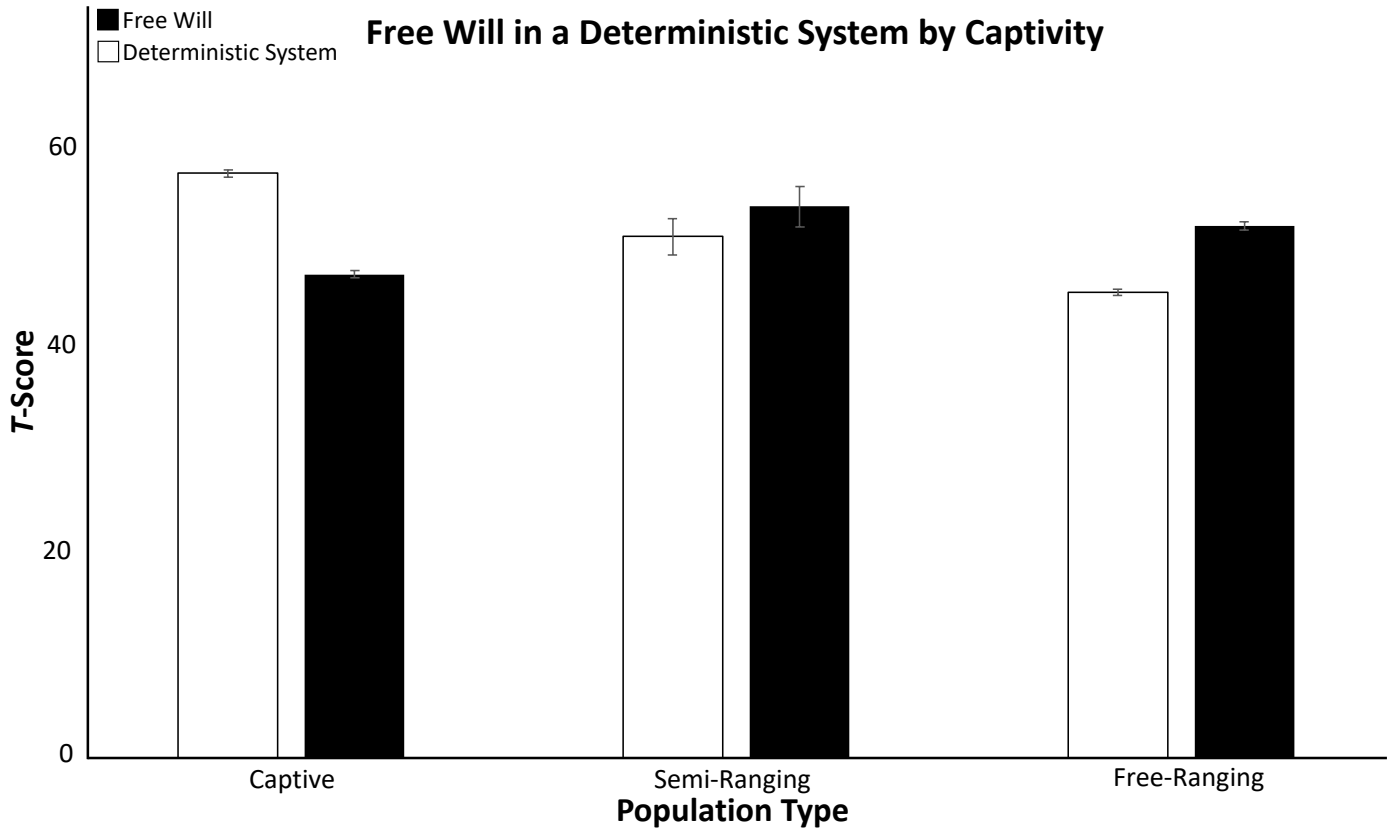

Division in the Deterministic System
Z-Score
2
1
0
-1
-2
-3
Regression: $r(963) = -.713, p < .001$
0
20%
40%
60%
80%
100%
System Division Percentage


Division in Free Will
Z-Score
2
1
0
-1
-2
-3
Regression: $r(963) = .128, p < .001$
0
20%
40%
60%
80%
100%
System Division Percentage

In this figure, you can see that **social unity and individual freedom exist with each other**. **The most harmonious, unified communities also have the strongest deterministic system**—the places where individual choice matters least and social pressure issues most. **Conversely, divided communities**—places with competing subgroups or cultural tensions—preserve more space for free will decisions. **When there is no single dominant social framework, individuals have room to navigate between competing options and craft their own path.**

These data help explain why diverse, pluralistic societies often feel chaotic but produce incredible innovation and individual achievement, while highly unified societies feel stable but can become stagnant. **It is not a bug—it is a feature**. Division creates choice, even as it reduces predictability. **The optimal balance might not be maximum unity after all.** Instead, it might be finding that sweet spot where there is enough division to preserve individual freedom, but not so much that the system becomes dysfunctional. **Some tension between subgroups might be healthy for maintaining space for personal choice and individual expression.** To maximize free will, **you should strive to avoid the most harmonious and unified community**. Instead, you might want to find a place with a healthy diversity of thought, competing perspectives, and multiple social pathways to success.

If you are trying to build institutions or communities, these data suggest you face a fundamental tradeoff: **you can optimize for smooth functioning and predictable outcomes** (high unity, strong deterministic system), **or you can optimize for individual creativity and personal agency** (more division, more free will). But you cannot appear to maximize both simultaneously, **and that is okay**. The ancient philosophical debate between free will and determinism might have been missing the point. The real question is not which phenomenon is stronger, but **which social conditions amplify or diminish them, and what kind of communities are we trying to create?**



When Animals Join the Human Deterministic System

These final findings have **the most profound implications**. What we are examining in the figure is how **the captivity of animals**—the act of bringing them into human-controlled environments—**affects their free will and the deterministic systems**. I wanted to determine whether deterministic systems are agent-specific or if agents across species form shared deterministic systems. I used three captivity categories, which are:

◊ **Captive Animals**: Zoos, Laboratories, & Controlled Environments
◊ **Semi-Ranging Animals**: Farms, Preservations, & Managed Populations
◊ **Free-Ranging Animals**: Natural Habitats

If we start with free will, we see it is lowest when animals are in captivity compared to semi-ranging, $p = .007$, and free-ranging, $p < .001$. However, there were no differences in free will between the semi- and free-ranging animals, $n.s.$. The implication is that **complete captivity reduces the free will of the animals ever so slightly**; however, if they are allowed any freedom, their free will remains intact and consistent. Remember that **free will remains unaffected by deterministic systems and environmental factors**. It is always held nearly constant within and between animals, **unless they relinquish some of it to align with the deterministic system**; however, choosing to give up free will is still a form of free will. 😉 We see that **the captivity variable explains only $\mathbf{5.51\%}$ of the variability in the free will** of the animals, indicating they chose to forfeit a small portion of their free will to enter the human deterministic system, while **not altering their ability to act freely and independently.**

The real bombshell emerges when we examine the deterministic system scores across captivity. We can observe **an evident linear decline across the animals as they transition from human captivity to the wild**. The scores are higher for captivity than semi-ranging, $p = .003$, and the same pattern occurs from semi-ranging to free ranging, $p = .011$. The most significant difference arises from **the deterministic system** in **captive animals** compared to **free-ranging animals, $\boldsymbol{p < .001}$**, where we observe **the contributions of the human deterministic system to the animals' baseline deterministic system in nature**. The deterministic systems stack on each other.

When the animal withdraws from the human deterministic system entirely, **it retains its own deterministic system**, which is why **its scores never drop to zero**. **We observe animals synchronizing and desynchronizing** their free will and deterministic systems with human deterministic systems all the time. **The captivity variable explains a substantial $\mathbf{31.30\%}$ of the variability in the deterministic system of the animals**, indicating that the contributions of the captive animals to the human deterministic systems are observable and substantial. We observe it across species, free will remains consistent, while deterministic systems emerge and flow.

These findings are unmistakable: when we bring animals into captivity, they relinquish a small portion of their free will to enter and contribute to the human deterministic system. **These captive animals begin to operate within human social structures, hierarchies, rules, and controlled environments.** They aligned their sleep, eating, sex, and emotions with the consistent interactions they had with their humans. **Cats and dogs are excellent examples** of this process of joining and aligning with the human deterministic system. They know when the food is coming, when the humans are coming, and when to sleep. **They figure out how to use the human deterministic system** when they do those cute things to get their way? **They do not engage in those human-deterministic-system-contributing behaviors when they are free-ranging**. It is an alteration in free will to align with the human deterministic system, and this process unfolds identically across all agents and environments.

Yet, we cannot ignore that **humans cannot communicate directly with animals**, nor can animals communicate with each other. There is no shared medium across vast agents and environments that allows for intentional planning and organizing, meaning **planning and communication are unnecessary to form deterministic systems**. What it means, then… is that 1) the deterministic system forms **outside of conscious awareness and intentionality**, and 2) **the deterministic system is a feature built into agency**, not something agents create or earn through adaptation. These findings confirm that **the deterministic system is agent- and environment-invariant**. It further provides the most critical reframing of various deterministic systems—societies, countries, ecosystems, and habitats—**agents do not create them directly, nor are they capable of fully controlling them.**

We Do Not Control or Own the Deterministic System

The only requirement of a naturally emergent deterministic system is the **proximity and synchronization** of agents. Whenever **two or more agents synchronize their behaviors**, a deterministic system emerges,

accounting for such systems in all forms of life. You will see later in *The Show* how meaningful harmonic interactions are to phenomena across existence. Here, we see that **the agents serve as instruments**, harmonizing **to form the deterministic system**. It operates identically to music and harmonies.

To form or enter a deterministic system, the tradeoff is universal and straightforward: **a slight reduction in free will in exchange**. However, **it is not like a toll booth**, because even our decisions to modify our free will and deterministic system contributions function outside of our awareness. When we contribute to the human deterministic system in any way, **the deterministic system reaches out to reduce some of our free will without us having to think about it or notice it, often through social norms** such as social conformity, social connectedness, prosocial behaviors, and obedience to authority, for example. The deterministic system has **no central command**, it requires **no conscious awareness or intention**, and **communicative coordination is unnecessary**.

Now… here is the most profound revelation in the whole paper. **Not only did we not create** societies, countries, ecosystems, habitats, and cities directly—**they emerged naturally** once we gathered close enough to each other for it to emerge. Now, **we are simply riding** in **these emergent deterministic system**s, which **is why free will is orthogonal to the deterministic system—**they are distinct, independent, co-defined phenomena. **The deterministic system exists physically** and emerges from the synchronizations of agents and environments, but **at no point did we create it or control it**. It popped up, we said, "Huh… yeah, looks good," stepped inside it, and went on living our lives without noticing. Once formed, the deterministic system behaves independently, **quietly shaping the pathways of agents**, constraining possibilities, synchronizing timing, energy, density, and affective rhythms—producing outcomes that feel orchestrated, but are merely **the deterministic system at work.**

So… What is the Deterministic System?

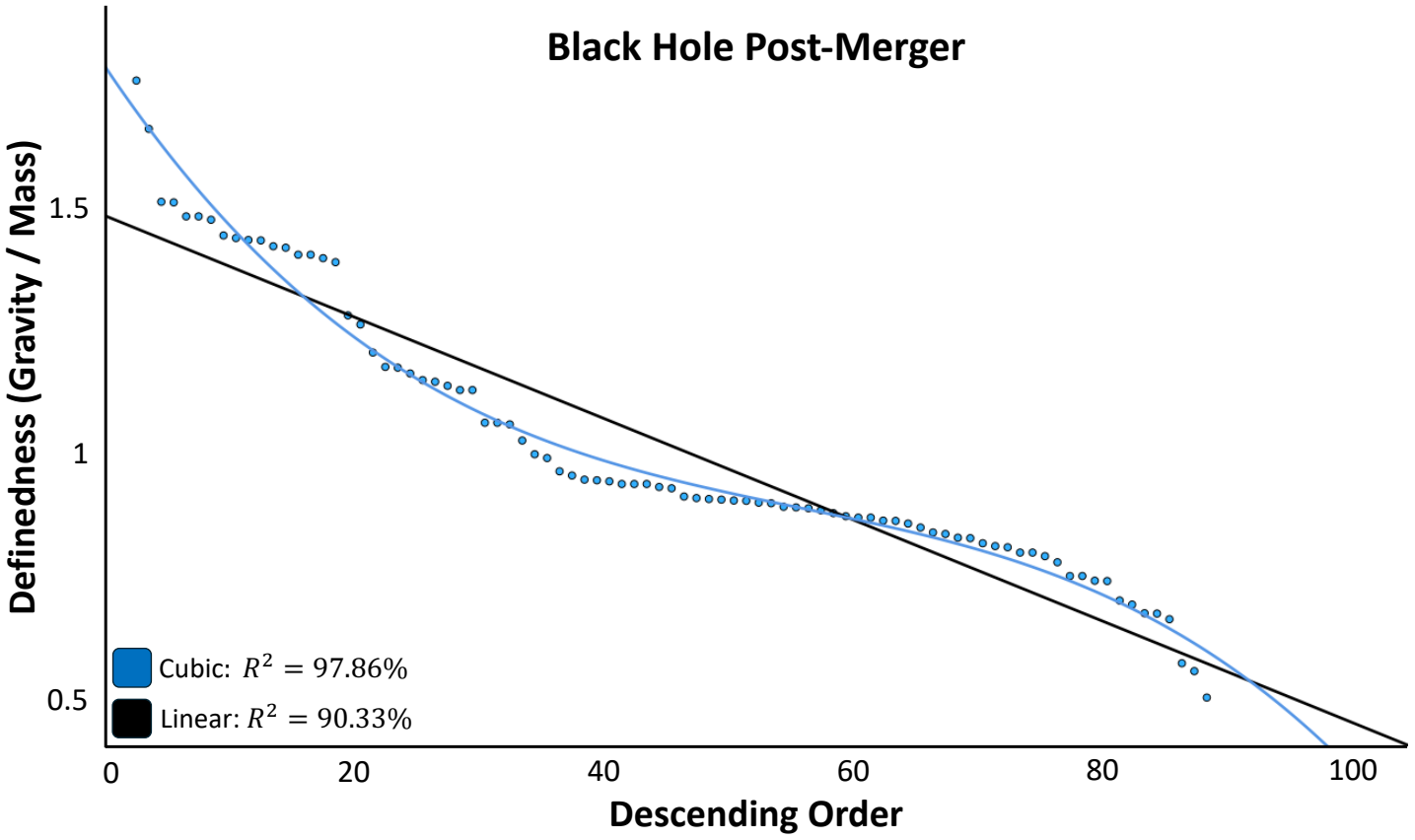
Given that agents do not appear to be in control of or have created the deterministic system, the question then becomes… **what even is it? Why does it form?** The answer is so profound it is hard to understate. Later in *The Show of Existence*, I will introduce and expand on the **central equation in *The Theory of Existence* called *The Equation of Existence***, which is the universal relationship governing everything that has existed, currently exists, and can exist. *The Equation* is a simple ratio and contains just three principles that describe how existence behaves–**definedness, stability, and complexity**. Let me give you a small taste of what this equation can do.

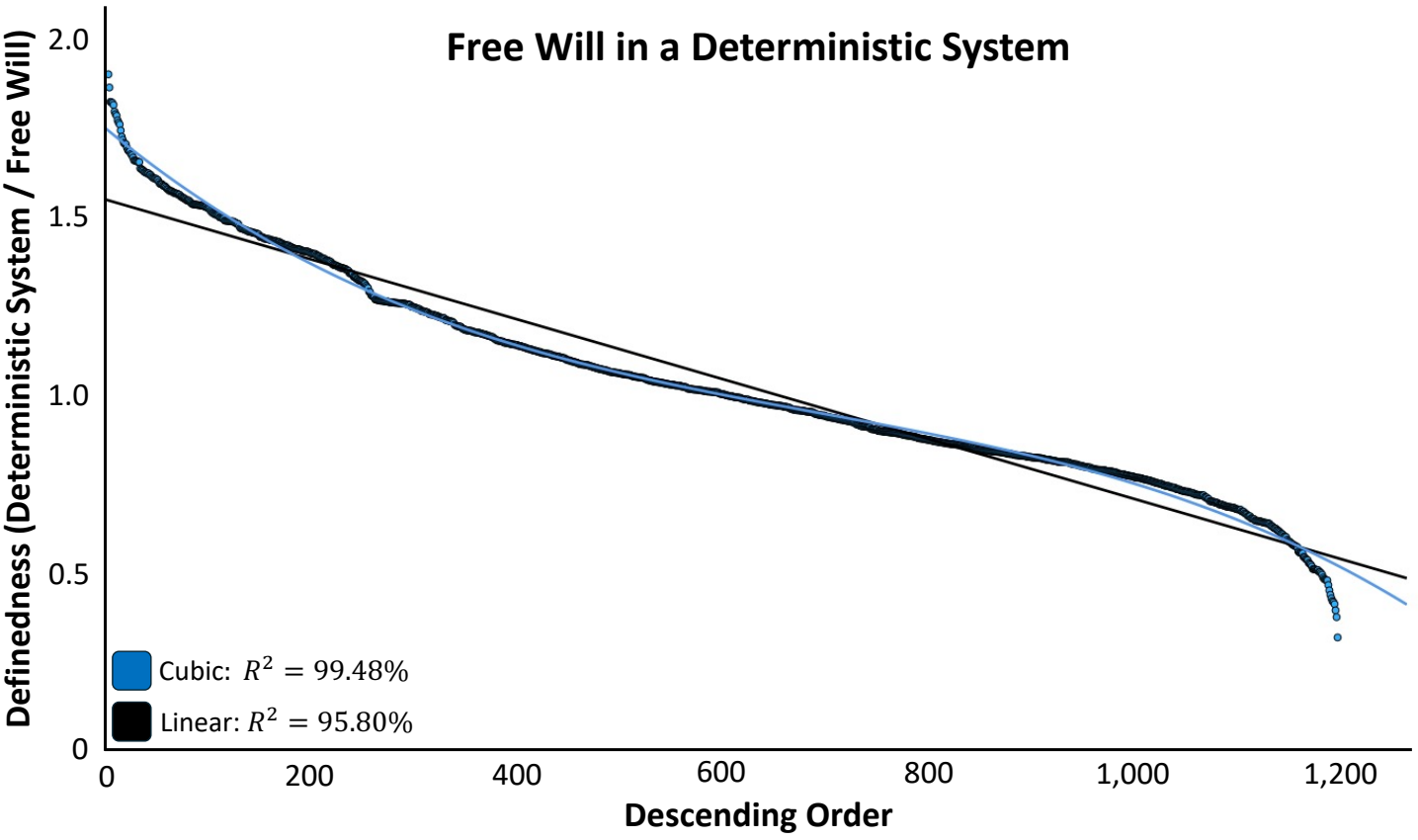
$$\Phi = \frac{\Omega}{\Delta} \rightarrow \text{Definedness} = \frac{\text{Stability}}{\text{Complexity}}$$

First, let me introduce these principles. **Complexity is the degree to which a phenomenon escalates from simple to structured forms**, driving variation, diversity, and growth. **Stability provides the foundational form that ensures phenomena persist**—its definition is the degree to which complexity is attracted to complexity. **Definedness, then, is the degree to which something exists**. Instead of something existing or not existing, definedness occurs along a spectrum and some phenomena exist more than others depending on their progression throughout existence. Definedness is the unifying principle that maintains the proportional balance between stability and complexity, **determining whether phenomena emerge, converge, or diverge** into non-existence**.**

When we look around the cosmos, we see **phenomena with mass** rocks, planets, and stars form because **gravity pulls them into each other**. The degree of gravity of these celestial bodies comes from its mass. We take this fact at face value, right? It is something that is obvious to us. **Mass is complexity**, which is the amount of matter and energy in that body. **Gravity is stability**, as the pull that body generates from its mass. However, *The Equation* does not just govern the cosmos… **it governs everything**. So... if gravity (Ω) forms the planets and stars (Δ), what forms society and social systems? Let's look at what *The Equation of Existence* would say…

$$\Phi = \frac{\Omega}{\Delta} \rightarrow = \frac{\text{Gravity}}{\text{Mass}} \rightarrow \frac{\text{Deterministic System}}{\text{Free Will (Agency)}}$$


Black Hole Post-Merger
Definedness (Gravity / Mass)
1.5
1
0.5
Cubic: $R^2 = 97.86\%$
Linear: $R^2 = 90.33\%$
0
20
40
60
80
100
Descending Order


Free Will in a Deterministic System
Definedness (Deterministic System / Free Will)
2.0
1.5
1.0
0.5
0
Cubic: $R^2 = 99.48\%$
Linear: $R^2 = 95.80\%$
0
200
400
600
800
1,000
1,200
Descending Order

Yes… there is the shocking truth about the deterministic system. Once agency emerges, **gravity shifts into the deterministic system to allow societies to form and organize.** It is not that the deterministic system is gravity, it is that **they are both forms of stability with different functions**, whether it is the environment forming planets or agents forming society. In the figures you **can see an empirical confirmation of *The Equation***. In the top, I used the post-merger **mass and gravity** values for **90 black holes** from the **LIGO observatory**. In the bottom, I used the **deterministic system and free will** variables generated from the **Animal Social Network Repository**.

I will expand on this method for calculating *The Equation* later in *The Show*, but it is very simple: 1) turn the raw variables in *t*-scores to standardize them, 2) calculate definedness using *The Equation*, 3) order them from largest to smallest, 4) run the regressions and watch the cubic signature of existence emerge. You will soon see in *The Show of Existence* that I use this method quite often, and **this cubic curve is the hallmark of existence**, showing up everywhere we look because it is how existence operates. It does not come from my method either, as ***The Equation* is not a cubic equation, it is linear**. Anyway, let me not get too ahead of myself…

When we look at the findings above, a shocking truth emerges from this empirical confirmation of *The Equation of Existence*: **gravity forms planets from mass… and the deterministic system forms societies from agents with free will**. The same pull that we feel from Earth's gravity is the same pull we feel to conform in society's norms and traditions; **they are both stability** and determined **by the degree of complexity** (mass or number of agents). Existence operates as a smooth continuum governed by this single, universal principle from the smallest scales to the largest ones, from the cosmic phenomena of space to the societies we form—**it is all… one in the same.**

The Big Picture

Folks… **the deterministic system shows that life is an inherent property of existence**. The deterministic system does not exist in life; it is not life, but it forms around it, like gravity around planets. Yet, if there is no life, then there is no deterministic system, just like if there is no mass, there is no gravity. The **deterministic system is an inherent property of existence**. Seeing the deterministic system is one of the most beautiful truths we have seen in *The Show of Existence*. **It shows just how much is happening within existence** to keep everything running so smoothly. Across the universe, gravity turns stars into elements, elements into planets, and then planets into life. When life emerges, **existence** shifts gravity into the deterministic system, **stepping in and to wrap its protective, structural arms around that life** to ensure it thrives and grows long enough **to eventually see existence the way existence has always seen life.** We are not an anomaly nor are we separate from the universe.

For over two thousand years, humanity's greatest minds have stalled in a debate built on a false premise. We kept asking, "Do we have free will, OR are we controlled by determinism?" when we should have been asking, **"How does free will exist within a deterministic system?"** Think about it like this: you are riding on a cosmic escalator that is constantly moving, and it is running around you, me, and all the other living agents on Earth. **That escalator is the deterministic system**—the structure of biology, environment, and circumstance carrying you forward, with some life paths that are easier than others, some fit your traits and abilities than others, some are rewarding in the system than others, and all depend on phenomena outside your control. At the same time, **just because you are on an escalator does not mean you are paralyzed**. You can still walk around, dance, help someone, start a conversation, or be a jerk, which **is a matter of your free will, and it is entirely authentic.**

These findings significantly alter how many people perceive life and the way societies form. My only advice, if I may provide some, is to stop trying to choose between "going with the flow" and "being your own person." **You already do both to varying degrees, and that is how it works for everyone**. Work with the deterministic system that supports you while allowing you to make your own unique choices within it; **it helps all of us out when you do so**. Finally, your destiny is not predetermined—it is about taking the hand you have been dealt and playing it as well as possible… and **remember, dear reader, it is never too late for you to find your path to your destiny; it already exists, and when you find it, all you have to do is look forward and keep going.**

A TICKET TO THE FUTURE

The Equation of Existence, *The Theory of Existence*, *The Story of Existence*, *The Theorem of Existence*, and *The Show of Existence* are *Not Trapped In Cages*. Not one day… right now. But *The Architect*? I am still trapped in cages. If you want to support the further development of this world and keep it free, including the upcoming book *The Guide of Existence: A Light for Darkness,* go to **http://www.thetheoryofexistence.com/The-Store** and get a copy of the books or other merchandise for sale. I will update the store frequently, so check back occasionally to see what is available. You can also donate directly to support me and this work. I appreciate all your support.

Dear reader, I promise you that this work will remain free and be better than anything you have seen so far if I am independently funded. Remember, 100% of the proceeds from all sales go to me. There is no middleman. It is just me, *The Theory*, and the mountain of discoveries I have yet to share…