

# The trust / distrust complex organizing social self-governance behavior

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## Abstract

Citizen trust and distrust perceptions have become an increasingly controversial problem in recent election turmoil regarding changes in governance. Key to this trust and distrust problem is that the physical perception process in the human brain is still not well understood. The ongoing trust and distrust debate in organizational literature was researched seeking a resolution. The framework of this debate argues whether trust and distrust are separate dimensions or merely opposite ends of a single continuum. Because the human perception neural binding process is so little understood, the debate has remained in the argument stage of how trust and distrust should be defined. This led the research exploration to examine the Artificial Intelligence (AI) community's development of computers that mimic cognitive functions of humans. AI includes a multi-sensory data gathering and binding architecture that mimics the human neural multi-sensory data gathering and binding neural signals for people to perceive a conscious awareness of the world around them. This sensory fusion architecture was used in the exploration research to create a map to match the human neural multi-sensory binding phases. The AI computer developers used fMRI research to test the credibility of their system with human participants. They identified that trust and distrust each activate separate correlative sections of the brain. This paper proceeds to examine how the perceptions of trust and distrust are used by people to develop their organization of self-governance of their social behavior, as individuals, as social groups, and as citizens' especially the self-governance of their political governments. However, when both trust and distrust perceptions are at extreme force, they can become fused into one. The results come often at the expense of most of the people involved, as described in the Polybius' Cycle Governments.

## Introduction

The ongoing debate about the nature of trust and distrust serves as a path to explore the functions of trust and distrust in influencing the organization of a person's self-governance behavior. This debate ultimately grew around whether trust and distrust are opposite ends of a single unidirectional perception continuum, or two separate but complexly linked dimensions.

The exploration proceeds to examine the functions of trust and distrust perceptions in providing an awareness to help organize the self-governance of people's behavior in social interactions. Self-governance is used here to refer to interactions of a person, or a of a social group, can decide to enact in their behalf. These social trust and distrust perceptions being explored, include those of people as members of informal and formal social groups, communities, and as citizens of their national governments. Greek historian Polybius<sup>1</sup>, in his Cycle of changing Governments describes, that when the citizens entrusted rulers became so corrupt, the citizens' shared trust and distrust perceptions merge them people into an active complex energized by their fused anger. The citizens ultimately feel forced to remove the rulers and improve the organization of their communal social self-governance behavior.

The work of Lewicki *et al.*<sup>2</sup> suggested in the trust and distrust debate that trust and distrust perceptions are separate but have a simultaneous multi-dimensionality bound relationship:

*We ground this framework in assumptions of multi-dimensionality and the inherent tensions of complex relationships, supplanting older assumptions of relationship uni-dimensionality and balance.*

They proposed a framework for researching and integrating the complexities of alternative social realities of trust and distrust. Their framework focused on trust and distrust perceptions as the object of their research. Their perceptions framework research is used as a foundation for interrelating the inherent tensions of relationships of people's trust and distrust perceptions in self-governing their social behavior in interacting with each other. In that regard, Ittelson's<sup>3</sup> view of people's perception interactions with the environment will be assumed for this paper:

*Most perception research has been carried out in the context of object perception, rather than environment perception. One cannot be a subject of an environment; one can only be a participant. The very distinction between self and non-self breaks down cold. The environment surrounds, enfolds, engulfs, and no thing and no one can be isolated and identified as standing*

*outside of, and apart from it. The fact that they surround means that one cannot observe an environment.*

In this sense of participation, a person is integral part of the environment. A person is a participant constantly interacting and experiencing the environment of which they are themselves an active integral part, even to the physical aspects of the functioning of their own bodies. Their multi-sensory modalities also include their internal sensory perception signals that interactively place them as an interactive part of the rest of the environment.

## Researching the trust and distrust debate

*Asking too little of trust is just as ill-advised as asking too much.—Diego Gambetta<sup>4</sup>*

Trust and distrust perceptions of awareness are originally initiated from the energized electro-chemical signals streaming in from the external and internal environment. This environment complex sends energized signals that interact with the neurons in a person's multi-sensory neural modalities for such as sight, sound, smell, taste, pressure, and touch. This constant interactive exchange of energized signals sustains a constant ongoing awareness of the ongoing changes in the environment including the internal physical changes from within the participant observer. In particular, trust and distrust perceptions provide a diligent and vigilant awareness of potential interaction opportunities and dangers to the person regarding options for the best behavior responses to take: Is this an opportunity gain what I need, or a problem threat to me?

What is this relationship between trust and distrust perceptions? Do they form a single continuum dichotomy or are they separately linked perceptions? One strategy would be to prove that either trust and distrust as a single continuum forms a *false dichotomy*; i.e., *they are really separate*. Or that as a separate pair they form the *fallacy of the excluded middle* that binds them.

This paper explores this question of trust and distrust focuses on trust and distrust as separate. This is because it includes the more comprehensive debate regarding the "cognitive binding problem" of binding the full spectrum of Mashour's paper<sup>5</sup> "The Cognitive Binding Problem: From Kant to Quantum Neurodynamics." In it Mashour describes: "The cognitive binding problem is a central question in the study of consciousness: "How does the brain synthesize its modal and submodal processing systems to generate a unity of conscious experience?"

Earlier, Lewicki *et al.*<sup>2</sup> proposed a simultaneous multidimensional framework to use for researching the relationship between trust and distrust (see Figure 1). They could be viewed simultaneous multidimensional interactive quadruplex that continually moderates a person's ongoing internal biological and external environmental interactions: Lewicki *et al.* explained:

*We propose a new theoretical framework for understanding simultaneous trust and distrust within relationships, grounded in assumptions of multi-dimensionality and the inherent tensions of relationships. and we separate this research from prior work grounded in assumptions of uni-dimensionality and balance. Drawing foundational support for this new framework from recent research on simultaneous positive and negative sentiments and ambivalence. we explore the theoretical and practical significance of the framework for future work on trust and distrust relationships within organizations.*

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**Fig. 1: A Simultaneous Multidimensional Trust and Distrust Framework**

Later, Dimoka's<sup>6</sup> research, "What does the brain tell us about trust and distrust?" (see Figure 2) involved identifying people's correlative brain activity locations when trust or distrust becomes active in a person's brain. Dimoka explained:

*This study uses functional neuroimaging (fMRI) tools to complement psychometric measures of trust and distrust by observing the location, timing, and level of brain activity that underlies trust and distrust and their underlying dimensions.*

Dimoka study research results are presented in Figure 2. They are placed in the Lewicki *et al.* simultaneous multidimensional framework structure with trust being separate from distrust and linked by four interactive simultaneous multidimensions.

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**Fig. 2: Dimoka's fMRI research information placed on the simultaneous multidirectional Trust and Distrust framework and indicating its 4 separate High/Low processing dimension combinations of their respective neural correlates in the brain**

Her research shows that the *missing middle* test for trust and distrust might well be included in the unsolved Cognitive Binding Problem research, "Cognitive binding appears to be essential for cognitive activities ranging from lower order processes to consciousness itself. Furthermore, the concept of a unity of consciousness is also considered to be an essential philosophical principle according to Kant"<sup>5</sup>. However, Dimoka's research results, as fitted into Lewicki et al framework in figure 2, shows that when either trust or distrust increases toward their maximum force, they assume a combined, i.e., singular dipole relationship.

Further exploration led to artificial intelligence (AI) where solving the cognitive binding process has been a key concern for developing their Artificial Intelligence computer applications. In their paper, "Sensor Fusion Using Dempster-Shafer Theory"<sup>7</sup> Wu *et al.* reported:

*The ultimate goal of context-aware computing is to have computers understand our real physical world. We envisage "smart environments", where human-computer-interactions (HCI) feel natural, as if we were communicating with human assistants or service personnel. Compared with Bayesian theory, the Dempster-Shafer theory of evidence feels closer to our human perception and reasoning processes. Its capability to assign uncertainty or ignorance to propositions is a powerful tool for dealing with a large range of problems that otherwise would seem intractable.*

Wu *et al.* developed an AI context data sensing and multi-sensory fusion architecture to enact the brain's neural multi-sensory perception binding system. They developed their multi-sensory system in what they called Sensory Fusion as binding the credibility/discredibility of the computer application interactions between human and machine application users (see Figure 3).

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**Fig. 3: Phased system architecture for a multi-sensory context-aware computing**

*We envisage "smart environments", where human-computer-interactions (HCI) feel natural, as if we were communicating with human assistants or service personnel. Such a system usually has one central context data repository for each major entity to collect all the relevant context information about the entity. A context data repository usually collects several aspects of context information; each aspect of context information has its own Sensor Fusion Mediator to collect that kind of context information. Finally, a Sensory Fusion Mediator is responsible for collecting and monitoring the status of its corresponding sensors.<sup>7</sup>*

Wu *et al.*'s phased multi-sensory binding fusion process architecture of fusing multi-sensory from receptions to transduction to perception, to conscious awareness is intended to effectively bind nature's energized neural phases of a binding/fusion multi-sensory environment signals into a continuing single moment a person's awareness of what is happening.

For humans, multi-sensory neural binding /fusion relates to energized electrodynamic energy force field wave sensory signals such as reflected light, sound, smell, taste or touch. When an energized signal force from the environment is received by a person's neural sensor, the sensor transduces it into an energized neural sensory signal. The sensor gathers it and all the other signals it received at the same moment and binds them together into a complex neural signal that retains their mutual relationships. The sensor immediately transmits them as one energized signal to the sensory fusion mediator. This mediator binds the simultaneous transduction signals from all the other active sensors into a unified complex multi-sensory signal moment of experienced perception of their environment. The following streams of transduction moments continues to immediately replace the current one with the next a few milliseconds later.

*In short: Sensor sensory fusion is the cognitive binding of sensory data or data derived from sensory data in order to produce enhanced data in form of an internal representation of the process environment. The achievements of sensor sensory fusion are robustness, extended spatial and temporal coverage, increased confidence, reduced ambiguity and uncertainty, and improved resolution<sup>8</sup>.*

The paper's next step in building a research map of multi-sensory neural perception process is to integrate three research efforts depicted above into a basic research map to explore the cognitive binding/fusion phases of the multi-sensory fusion of

the neural perception process.

The proposed merger of Trust and Distrust models in Figure 4 creates a way to reconstruct these previously cited models into a single composite research map or sketch of a human Neural Architecture of Multi-sensory Fusion perception process depicted in Figure 5. The concept here is to follow the energy from incoming energized environmental signals to sensors and transduced to neural signals and then transmitted through the neural system to the brain's consciousness for perception awareness and organization of the self-governance of their interaction behavior.

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**Fig. 4: Framework with Dimoka's research on Neural Correlatives, and Wu, et al's neural Sensory Fusion Architecture**

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**Fig. 5: A Neural Architecture Map for Research of the Multi-Sensory Fusion Phases of Trust/Distrust Perceptions**

**Phase 1: RECEPTION** A vast number of energized environmental signals reach an individual sensory modality at the same moment. The sensor interacts with each one convert them each into a single electrodynamic neural signal.

**Phase 2: TRANSDUCTION** The sensor fuses these single electrodynamic neural signal (to where their forcefields interact with their closest neighbors, fusing their original communal relationships, organization, and features into a single multiplex energized neural sensory signal. The fused sensor's signal completes the transduction by sending the fused sensory signal to the Multi-sensory Fusion Mediator. It then is open to receiving the next millisecond ongoing input from the environment.

**Phase 3: MULTI-SENSORY FUSION MEDIATOR** All of the person's sensor modalities that had been activated with at that same environmental moment have also transmitted their fused local neural signal and are fused into one multiplex coherent energized neural signal of the same sensory moment and transmitted to the brain's Neural Fusion Center. It then is open to receiving the following ongoing transduction inputs from the person's active sensor modalities.

**Phase 4: BRAIN'S NEURAL PERCEPTION FUSION CENTER** The electrodynamic neurons among many other tasks, provide an arena facility for the constant awareness display influx of fusion sensory signal energy, activating the human consciousness.

**Phase 5: NEURAL CORRELATES OF CONSCIOUSNESS: TRUST AND DISTRUST** At the same moment, the newly transduced environment sensory fusion moment of perception is neutrally networked, linking with various other neural resources such a knowledge, memory, and in this case, to neural correlates of trust and of distrust. There, trust and distrust retain their fused relationship to evaluate appropriate diligent and vigilant concerns for continued conscious interaction behavior with other neural resources, such knowledge, memory, motor functions, and each other to manage behavior (self-governance) within the environment.

**Phase 6: SELF-GOVERNED INTERACTION BEHAVIOR** This is a person's social interaction moving behavior now-point. The dynamic linking of trust and distrust in an electromagnetic energized perception bandwidth is based on the neural networked system electromagnetic signal bandwidth in what Lewicki *et al.*<sup>2</sup> referred to as:

*This view is grounded in our appreciation of the potential breadth of the bandwidth and richness of ongoing relationships. By bandwidth, we mean the scope of the domains of interpersonal relating and competency that are relevant to a single interpersonal relationship. We see relationships as composed of facets: basic components of experience that an individual has with another.*

The trust and distrust perceptions interact with each other and other perceptions in the neural perception binding/fusion center to influence the person's social interactions in phase 6. This map is intended only as a working binding/ fusion template for focusing on the computers' physical fusion phases of trust and distrust perceptions unfolding in a person's neural multi-sensory binding/fusion center. The real neural conscious environment is better described by Koch and Hepp<sup>9</sup>

*Fortunately, the problem of consciousness and its neuronal correlates is beginning to emerge in outlines. The content of*

*consciousness is rich and highly differentiated. It is associated with the firing activity of a very large number of neurons, spread all over the cortex and associated satellites such as the thalamus.*

Therefore, the intent here is to explore the phases of a person's multi-sensory modalities interacting with energized environmental signals initiating trust or distrust perceptions that influence the organization of a person's social self-governance of their behavior of that moment.

Deisseroth's<sup>10</sup> most recent brain research using Clarity which is a tissue-hydrogel technique to examine the actual multi-sensory energized neural network interactions of living brains' operation through its phases has provided a more definitive examination of the trust and distrust perceptions in interwoven multi-sensory fusion operations. In his Scientific American article "A Look Inside the Brain" he reported that a new experimental approach at the interface of chemistry and biology lets scientists peer into the deepest reaches of the body's master controller. Their tissue-hydrogel techniques enable visual access to the brain's deepest reaches, giving insight into the biology of the brain's operations and disorders.

*Our nervous system is like a tapestry of sorts woven with interconnecting threads... After creating a transparent brain, our group could look at the prefrontal cortex and see how cell populations for positive and aversive experiences were wired differently.<sup>10</sup>*

In review, Dimoka's research locating of trust and distrust in separate parts of the brain ends the argument that the trust and distrust relationship is a single polarized positive and negative relationship could be considered a *false dichotomy*. However, the Wu *et al.* practical research architecture showing multi-sensory fusion/binding to be a promising candidate to be the *excluded middle* that links trust and distrust perceptions It appears to avoid the *fallacy of the excluded middle*. The Lewicki *et al.* simultaneous multidimensional framework became a viable path for this paper's research to pursue the theory on how the function of a person's trust and distrust perceptions influence the organization of person's self-governance can take both separate and single formats as a participant in complex social interaction behaviors for social change.<sup>1</sup>

## Trust and distrust roles in developing self-governance

*Complete absence of trust would prevent even getting up in the morning.—Niklas Luhmann<sup>11</sup>*

In the beginning of a child's life, parents and child comprise a basic interactive environment of a social group. As a child is a novice participant in the human community of families, trust and distrust perceptions are the child's basic guides to interact in the social family environment that can often lead to its inner conflicts of trust and distrust.

Horney refers to this situation for a child as seemingly hypocritically interactions between the parent and the child. Parents are people experienced as most trusted on one hand, yet often experienced as distrusted discipliners on the other hand. Horney<sup>12</sup> observed:

*At first a rather chaotic picture may present itself, but out of it in time three main lines crystalize: a child can move toward people, against them, or away from them.*

Horney notes that when the child wants to trust something new and distrusts doing it because its mother will not approve, the child encounters what Horney calls inner conflicts. "He cannot simply like or dislike, trust or distrust, express his wishes or protest against those of others, but has automatically to devise ways to cope with people and to manipulate them with minimum damage to himself"<sup>12</sup>.

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**Fig. 6: Neural trust/distrust social self-governance mediation model**

To the degree inner trust and distrust conflicts cannot be resolved, people may experience cognitive dissonance as Festinger<sup>13</sup> proposed in his cognitive dissonance theory. The question in the case of the child, reconciling any inner conflicts of trust and distrust, there is a strong motive to maintain cognitive consistency giving rise to irrational and sometimes maladaptive behavior (see Figure 6).

As the two participants move to increase their interaction encounter cooperatively, each is updating their own unique life behavior experience with the other person. They both develop a shared co-fusion of a mutual trust and distrust interactive relationship. It is stored in their shared co-experiential memory to help each to co-self-govern their ongoing shared interactive behavior responses toward the common goal of bringing up the child participant. Their trust and distrust perceptions fuse into their relations of each to each other. Their unfolding interactions is fusing their shared reality of personal growth in the organizations of self-governance behavior.

Over a lifetime of experience, people develop a repertoire of trusted behaviors for their various ongoing social interactions with others. Trust and distrust perceptions can focus awareness of valuable opportunities and risks to organize their self-governance toward people as they determine whether to approach or avoid a particular impending social interaction situations. Trust and distrust perceptions re-mediate the incoming environmental signals evaluating the potential for positive gains and aversive losses in meeting current needs and interests. Trust and distrust both have another role in calibrating a person's behavior as an interactive member in the many various social groupings in which they are, or may well become participants (see Figure 7).

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**Fig. 7: Self-governance behavior fusion repertoire**

Organizing social self-governance is the process that a person goes through in life, developing their unique social persona with the capability to participate in both meeting their needs and supporting the interests of the social group in which they may find themselves as interactive participants. Equally, their social persona must also include interaction behavior to deal with threatening adverse social interactions as well. Social groups themselves provide a myriad of social behaviors that guide, train, and direct a person on how to interact with others and with the rest of the natural and social environment. These poly-social groups include: family, social groups, education institutions, government, religion, commerce and social and government organizations.

## Emergent self-governance in social organizations

*Management is doing things right; leadership is doing the right things.—Peter Drucker<sup>2</sup>*

The organization of a person's "self-governance behavior multi-sensory fusion Repertoire" depicted in Figure 7 shows that in various types of social organizations self-governance can be networked across different levels and places of participation interactions. Formal and informal self-governance participation behavior protocols become established in complex social organizations. The function of trust and distrust in the self-governance applies to the social organization's *stewardship*. But it and also applies to the self-governance of the *membership*. Together their participation fuses into the evolving self-governance of the social organization.

In this way trust and distrust perceptions in social organizations are a communal simultaneous multidirectional and dynamically binded influence on the organization's self-governance. The part of the dynamics of social organizations includes tendencies for members to develop shared informal social relations along the lines of shared mutual trust and distrust perceptions of where the organization is going and doing.

The public's organization of self-governance is a cultural community that has formed an ongoing commitment to personal self-governance for the common good in three ways. First and foremost, the community self-governance continually seeks to select their most trusted and capable citizens as their community stewards to peruse the common good for all citizens in order to secure their physical, safety, and social needs in the community. Second, public community citizen's self-governance participation seeks in promoting equitable measures common good in regard to their self-governing citizenship responsibilities and privileges among the citizens. Third, ideally, good public citizens' organization for self-governance takes a responsible role in the perceived environment and its participation in the community of governments as one social complex.

Individuals living in a community have, through communal multisensory fusion, taken on the responsibility to self-govern their own behavior according the values, norms, and laws of the community in which the members participate. The community's values and norms include everyone keeping and sharing a trust and distrust awareness for opportunities, as well as, for the problems to the organization's interactions with the community's various governmental jurisdiction realms in a fair and non-corrupt way. Like the fusion of trust and distrust perceptions, good citizenship is a reciprocally shared simultaneous multidimensional multi-sensory dynamic complex. Their beliefs forge the emergent fusion of their self-governance organization of citizen's beliefs and expectations. However, this policy complex fusion includes the partnership the mutually accepted stewardship beliefs and expectations as well. To the degree beliefs and expectations become unbundled, trust and distrust

perceptions converge to completely fuse the complex to take action actions to confuse into cognitive dissonance.

In their recent research, Friedkin *et al.*<sup>14</sup>, described such a situation as an algorithmic approach that shows how our belief systems change when facts and beliefs are in conflict belief system dynamics:

*Belief system dynamics occur in both large-scale populations and in small groups. Their implications are especially potent in the debates that arise in small policy groups, whose decision affect the collective actions of governments and other organizations, and in turn, the security and welfare of numerous individuals. The hazard rate of policy fiascoes may be reduced with a detailed attention to (i) structural features of small-group interpersonal influence systems and (ii) applications of formal rules of debate that can regulate these systems. The field of science on this is in its infancy.*

The importance of maintaining a communal awareness of public's trust and distrust perceptions of government was demonstrated by Polybius of Megalopolis Greece, in his examination of the cycle of governments: Anacylosis , (159 B.C.) depicted in Figure 8.

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**Fig. 8: Polybius's Cycle of Governments**

Polybius described the evolving succession cycle of forms of government states as being caused when the stewards, who the citizens have entrusted as their rulers for their nation's governance, descend into corruptive personal greed. At some point the citizens see that the stewards are amassing all the wealth and ignore the nation's needs.

In Polybius' elaboration of his Cycle of Governments, the nation state shows how it grows out of single family that gather together into tribes that ultimately can select the most trusted of them as a king and steward, forming the first primitive monarchy. However, succession to the king is hereditary to descendants of the king. After a few generations, the successor kings and their court eventually become corrupt and abuse their authority. The descendant generations of hereditary rulers begin allocating more and more riches from the combined community resources for their own gain, and manipulation of the needs of their citizens. After several descendant monarchical stewardships, the monarchy ultimately degenerates into tyranny through descending generations of royals constantly increasing greed through taxes bribes for their favor by various powerful citizens of the community.

As the citizens exercise their rights and needs the stewards become more and more tyrannical rule by fear to increase their powers and prestige by gaining more resources from the citizens. As the citizen's trust falls to lowest causing their distrust rises to highest become fused together in the form of trusting their distrust The citizens begin to experience a collective cognitive dissonance between trust and distrust. This moves the citizens to take back their trust and remove the stewards they had entrusted to rule. They then try a better way to organize to insure their national self-governance.

History shows that vigilant awareness of a community's trust and distrust perceptions begin merging toward a dichotomy of conflicting extremes. This trend is a signal that there is a growing corruption of the self-governance among both the citizens and their entrusted form of stewardship of the government. A community begins to show stress fractures resulting in general cognitive dissonance. Trust and distrust can spiral into the future beyond a certain irretrievable point absent of diligence or vigilance. The political communities ultimately split into self-righteous demagoguery and malevolent ochlocracies who view the community as their personal exploitation preserve. Mob rule, and destruction soon looms from hostile external forces. Polybius ended his Cycle of Governments at this point. However, his scenario of emerging change of community self-governance has never ceased.

How does this come about? At some point, the multi-sensory fusion between trust and distrust among the citizens of the community becomes closely fused into a polarized dichotomy. As a result, the community's self-governance can easily dissolve, emerging into informal revolutionary tribal groups of citizens to confront the exploiting agencies and power moguls of the economy. However, the danger to the welfare of a community arises not only from flawed government stewardship; it also arises from citizens who have not attended to their civil duties of responsible diligent and vigilant awareness for self-governing citizenship seeking remedy for the stewardship's exploitation of a community self-governance.

The communal trust and distrust multi-sensory fusion awareness of sharing and caring for their fellow citizens' needs ossifies into a malicious anger and willful falsifications towards the corrupting stewardship. At some point, personal and community self-governance is in danger of being usurped by demagoguery tyrants, or rule by mobs. The citizens must seek to reapply their vigilant examination of their participation in the status quo and their diligent trust in finding a new way to work towards reestablishing a better social self-governance community. If they do not, others will do it for them.

## Conclusions

This paper's exploration of the trust and distrust debate was unable to solve the trust and distrust, but may have resolved it as possibly being both. This exploration found definite proofs that the relationship between trust and distrust are separate, but can be fused together as one in cognitive dissonance and irrational behavior.

This paper's examination the function of trust and distrust perceptions' role in people's self-governance indicates that an important function of sensory fused perceptions of trust and distrust is to provide a useful diligent and vigilant awareness to help a person's guide their development of self-governed behavior in their social interactions with other people. In addition, these insights reveal that multi-sensory fused trust and distrust perceptions have been guides for people and their social groups to their shared self-governance, and to share their self-governance of their emergent complexity of social organizations, their self-governing governments and even though their shared cognitive dissonances.

## Footnotes

<sup>1</sup> Complex is a compounding type of term. It is both an inclusive and an exclusive. Complex is the case of the *many folding in together and working as one*. This would mean that *Many* energy force-field complexes can fold in together to change into *one* greater complex, and so on. Since complex means literally: with folds, twists, or braided together, change can only occur through the exchange of energy, energy is the sole source of complexity<sup>15</sup>.

<sup>2</sup> Peter Drucker, and Warren Bennis are both credited with versions of this quote.

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