A Holistic Approach to Complex Systems

Such as Societal Emotion and Behavior:

Summary of Research and Methodology

Using the Compass System

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In the modern world we have become adept at breaking down large and complex systems into very small components which can be studied in depth and with precision. When studying for advanced degrees, it is often required to demonstrate thorough knowledge of a very narrow and specific topic. What is de-emphasized and has been ultimately left behind is the big picture, holistic, or systemic view.

If the big picture is difficult to grasp from the modern Western world view, looking through the lens of another world view may facilitate holistic or systems thinking by those raised to think of things in pieces and parts. Eastern thought, some Amerindian traditions, and traditions of other indigenous peoples tend to encourage this broad conceptualization of the world. From these frameworks, concepts such as interdependency, interrelationship, and synchronicity supplant Western notions of randomness and discreteness.

Using a framework similar to that found in more holistic worldviews, a conceptual model for thinking about all events, knowledge, people, cultures, etc., has been developed. This lens for viewing the world both holistically and practically was first developed by Daniel Reader in 1992 and is called **One Wheel** or ***ekacakra*** (Sanskrit for One Wheel). Since 2003, it has been further developed, and made adaptable to systems type problem solving using a combination of qualitative and quantitative information by the author. This adaptation of One Wheel that relies on both mathematics and subjective evaluation, the **Compass System**, has been demonstrated to accurately model real world events and systems. The first applications of the Compass System were for studying the "systems" called individual personality. Light (2007) has verified that significant information can be obtained from relatively small respondent input in such an

application. This research was broadened to groups and to the spaces that people inhabit (Bourette 2009). Since 2005, the Compass System has been applied by the author (with A New Story Foundation) to the study of societies, their changing moods and perceptions, and the forecasted future changes and likely consequences of those changes (A New Story 2011a).

The Compass System uses eight dynamic archetypal "categories" adapted from One Wheel and combines metaphor with mathematics to make One Wheel a practical tool for solving real world problems. While the categories are mutually exclusive and specific, they are not precisely defined. Lists of qualities and attributes for each of the eight are used to assist the student of One Wheel in learning what each of them are and are not. However, since in concept these eight things comprise the universe, no exhaustive list can ever be made. They are best known through story, experience, and metaphor. While this "limitation" may discourage many researchers from ever approaching this system, the fascinating results that have been uncovered using this process may encourage others.

While One Wheel and its application with the Compass System may be confounding to those requiring linearity, and is certainly far from "mainstream," that is not a good reason to refuse to acknowledge its usefulness. When something is found that works, that is sufficient justification to use it as a tool, test it further, and then to research the question of why it works, as time and resources are available. To invoke Jung (1931, 86):

> I may allow myself only one criterion for the result of my labours: does it work? As for my scientific hobby-my desire to know why it works-this I must reserve for my spare time.

The One Wheel conceptual model contains the eight elements or categories for viewing a person, group, cultural phenomenon, or other event. The Compass System was developed as a tool to quantify observations made using the One Wheel lens. The phenomena being studied are assumed to be comprised of varying degrees of each of the eight archetypal categories. These

categories are often referred to by their compass position name (N, NE, E, etc.), thus the "Compass System." The qualities and attributes of each of these are adapted for the specific phenomena under observation, while maintaining consistency with the general One Wheel model of four polar relationships. For each category, the amount present is rated from 0 to 100, with either end representing asymptotical extremes of none and the archetype itself in all its fullness, respectively. The rating is subjective and is usually done by a team trained in One Wheel Analysis (adjustments must be made to the raw scores when obtained through self-report, such as a survey). The relative amounts of each of the categories or elements are proposed by each team member, one at a time. The final score for each one is arrived at by consensus. The scores can be reassessed periodically to compare changes over time, or they can be compared with other phenomena.

The individuals doing the assessment are the instruments of measurement. As the measurement is subjective, it is essential that each team member be aware of how the presence of each of the eight elements affects them, how it makes them feel. The epistemology in this case is not one of objectivity, detachment, or aloofness. It is by measuring the effects of each item being observed on the observer that anything is known at all. This method is therefore one of presence, immersion, and embodiment.

The Compass System has been successfully applied to the study of individual personality (Light 2007), and to the places and spaces in which people inhabit (Bourette 2009). Using the Compass System to observe changes in collective mood and perception over time, and converting the oscillations into sine wave equations, allows a glimpse into society's mood patterns for the near future. Comparing these with changes in the stock market and commodity prices has led to the development of models that convert the eight mood factors (the One Wheel

elements) into stock market and commodity price movement. A monthly publication available by subscription, the *MoodCompass* (A New Story 2011a), has resulted from this line of study. It presents the forecasted oscillations of social mood and perception for the coming month, possible global or geopolitical implications, natural hazard alerts, and likely market movement based on this forecast.

As of June 3, 2011, after 207 weeks of published "Moodlines" (charts of the forecasted changes for four of the categories of society's collective mood), the correlation coefficient between the stock market forecast model and actual market movement was .16 (A New Story 2011c). This means that the probability (p) that the model is only coincidentally correct some of the time is < .011 (i.e. it is 98.9% certain that the model's forecast and the actual stock market price movement are related). When the cumulative total of the model is used (as opposed to each week being discretely tested), the coefficient is .38 and p becomes < .0001. This means that if the model was not related to actual price movement, it should almost certainly (99.99% chance) have produced results worse than those actually obtained.

A watch for a severe downturn in the global economy and a possible stock market crash had been underway since January 2007 by the author, with A New Story Foundation (Bourette 2007). In September 2008, MoodCompass sounded a warning for an extreme event (A New Story 2008a). The issue was entitled "September – The Great Market Crash of 2008," and called for a severe stock market decline beginning in the second half of the month, accelerating through at least the 26th (the last day of coverage of that issue). The following Monday, the 29th, saw the largest single day point decline ever in the Dow Jones Industrial Average. The weeks and months subsequent to that are history. Subsequently, as the extreme of societal panic was nearing extremes, and talk of financial Armageddon was prevalent on the airwaves, the March 2009 issue

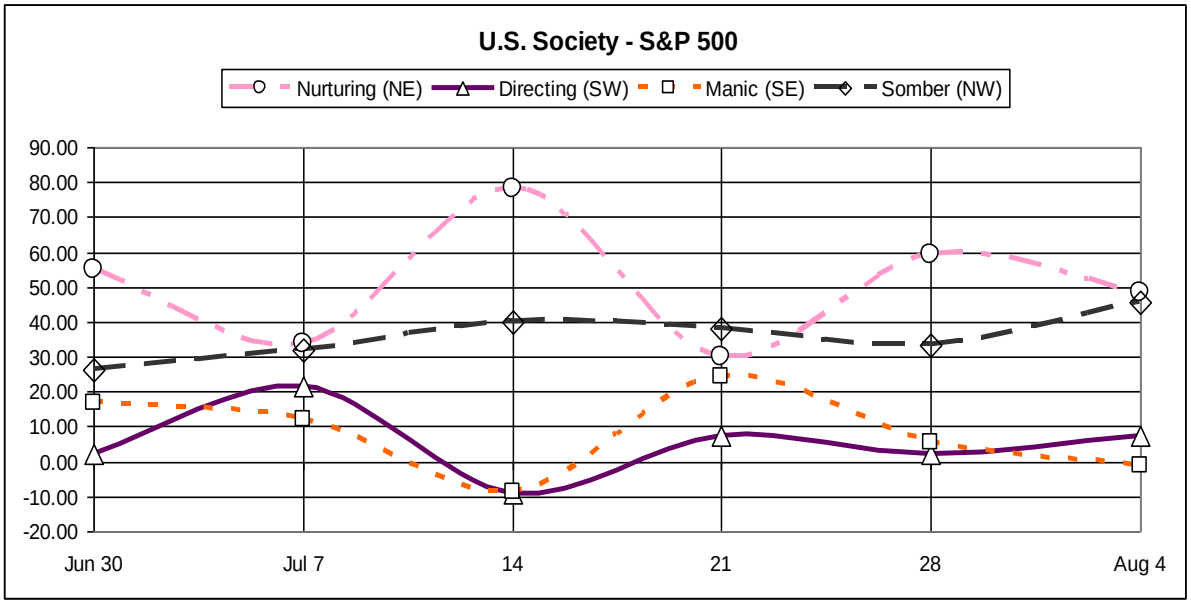
discussed the end of the downturn, although with a warning attached, "This is not the end of the economic downturn, but it is near the end of increased disintegration for now. When the next long term peak in optimism arrives, that will be the time to look for things to really begin to get bad!" (A New Story 2009, 2) It also specifically placed the bottom in the stock market clearly in March or April, "What does look clear is a likely stock market bottom that holds for some time either this month or in early April." (A New Story 2009, 5). The stock market bottomed on March 9.

The success of a model lies in its ability to forecast future events. This has been demonstrated by using the Compass System to project future sociological and market events. The basic methodology for applying the Compass System begins with gathering data, scoring what is being observed as to the relative amounts of these eight categories it is observed to possess, at the time of observation. For the social mood change application, society is rated from reported current events. While the list of specific sources observed is proprietary (by A New Story Foundation), the sources may be television, the internet, periodicals, etc. What is most important is that the source(s) be consistent. It is not the absolute amounts that are being measured, but the relative amounts and how they change relative to one another and over time.

While there are eight archetypal categories used in observing and analyzing a system, only four of these are used at any one time. As an example, the stock market model can be illustrated with one set of four, *Directing, Nurturing, Manic, and Somber.* At first, Directing (consider this another name for "Masculine Principle") was seen primarily as bullish (increasing Directing indicates higher stock prices), and Nurturing (consider this another name for "Feminine Principle") as bearish (increasing Nurturing indicates decreasing stock prices). Manic (related to greed, but also chaos and volatility) was seen as primarily bullish, and Somber (related to fear,

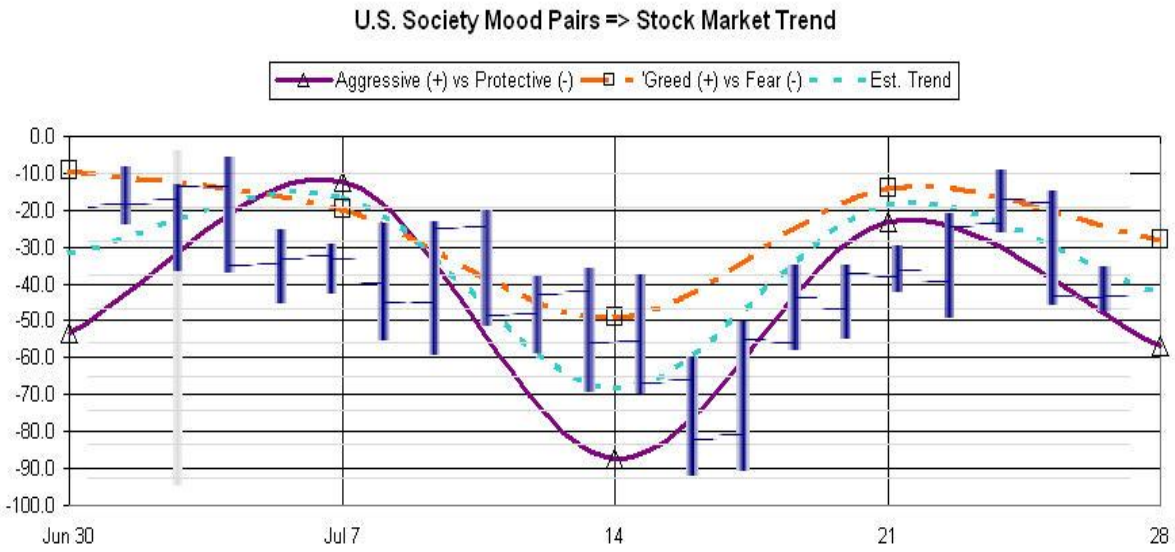
gloom, illusion, delusion, and denial) was primarily bearish. However, it was later found that it was their combinations and interactions that were much more predictive than following them directly. An early model developed to give a rough idea of stock market direction used the difference between the values of Directing and Nurturing to give "aggressive vs. protective" and the difference between Manic and Somber to give "greed vs. fear." The average of the two of these was used as an estimate for market trend. Figure 1 below shows the mood cycles for U.S. society as published in the July 2008 MoodCompass (A New Story 2008b, 4). Figure 2 shows a stock market forecast from those mood cycles using this early model (A New Story 2008b, 5) overlaid with actual stock market price movement (source: futuresource.com).

Figure 1. U.S. Society Mood Cycles, July 2008.



Source: MoodCompass, July 2008 (A New Story 2008b)

Figure 2. Stock Market Forecast and Results, July 2008.



Source: MoodCompass, July 2008 (A New Story 2008b); Price data from futuresource.com.

Extremely high Directing and Somber together signal high emotion, and decisions filtered through irrationality. When Somber is high, there is a delusional quality and the market often rallies in the face of an otherwise bad situation. When Directing is high, people are "prone to panic" and a strong market sell-off often results. Extremely high Nurturing and Manic together signals a focus on the rational, data or the news. When Nurturing is high, there is often a "silver lining" effect and a positive light is cast on otherwise bad news. Manic high makes any news extremely ambiguous, but is more likely to be seen as negative.

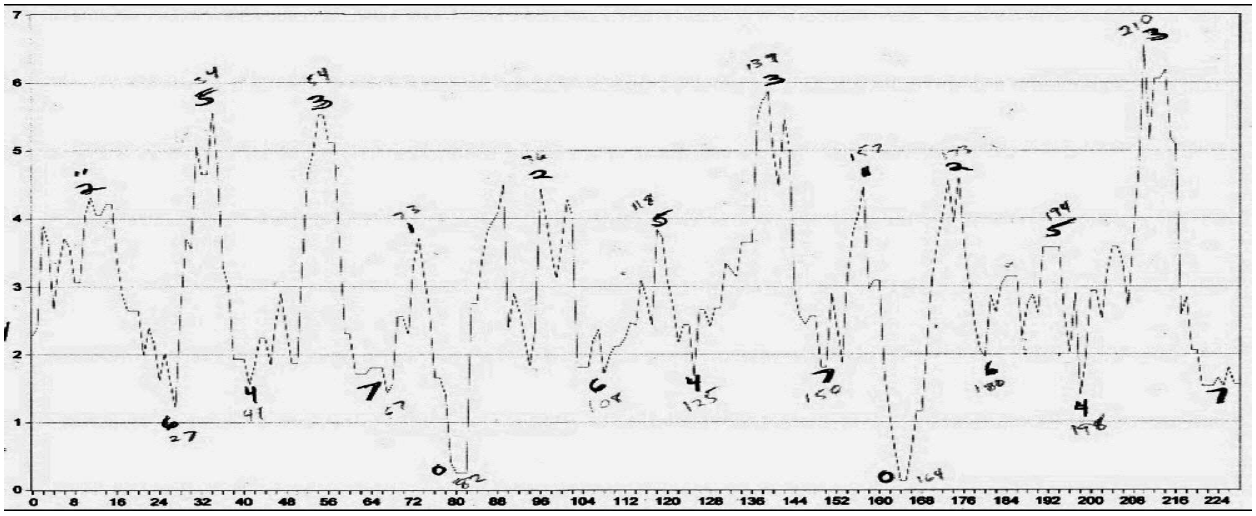
Another issue to consider is the two polarities themselves. The market is highly directional when there is a large difference between Directing and Nurturing (and sideways or non-directional when this polarity is collapsed—difference = 0). This polarity is related to life, family, and instinctual fulfillment. In Robert Prechter's (1999) work in Socionomics he associates certain values with bull markets (wholesomeness, family as priority, etc.). These same values coincide with the presence of this life or growth polarity as opposed to the presence

of the other polarity, Manic and Somber. The Manic/Somber polarity is related to entropy, and non-life (non-biological) related things—money, markets, "civilized" society in general, greed, terror, death, chaos, disasters, etc. Prechter associates values such as movies with high gore content, zombies, and vampires; values such as sex without love, and bizarre fashions with heralding bear markets. These values are also associated with the presence of the entropy polarity over the life/instinct oriented polarity. Prechter (1999, 436) proposes **phimation** (after phi or Fibonacci) as "the universal *force* or *field* that impels what is essentially a *striving against entropy."*

A collapse of this non-biological entropy polarity is a dangerous sign for markets. It indicates that the primary focus is instinctual or survival oriented. In the six month internal forecast for the second half of 2008, this showed up as a long term configuration in the U.S. for August thru October, peaking in September. The September issue, as previously discussed, was entitled "The Great Market Crash of 2008" (A New Story 2008a). The rest was history.

Figure 3 below shows data for one of the eight categories ("Nurturing") for one of the social mood data sets. This is 225 days of a 7 day moving average of daily assessments for this factor for this data set. The single digit numbers at peaks and troughs identify common points in the repeating cycle. For example, "2" is shown three times. Each time it shows up, it marks that same place in the repeating pattern. The amplitude of each point and number of days into the cycle at that point was used to create the data smoothed chart (Figure 4). The repeating pattern is more clearly seen in this chart.

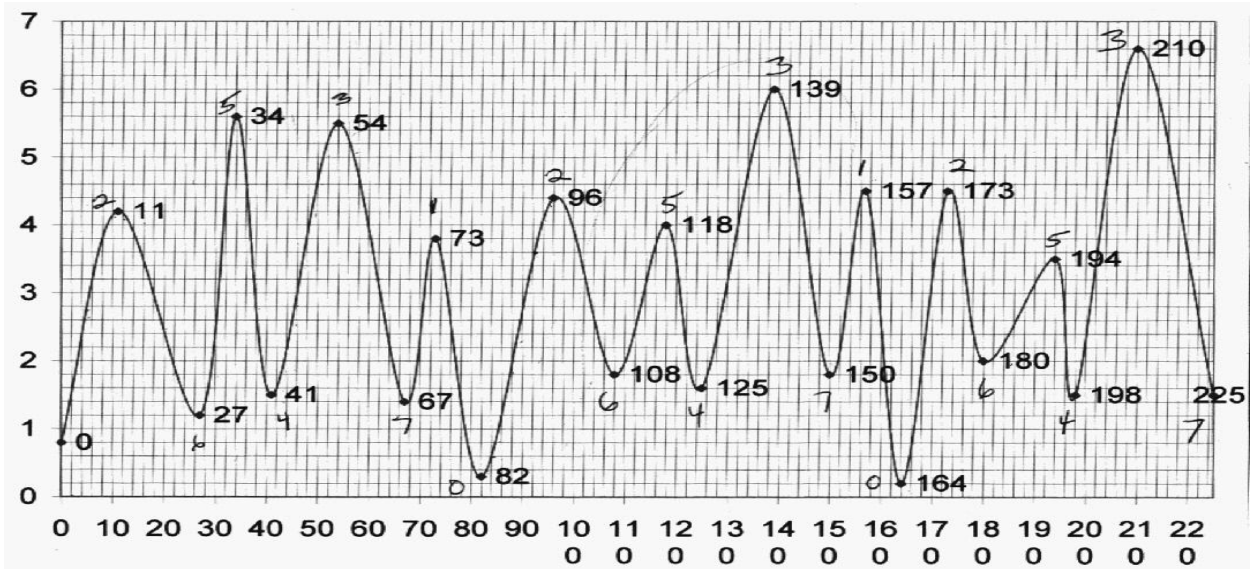
Figure 3. 225 days of 7 day moving average "Nurturing" data



Source: A New Story Foundation Archives.

An equation is sought to best duplicate the pattern on the chart using a sum of sine waves. The shorter cycles are those that are the obvious up and down movements. However, there are much longer cycles, for instance the amplitude for "3" is seen steadily rising. This indicates that a much longer cycle is involved here as well.

Figure 4. Same data, with "data smoothing"



Source: A New Story Foundation Archives.

As is often noticed working with cycles, the length of time between same points is nearly the same, but varies slightly with each cycle. This can be accounted for. For the purpose of illustration, let us say that this chart is estimated by the sum of 4 sine equations (Nurturing = Sin_1 + Sin_2 + Sin_3 + Sin_4). Each of these four sine waves has a distinct cycle length or period T_n. It is noticed that regularly, every so many days, a best curve fit is found by phase shifting Sin_1 by 180 degrees (this is the same as inverting the wave). The same is true for Sin_2 after a different number of days, and so on. There is a constant, $\boldsymbol{\psi}$, such that the number of days between phase shifts for Sin_1 is $\psi * T_1$. This same constant ψ multiplied by T_2 gives the number of days between phase shifts for sine wave 2 and so on. That the same constant ratio multiplied by the cycle length yields the time between phase shifts for all of a data set's sine waves was found empirically. Further research is required to determine whether the same constant is universal to all data sets or is valid only within a single data set.

Often there are correlations observed, for example, the value of the Dollar Index and Stock Market movement, which work for a time, show little correlation, and then show negative correlation. Over a long period of time they show no correlation. However, if such a phenomenon such as periodic cycle inversions could be tracked and determined, one could know the next time, in this example, a rising Dollar would be good or bad for the stock market. In other words, it is not sufficient to dismiss non-correlated phenomena as having no relationship. There may be many cyclically correlated phenomena. If there was a method for determining cyclic correlation coefficients, this would facilitate answering the question of whether such a relationship existed. However, such is beyond the scope of the current research.

Using the generated equations, the cycles for each component of the "entity" under observation are extended out. Once each month, using actual measurements (e.g. the relative

presence of Anima as noted in current events for U.S. society), the cycles are recalibrated as needed. This step will continue to be necessary until such time as there is sufficient data to confidently solve for the constant ψ. Currently, forecasting using the shorter cycles is limited to 30 days and the longer cycles to 6 months. It is anticipated that should the periodic phase inversion constant is isolated and better understood, and more data is gathered, that the resulting sine equations will be of a robust nature that will allow them to be projected farther into the future or back into the past. From a philosophical perspective, the very fact that such constants appear to exist at all is fascinating, and lends credence to historical suggestions of interdependence.

Tracking changes of the elements over time allows one to extend the cyclic patterns temporally. When this process is applied to data from several locations, the resulting forecasts can be integrated into **future maps**. The basic procedure currently employed by A New Story Foundation to produce future maps for the socioeconomic, geopolitical, and environmental outlooks is as follows:

1) The content of current events available from media in cities surveyed is scored in the eight elements or categories of One Wheel (an example is given in the following section).

a) The current events used to assess socioeconomic outlook answer the question, "How do people in this city view the well-being of residents of this city?"

b) For geopolitical outlook, "How do people in this city view what is going on in the world outside of the city?"

c) For environmental outlook, "How do people in this city perceive non-human nature or the earth?"

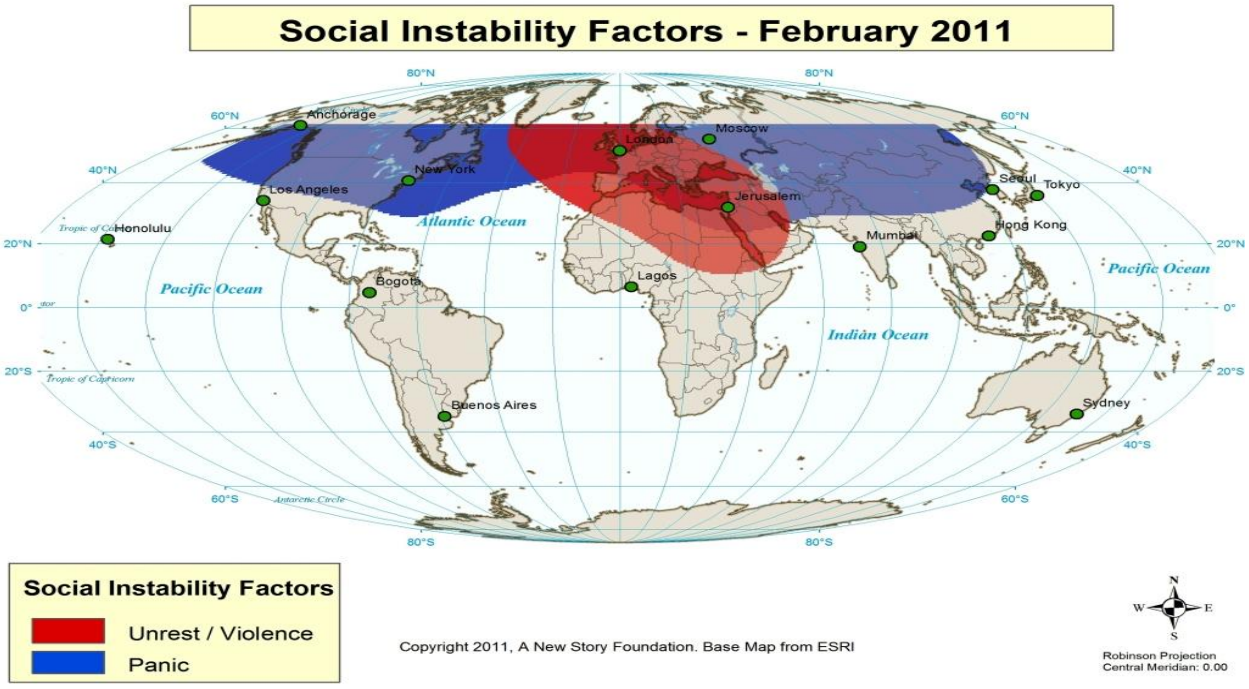
2) The changes in these mood factors over time are turned into sine wave equations and extended forward.

3) Data from all surveyed cities are processed in a GIS mapping program as a continuous field which produces an initial or "raw "surface map.

4) The raw map is analyzed and refined. Figure 5-7 are examples of the socioeconomic, geopolitical and environmental outlook maps for February 2011 (A New Story 2011b).

The primary factors analyzed for the socioeconomic outlook are Anima (NE), Challenger (SE), and Fire (S). NE is related to economic and safety concerns. SE+S corresponds with civil unrest, violence, anarchy, and terrorism. According to the analysis for February (A New Story 2011b, 5), "Unrest and violence are most likely in Europe, N. Africa, and the Middle East. Panic responses, including high market volatility, are likely in the United States, Canada, Europe, and most of Asia." This is depicted by the map in Figure 5.

Figure 5. Socioeconomic Outlook for February 2011.



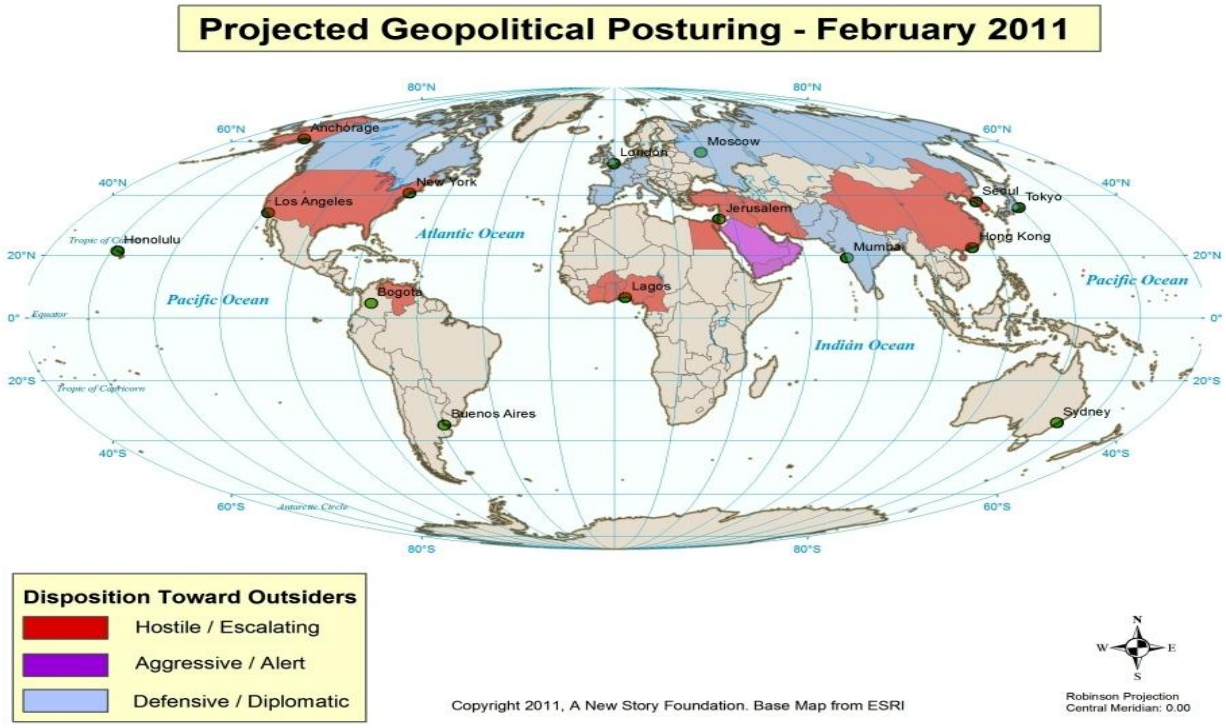
Source: Map by Author; base map by ESRI.

In actuality, events unfolding in February 2011 included increasing unrest and violence. A primary global focus for the month was unrest and violence in North Africa, its spread into the Middle East, and the threat this implied to global stability. High market volatility accompanied the realization that a familiar level of global stability could no longer be taken for granted.

The primary factors analyzed for the geopolitical outlook are Animus (SW), Fire (S), and Anima (NE). The highest levels of SW + S tend to be the most likely areas for increased hostility. Areas of high NE tend to be most interested in diplomacy or on the defensive end of hostility.

For February (A New Story 2011b, 6), on the geopolitical picture: "Global tension is elevated and escalating compared to recent months. The area of highest concern is the Middle East, and possibly Korea. The United States and China are becoming overtly less cordial as tension escalates." This is shown in Figure 6.

Figure 6. Geopolitical Outlook for February 2011.



Source: Map by Author; base map by ESRI.

Besides the escalating unrest and violence internal to a number of countries in North Africa and the Middle East, there were significant moves in global posturing and heightened tension between nations. A leading member of The Muslim Brotherhood called for the Egyptian people to prepare for war with Israel (Lappin 2011). Iranian warships traversed the Suez Canal for the first time in since 1979, amid strong objections by Israel (Shahine and Fam 2011). The U.S. pointedly criticized China for continuing to undervalue its currency (Alderman (2011), and a Chinese official blamed hostile Western forces for its domestic unrest (Buckley 2011).

A number of factors are analyzed for the environmental outlook (e.g. the entropy factors Challenger (SE) and Limiter (NW) are associated with serious or destructive natural events, Fire (S) often accompanies tectonic activity as well as warmer than normal temperatures, Animus (SW) accompanies floods as well as volcanic activity, Water (W) goes with heavy precipitation or flooding, Air (E) with drought and occasionally storminess, Earth (N) with colder than normal temperatures.

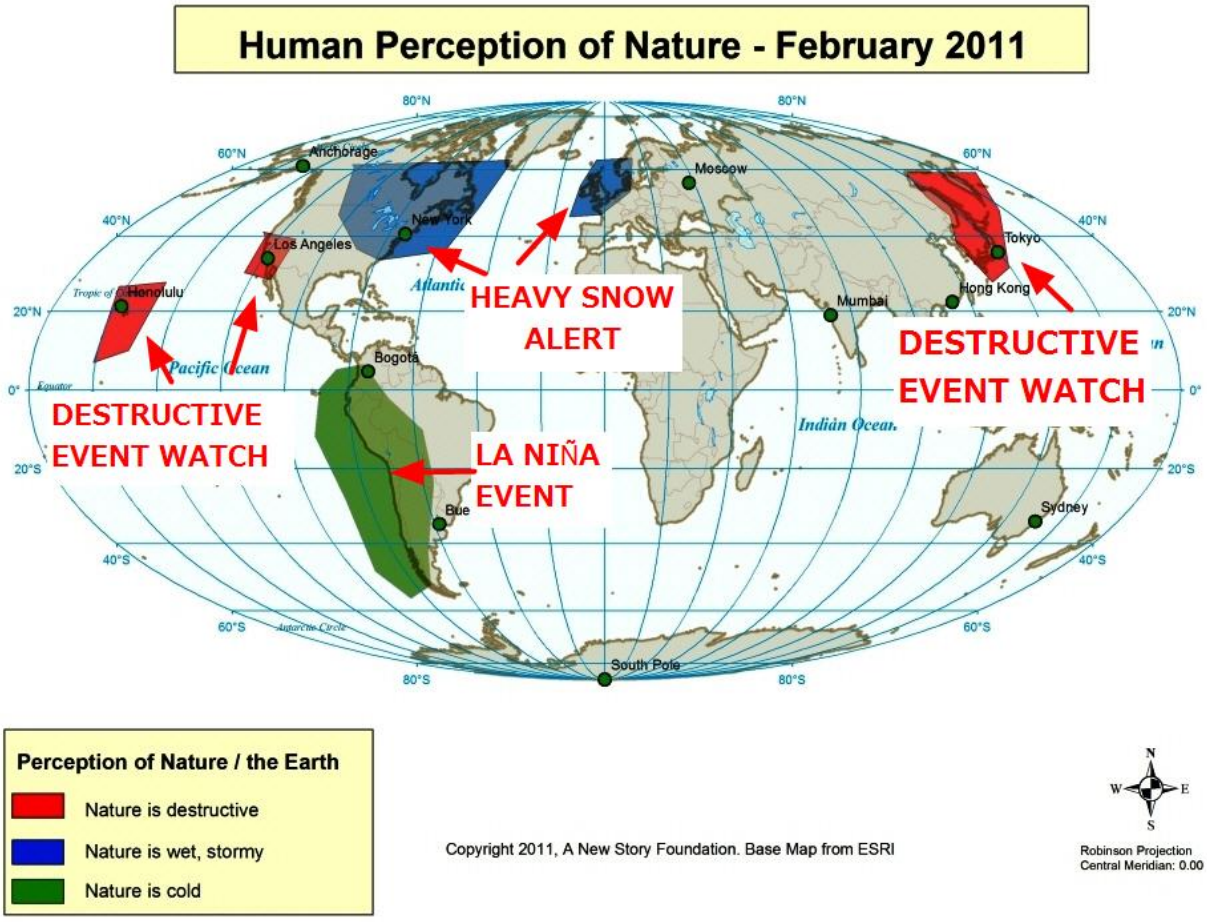
The resulting outlook for February, as shown in Figure 7 (A New Story 2011b, 4), is that Nature is seen as

> anthropomorphically, **AT ODDS WITH CIVILIZATION**. Events disruptive to modern civilization are likely (transportation, electric power, etc.); also events affecting large population centers. **DESTRUCTIVE** in Hawaii, Southern California, and Far East Asia. This generates a **DESTRUCTIVE EVENT WATCH**. Nature is **WET/STORMY** for residents of Northeastern North America and Europe. **Heavy precipitation** is likely. Nature is seen as **COLDER** than usual off Western S. America. This reflects a La Niña event.

In the month of February, in the region marked as DESTRUCTIVE, the Kyushu volcano in Japan erupted, and a massive winter storm brought snow, rain and hail to Southern California. In the region market WET/STORMY, Winter storms and blizzards brought record snowfall to the Midwest disrupting travel, cutting power, and threatening wheat crops and livestock. High

winds cut power, spread fires, and toppled the national Christmas tree in D.C. Other events fitting the general description of "AT ODDS WITH CIVILIZATION" include the category 5 cyclone Yasi which brought devastation to N. Queensland, Australia, and a 6.3 earthquake that demolished much of Christchurch, New Zealand.

Figure 7. Environmental Outlook February 2011



Source: Map by Author; base map by ESRI.

Example of One Wheel Assessment of a Current Events Article

The following is an excerpt of a recent news article on severe flooding in Australia. It was scored by a team experienced with One Wheel to illustrate how collective mood and perception is sampled through current events in the media (Barrett 2011).

> **THE death toll in the Queensland floods has risen to 15, as more bodies begin to be discovered by search and rescue teams today.**
>
> Police announced this afternoon a man's body had been pulled from Myall Creek, which runs through the Darling Downs town of Dalby and has flooded twice since Boxing Day. Earlier today Queensland Premier Anna Bligh said a 24-year-old man who was sucked into a storm drain was found dead in Durack, Brisbane. And a search and rescue operation found the body of a man in a field near Grantham in the Lockyer Valley, a region hit by severe flash-flooding on Monday.
>
> Three-quarters of the state has been hit by floods over three weeks, claiming at least 14 lives and wreaking havoc on property, infrastructure and the economy. Ms Bligh said today there were now 70 towns and cities across Queensland affected by flooding, "either because they have been inundated themselves or they have been cut off from major supply lines and isolated for weeks". "We now have to add in the 2.5 million people who call southeast Queensland home to that number."
>
> But she assured residents of every flood-hit town in Queensland, no matter how small, that they would not be forgotten. "As we weep for what we have lost, and as we grieve for family and friends and we confront the challenge that is before us, I want us to remember who we are," she said in Brisbane. "We are Queenslanders. We're the people that they breed tough, north of the border. We're the ones that they knock down, and we get up again."

In answering the question, "how do residents of Queensland view Nature per this article?" the following scores were assigned to the eight elements using the Compass System notation:

N	80	Nature affects home and family; it creates losses of property, infrastructure and economy.
S	40	Nature brings police activity and search and rescue operations.
E	20	Nature creates a quantification of casualties and statistics.
W	95	Nature is very wet. Nature creates strong emotions (grief, weeping, resolution).

NE	30	While Nature is not appearing nurturing, it brings nurturance and assistance from the government and others.
SW	30	Nature brings the Animus quality of rescue workers, and resolution to Queenslanders— "we are tough."
SE	70	Nature "wreaks havoc" on a massive scale.
NW	95	Nature brings death, grief, and irreversible losses.

If Queensland was an area under study, the data would be collected regularly and changes in the scores over time would be analysed for cyclic patterns. When sufficient data had been collected, the patterns would be extended forward and included in the spatial analysis for the environmental outlook map.

The extent to which any science, philosophy, or religion is a valid model of reality (excluding unseen and unprovable postulates that can only be taken on faith), would be indicated in its interaction with the phenomenal world. Should a paradigm promise progress or happiness, for instance, but result in disaster, poverty, or distress, such a proposition may be considered to be a bad model; continued adherence to such a model in the face of such contradictions might be considered delusional.

Today's world boasts technological achievements that would have been considered impossible, only a short time ago. Advances in communication and transportation promises to put the world at our fingertips, with goods and services from anywhere on the globe effectively nearby. Yet, as connected as the cell phone companies say we should be, people are more isolated than ever. Depression, autism, and other forms of mental illness are increasing at alarming rates. The gap between rich and poor continues to grow. The oceans are dying, and sea levels are rising. The extinction rate of species is faster than it has ever been since humans have existed on the planet. The paradigm of "have it your way" is reckless and unsustainable.

Our world is changing quickly. The Earth's capacity to support life has been stretched beyond its ability to sustain. Basic ecology will explain that such an extreme overshoot as humanity has generated will ultimately be met with an extreme correction. Life is about to get extremely challenging for most species on the planet, and human beings are no exception. In such a world there will be little tolerance for reason divorced from the larger context, or beliefs at odds with the facts.

For most of its existence, humanity has made sense of its world in a relatively integrated fashion, as this would have been a requirement for survival—instinct and reason walking hand in hand; metaphor and fact harmoniously supporting one another. One Wheel demonstrates how subjective and objective information can be combined in the pursuit of useful and practical information in a research setting. In its basic form, its eight elements form a simple, yet comprehensive worldview that can inform decisions on an everyday basis, and could be a timely bridge to reconnect with nature, with each other, and with ourselves. Perhaps it's time that a holistic approach to understanding our world be given at least the same credence as the discrete causal model insisted upon by Aristotle, Descartes, and Bacon.

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