

The Posthuman Anthropologist:  
Integrating Ethnography with Artificial Intelligence  
to Forecast Political Crises in Asia

Paper presented at the  
European Association of Social Anthropologists Conference,  
Tallinn, Estonia  
and  
Asian Political and International Studies Association Conference,  
Chiang Mai, Thailand

In 2009 I sought to study the **North Korean** nuclear crisis from an anthropological point of view.

I could not enter North Korea to conduct fieldwork, so I conducted fieldwork among North Korean **refugees** living in Seoul.



This proved to be of **limited** use in understanding the political culture of the North. It was necessary to gain more information.

So I started to study all the **online** pieces of text recounting their actions, published daily around the globe, and in a myriad of different languages.

경제 <북한 보유 잠수함 78척...세계1위> [日本経済](#)

IT·과학

증권

사회

전국


동포·다문화

세계

문화

연예


스포츠



YONHAP NEWS

북한이 모두 78척의 잠수함 또는 잠수정을 보유해 보유 척수 기준으로 세계 1위라는 집계가 나왔다. 북한 김정은 국방위원회의 제1위원장인 김정은이 통해 잠수함 부대인 제167군부대를 방문, 직접 잠수함에 올라 훈련을 지휘하는 모습. (연합뉴스 자료사진)

- 안경환 "아웃도어" 7~8월 눈물의 재고정리!!
- 안경환 "아웃도어" 80% 눈물의 재고정리!!
- 전문가 "로또, 자동으로 살 거면 하지마라!"
- 그의 36억 주식계좌, 알고보니...
- 전체 치아가 부실해서 임플란트 하려면(치)
- 원어민 뺨치는 "영어실력" 학원가 충격!
- 팔자주름 치료비 얼마?? (의
- "남편월급" 150만 주부.. 부업 수입 "대박"



Андрей Левкин В.В.Путин между самолетом и АТО  
Григорий Гриценко Скромный результат девальвации  
Тихон Краев МВД РФ вступило в борьбу с То'ом  
Анна Сакоян «Ядерная сделка»: продолжение  
Максим Руссо История битвы возле села Молоди

НОВОСТИ ■ СТАТЬИ ■ АВТОРЫ ■ ЛЕКЦИИ ■ PRO SCIENCE ■

WORLD

### North Korea threatens nuclear strike on White House

POSTED: 28 Jul 2014 17:26  
UPDATED: 28 Jul 2014 17:39

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MORE WORLD NEWS

A top-ranking North Korean military official has threatened a nuclear strike on the White House and Pentagon after accusing Washington of raising military tensions on the Korean peninsula.

PHOTOS



27 июля 2014, 07:28 КНДР

### Пхеньян в честь праздника пустил ракеты в сторону американских баз в Корее

КНДР провела серию «праздничных» ракетных пусков, приуроченных ко Дню победы в Корейской войне 1950–53 годов, называемой в Северной Корее Отечественной освободительной.

Как [сообщает](#) НТВ, руководил ракетными пусками лично Ким Чен Ын, который предварительно изучил план нанесения ракетных ударов стратегических войск «с

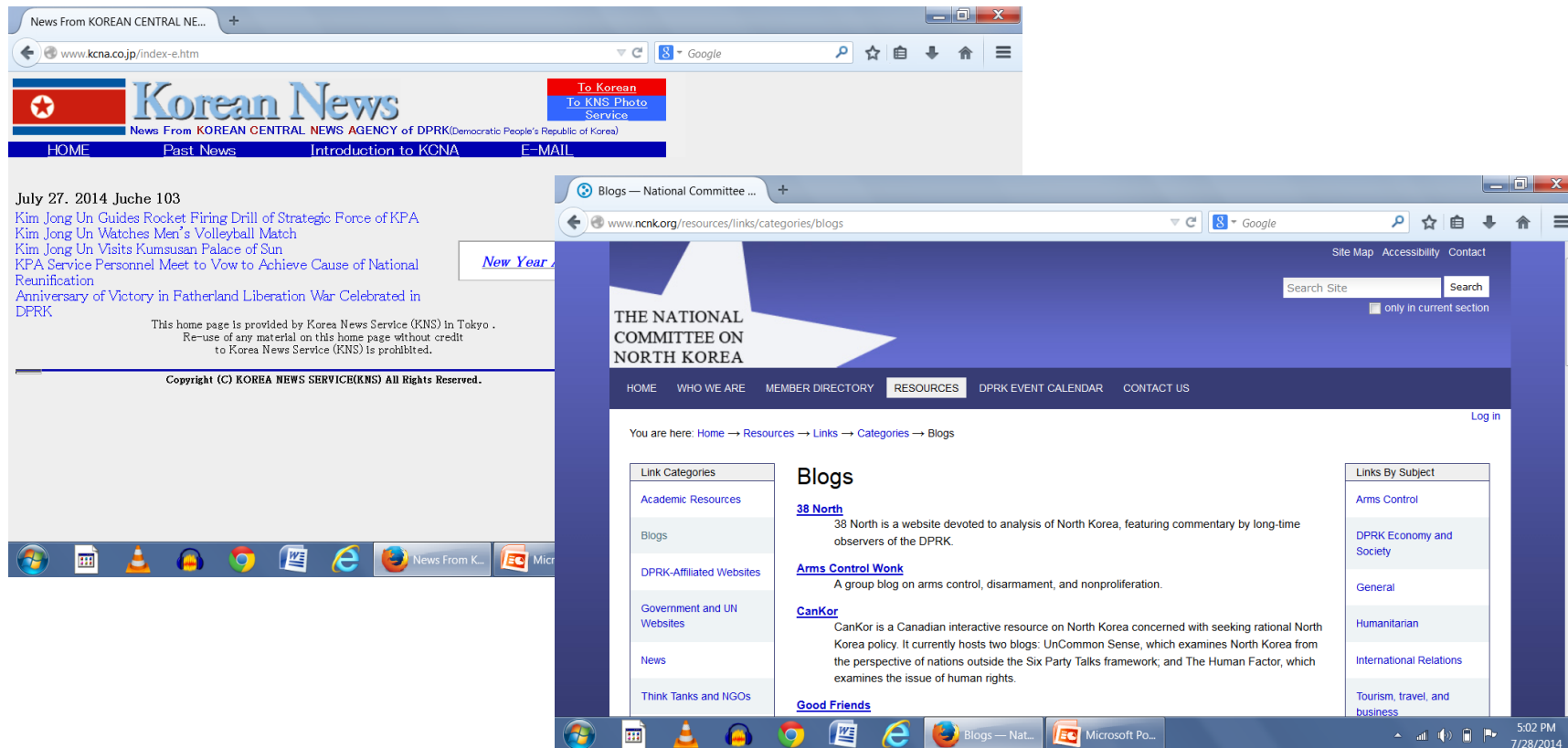
What were governments **saying**, what was being reported in the mainstream media, or being debated in the expert blogs, on social media, and so forth?

If I could find **connections** between these many online voices from different countries, I thought, I would be able to better understand the North Korean crisis.



The first step was to identify all the **online milieus** that talked about the topic of interest, in this case North Korea.

**How many** government websites, policy blogs, mainstream media outlets were there, in how many different languages, with what frequency was new text up?



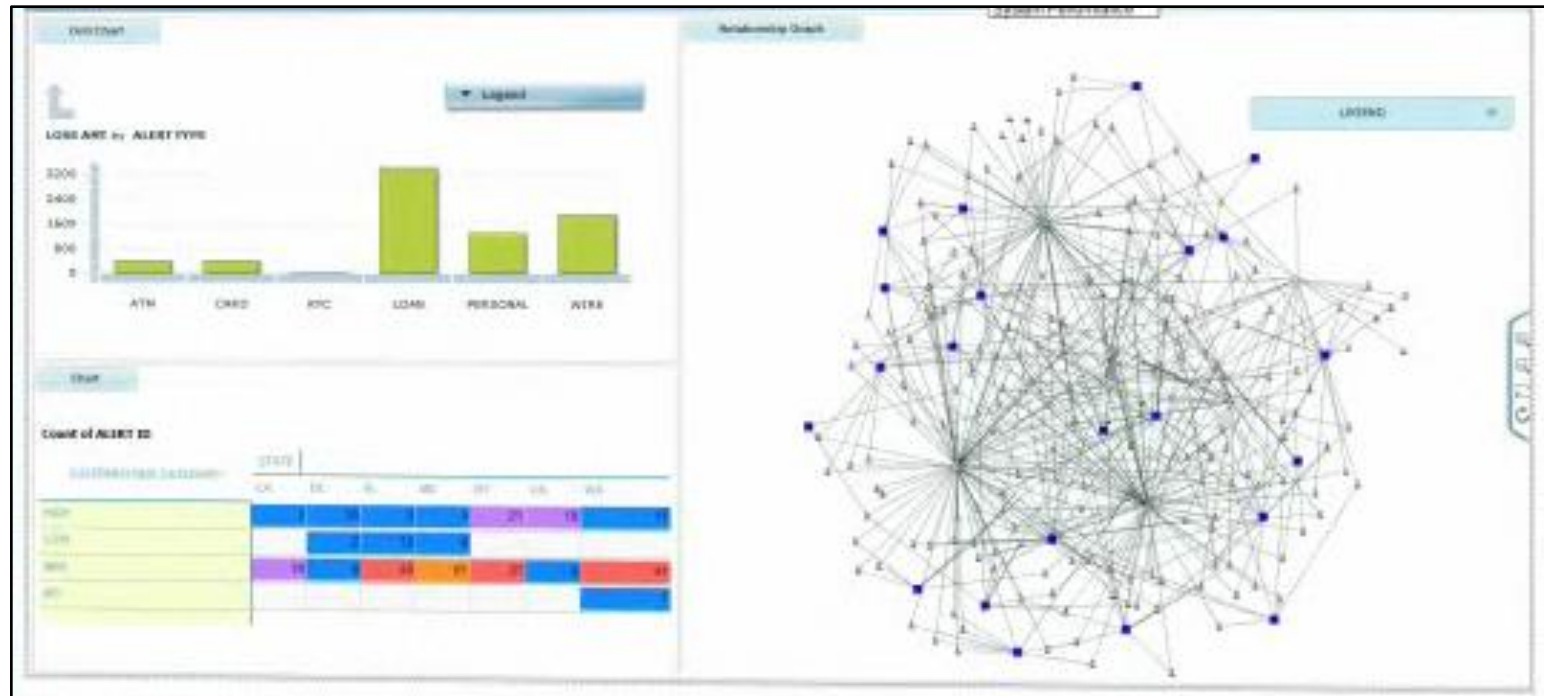
It soon was clear that there was too much data for one person to parse through. So I turned to a provider of “**open source intelligence**” called Recorded Future.

This company scans the web in various languages using powerful algorithms that work like **trawlers**.

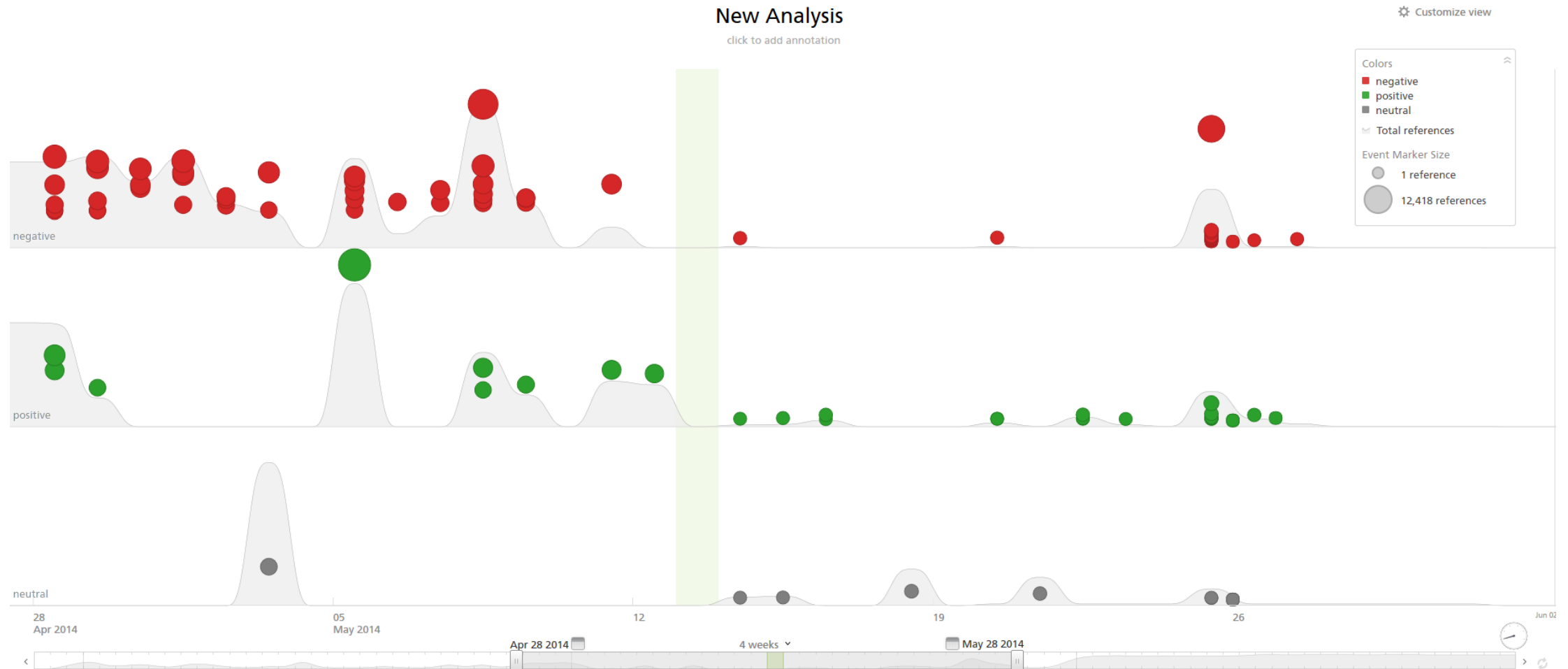


First you provide these with a series of **parameters**, for example the type of media you wish to cover (i.e. Blogs or Social Media) and a number of other filters.

Then the trawlers go out and bounce from **website to website** returning every bit of text that fits that description.

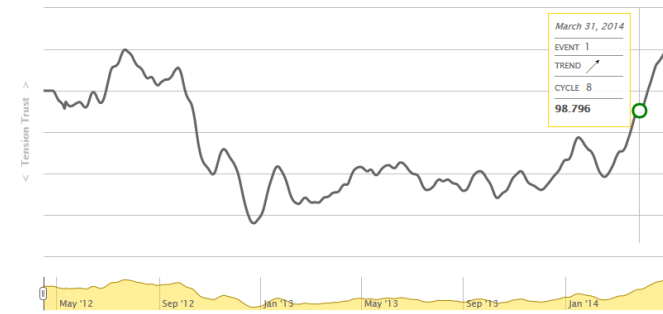
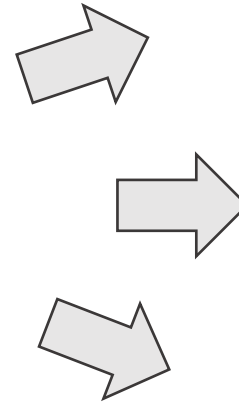


Next, Recorded Future breaks this text down into numerical scores, ranking such measures as positive/negative sentiment, by using “**natural language processing.**”



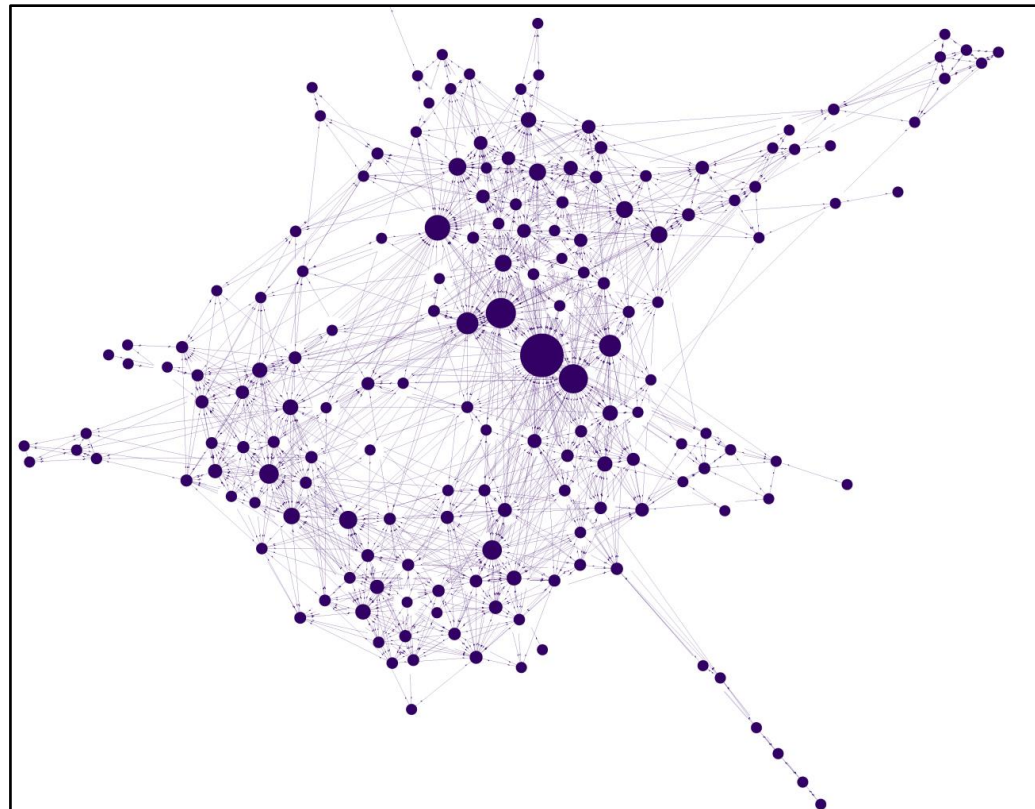


This software can deal with complex, unstructured data found in text form, and organize it over time to map out **fluctuating sentiment** in a number of different online milieus.



This way, I was able to monitor great amounts of official publications, newspaper articles, blog posts, comments, or tweets, thereby mapping the “**online dialogues.**”

The next step was to look for **correlations** between these different dialogues, and perhaps glean some insights into the behavior of North Korea in the nuclear crisis.

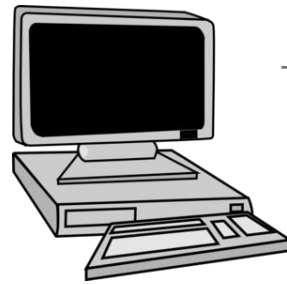




The app then communicates with Recorded Future through an **API** (Application Programming Interface) that automates all queries for data.

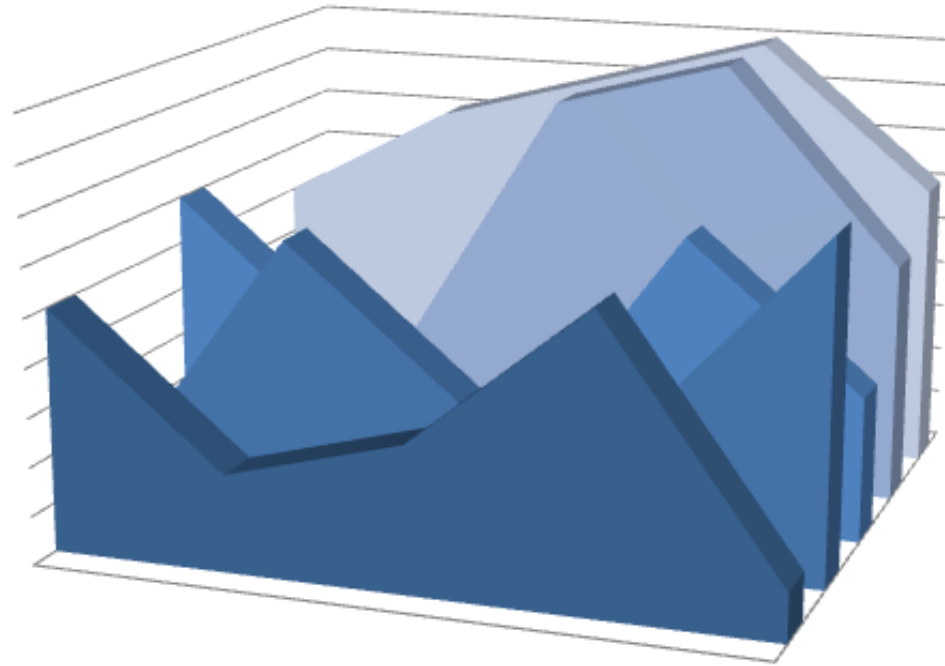


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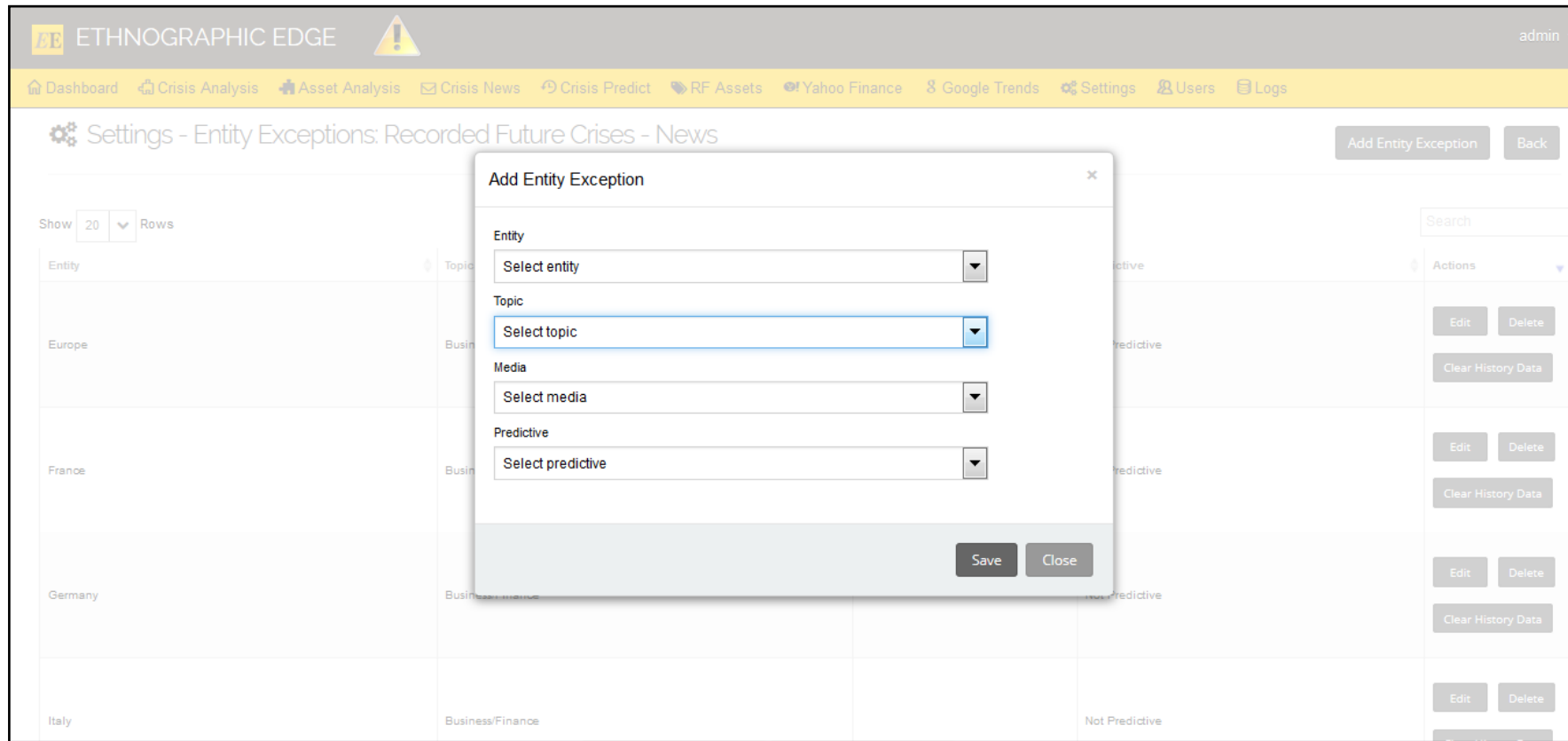
The app, baptized SARA (Social Asset Risk Analysis), started returning recurring **patterns** in sentiment levels in different combinations of data sets.

These were portrayed through **visuals** such as line charts, revealing combinations of trends.



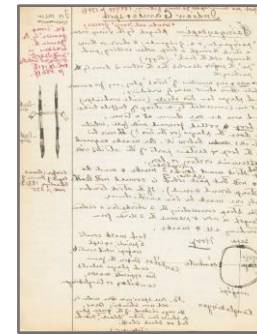
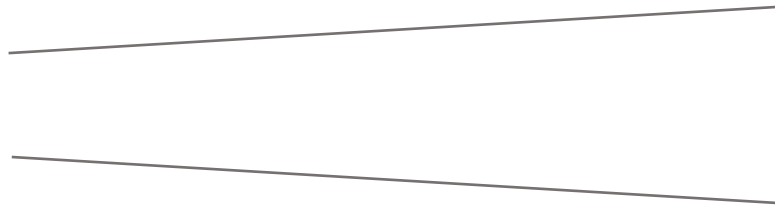
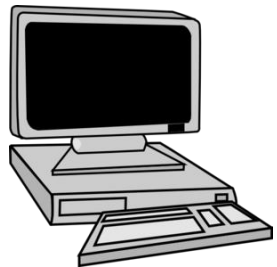
These graphs acted as an **interface** between myself, SARA, and the extended field. A control panel was also added.

This allowed me to change both the logical steps in the algorithms and the type of queries made to Recorded Future, allowing me to **alter** the online milieus analyzed.



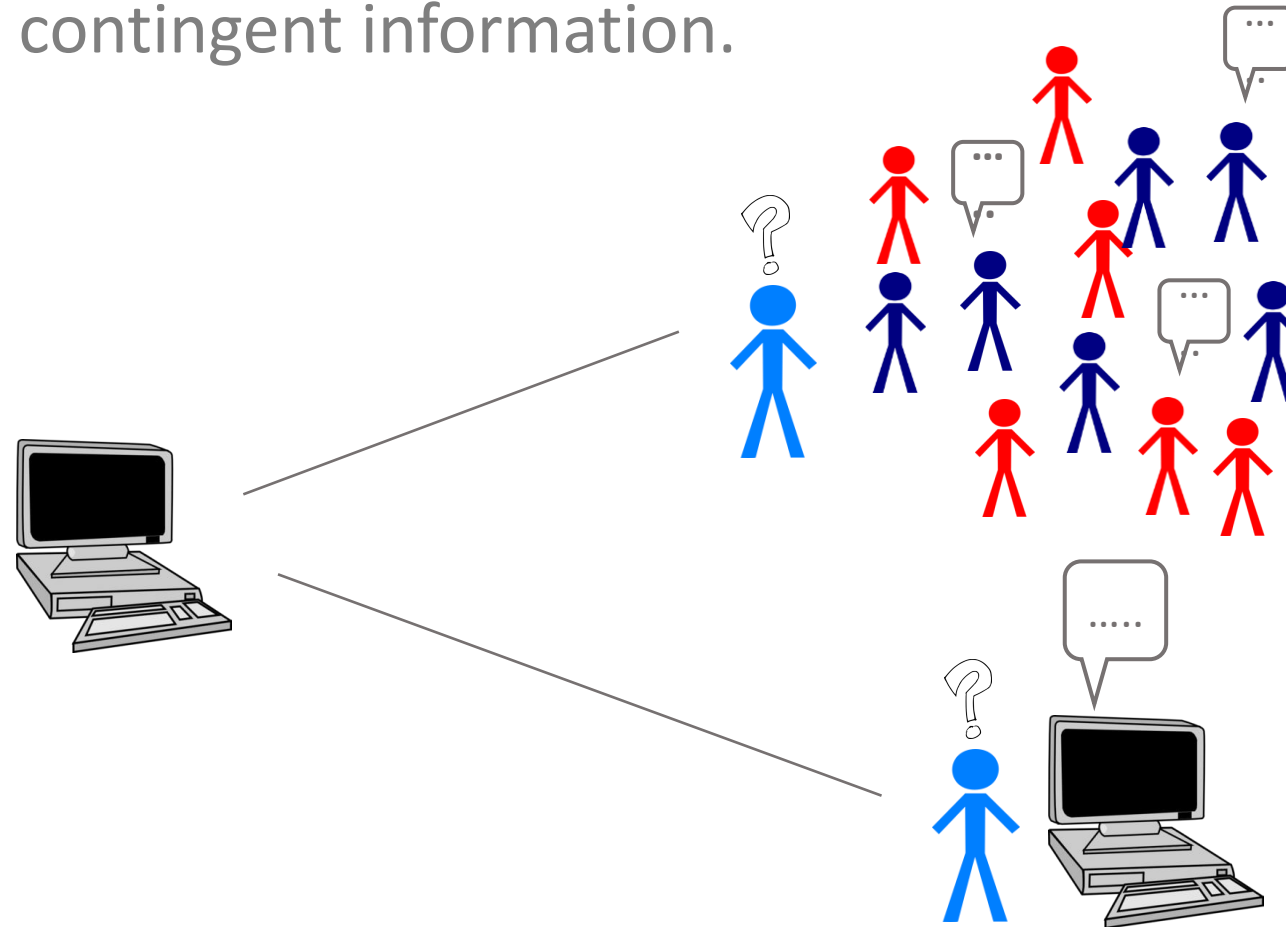
The initial algorithms were based on presuppositions extrapolated from two sources:

- 1) **Epistemological** frameworks borrowed from anthropology, social psychology, and economic sociology, such as reciprocity, reflexivity, and embeddedness.
- 2) Insights concerning North Korea's behavior gleaned from the **ethnographic** research with North Korean refugees living in Seoul.



New information learned from the **visuals** produced by SARA was also used to recalibrate the algorithms and select new online milieus to consider.

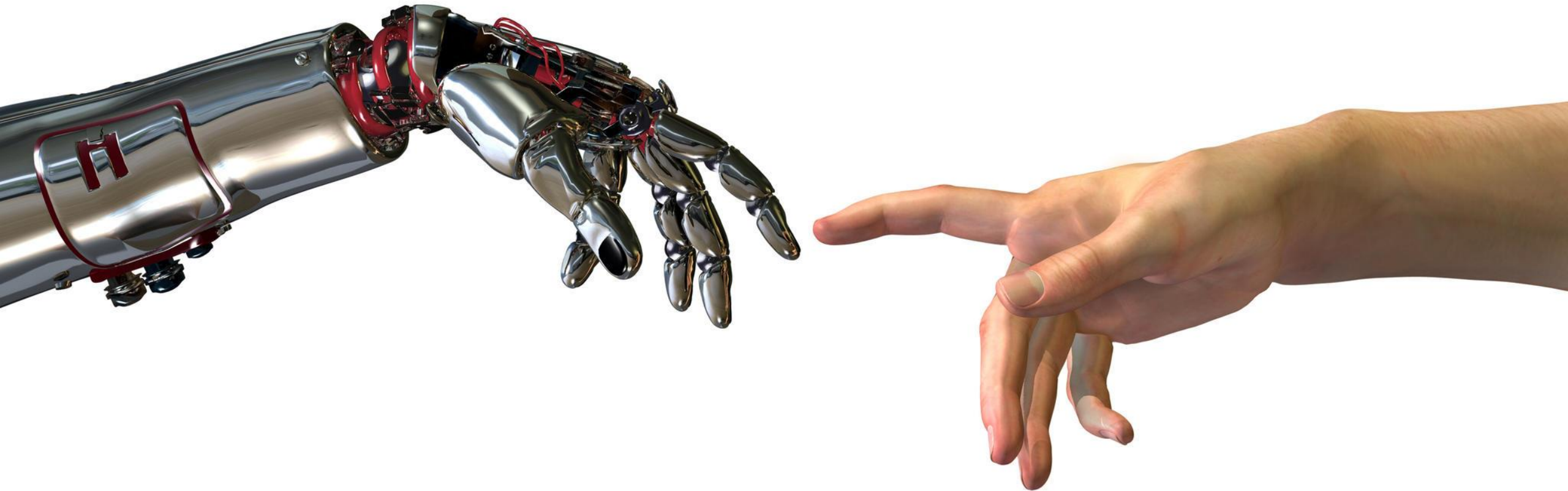
In addition, ongoing ethnographic **fieldwork** was used to fine tune the algorithms, filter out errors, and add contingent information.





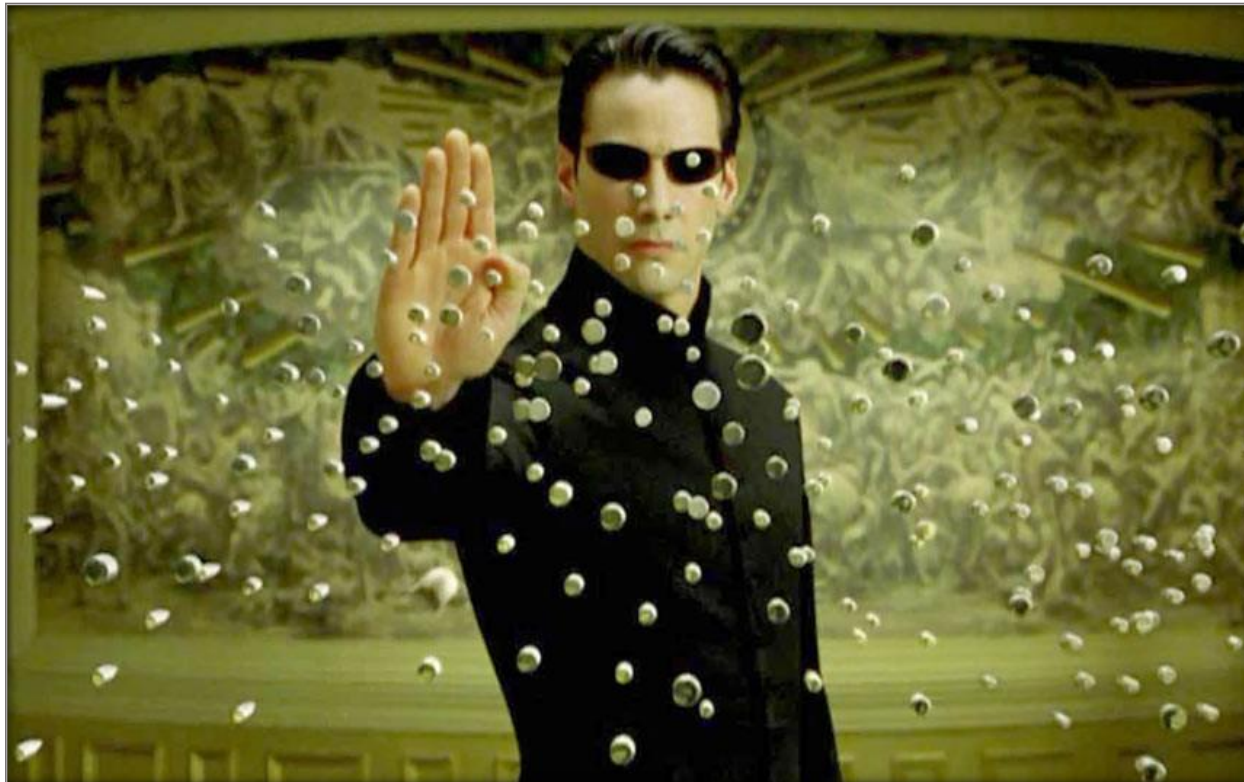
In sum, recalibration came from fieldwork and the very output produced by SARA.

This mechanism rejoined AI with ethnography, in what effectively became a **human/machine learning** process.



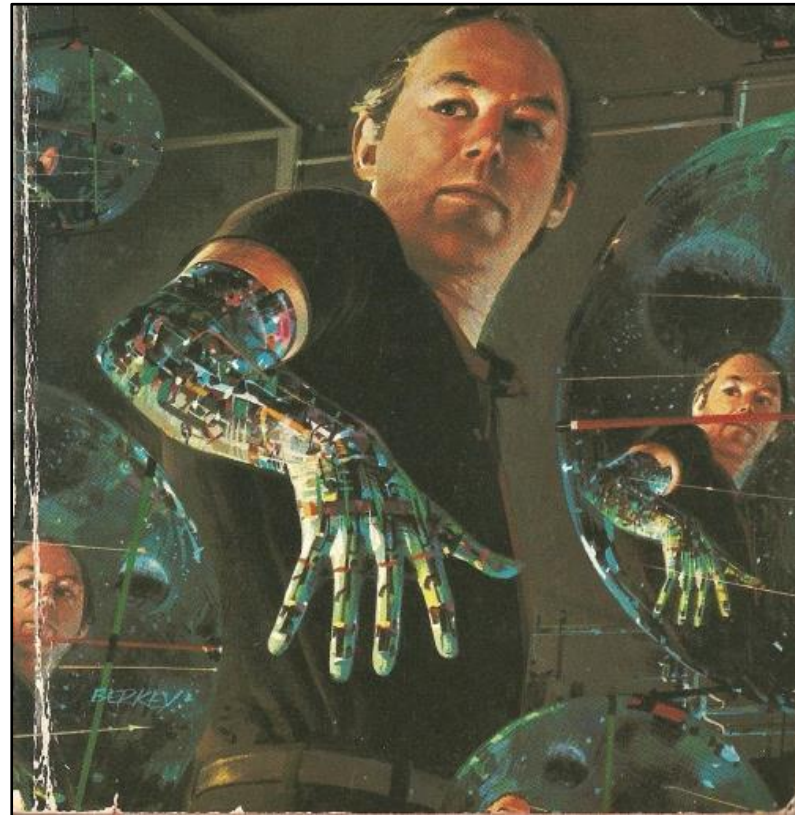
Given the focus on online dialogues, is the project described here not simply another form of cyber ethnography? The main distinction is the **difference in scale**.

Through the help of a cloud-based app, the researcher **can engage** with hundreds of online communities, not just one or a few, as has been common practice.



The central role of **person to person** interaction (either physical or non-physical) in anthropological practice is challenged.

This project proposes a new definition of participant observation that includes something akin to **prosthetic-participation**.



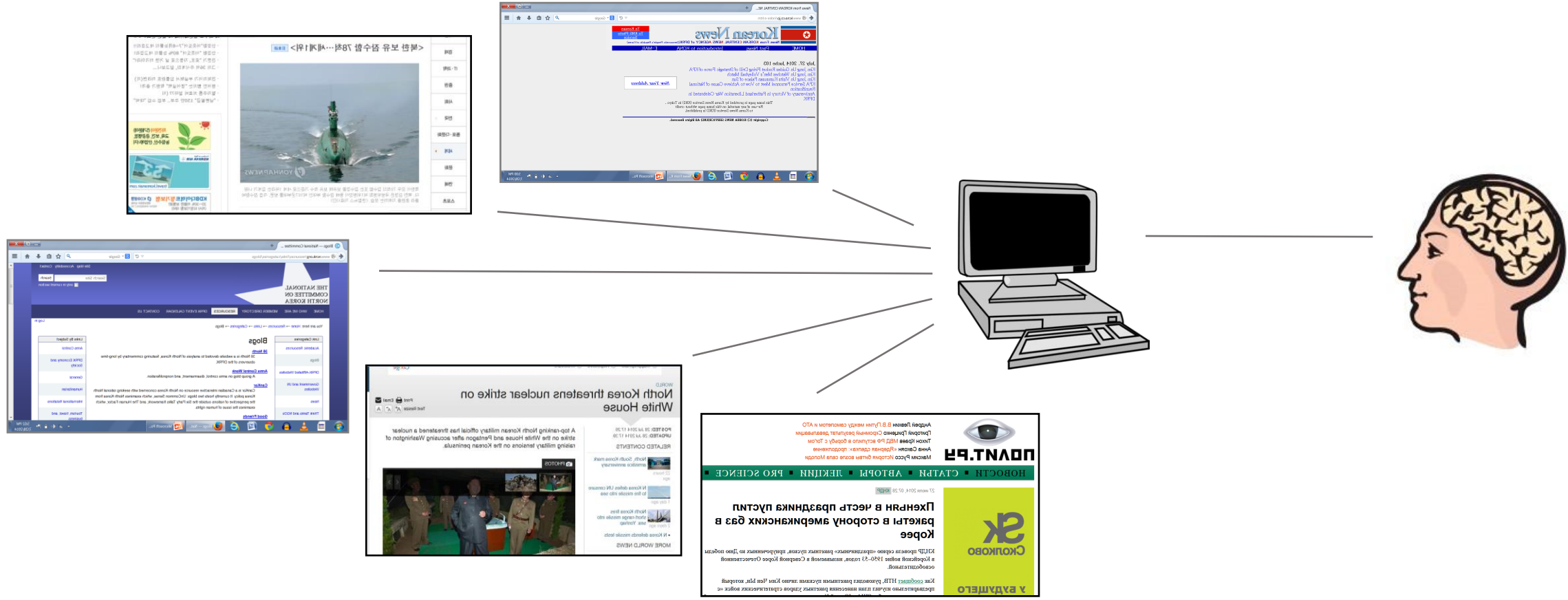
It is now necessary and possible to **extend fieldwork** beyond traditional boundaries, but to do this we must rely on a machine.

We must allow AI systems to participate *for* and *with* us, as a means to reach higher numbers and more diverse sets of **informants**.



Like a prosthesis, AI allows an extension of our reach, through which we garner information about, and **experience of**, different online milieus.

In that process, AI becomes itself a kind of field **assistant/informant**, a gatekeeper and mediator with which we are in a constant, mutually constitutive, dialogue.



Anthropologists (particularly in **applied anthropology**) are making more and more use of big data and AI in their work.

Yet, in most cases, it is used as a sophisticated **recording tool** in the hands of the anthropologist (see Anderson et. al. 2009), and not to expand the field itself.



Outside of applied anthropology, the emphasis has been on **more critical** anthropological approaches to AI itself.

Forsythe and Hess (2001), for example, warned us to be wary of the hidden **cultural assumptions** programmed into “computerized explanation systems.”



```
for (int j = 0; j < loc; j++) res[j] = buf[j];
return res;

public void ... (int[] res) {
for (int i = 0; i < res.length; i++) {
for (int j = 0; j < res[i].length; j++) {
res[i][j] = checkRes[i][j];
}
}
}

public int[] decodeMessage(int[] res) {
int i = 0;
int loc = 0;
while (i < res.length) {
int j = 0;
while (j < res[i].length) {
buf[j] = 0;
}
}
}

return null;
}

public int[] extractMessage(int[] res) {
for (int i = 0; i < MAX_RES_LEN; i++) buf[i] = 0;
int loc = 0, i = 0;
while (i < res.length) {
}
```

AI systems, they find, are not simply technical tools, but are value laden and reflect the reasoning that is embedded in the **knowledge systems** of which they are a part.

AI, like any technology, is not just a tool or an aide, therefore, but more like an **extension** of the human mesh out of which it is born.





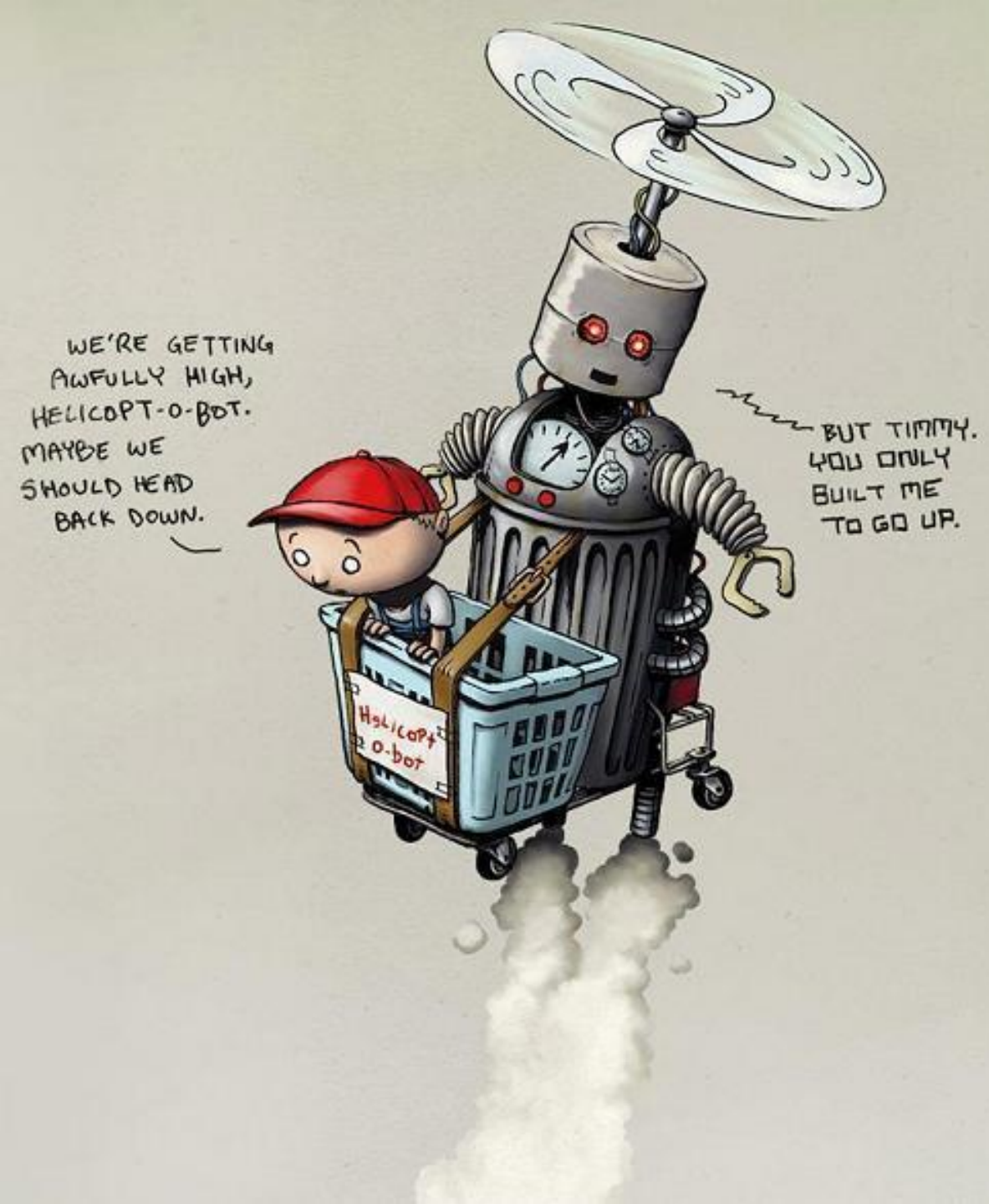
This brings our attention back to the concept of **prosthesis**.

There is something hybrid to AI; not entirely human, not simply a tool, AI is probably best seen as part of the general tendency of our time toward a “**prosthetic impulse**” (Smith and Morra 2006).



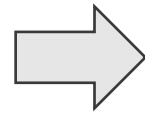
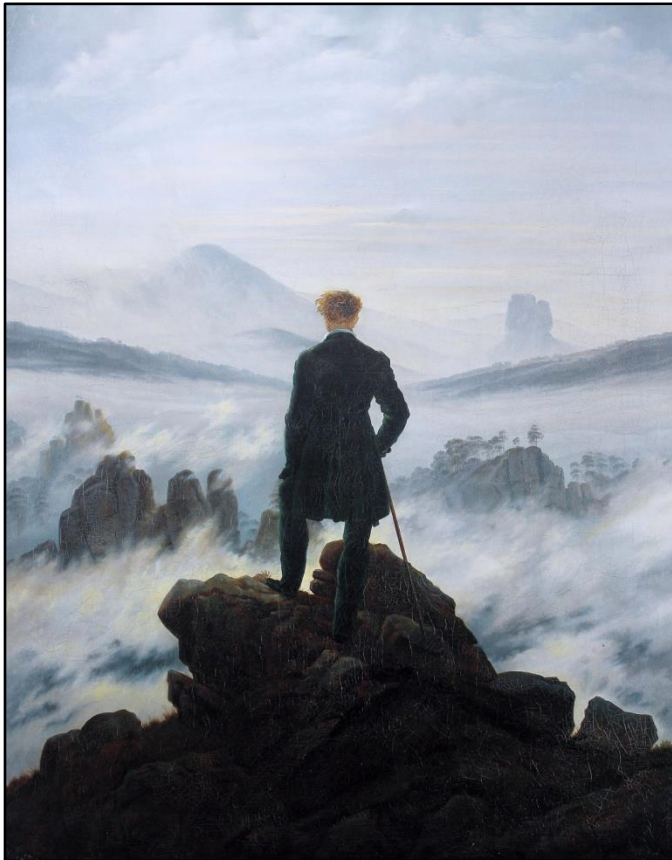
In this project, too, the interactions I experienced with **SARA** lead me to consider that it is very difficult to pinpoint where the one ends and the other starts.

AI, in its contemporary uses, is not a free standing and competing intelligence; it is not **“dangerous because uncontrollable.”**



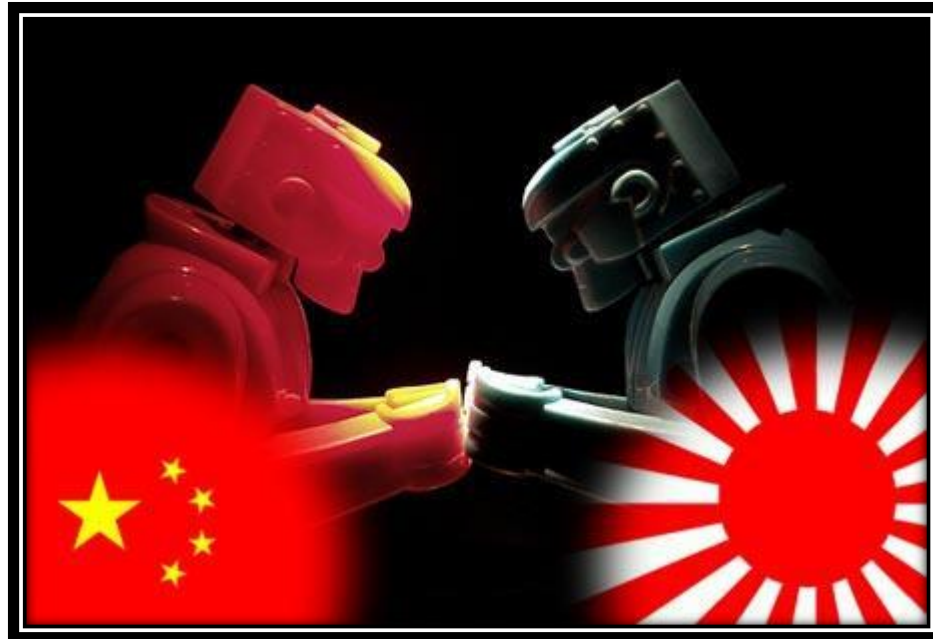
SARA is more like a **prosthetic intelligence**, recalling Turkle's point that "we think with the objects we love" (2007).

An anthropologist can now **leverage thinking** exponentially, and thus greatly increase the number of people accessed. A new view for a new world?



## Hypothesis:

By using SARA, are we able to obtain accurate predictions on the development of international crises in Asia.



These predictions should be specific and time bound. For example:



Tensions with **North Korea**  
have a probability of **95%**  
of becoming even more **negative**  
over the next **21 days**.

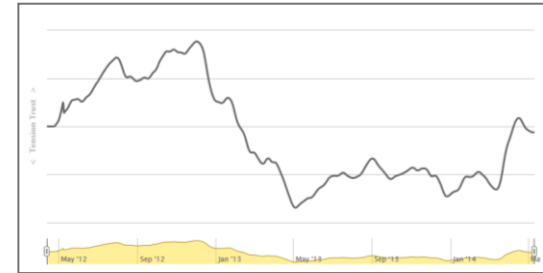
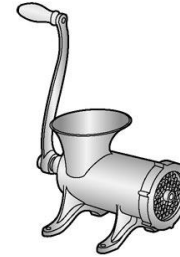
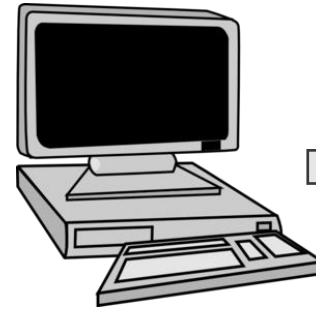


Tensions between **China and Japan**  
have a probability of **90%**  
of reversing and becoming more **positive**  
over the next **13 days**.

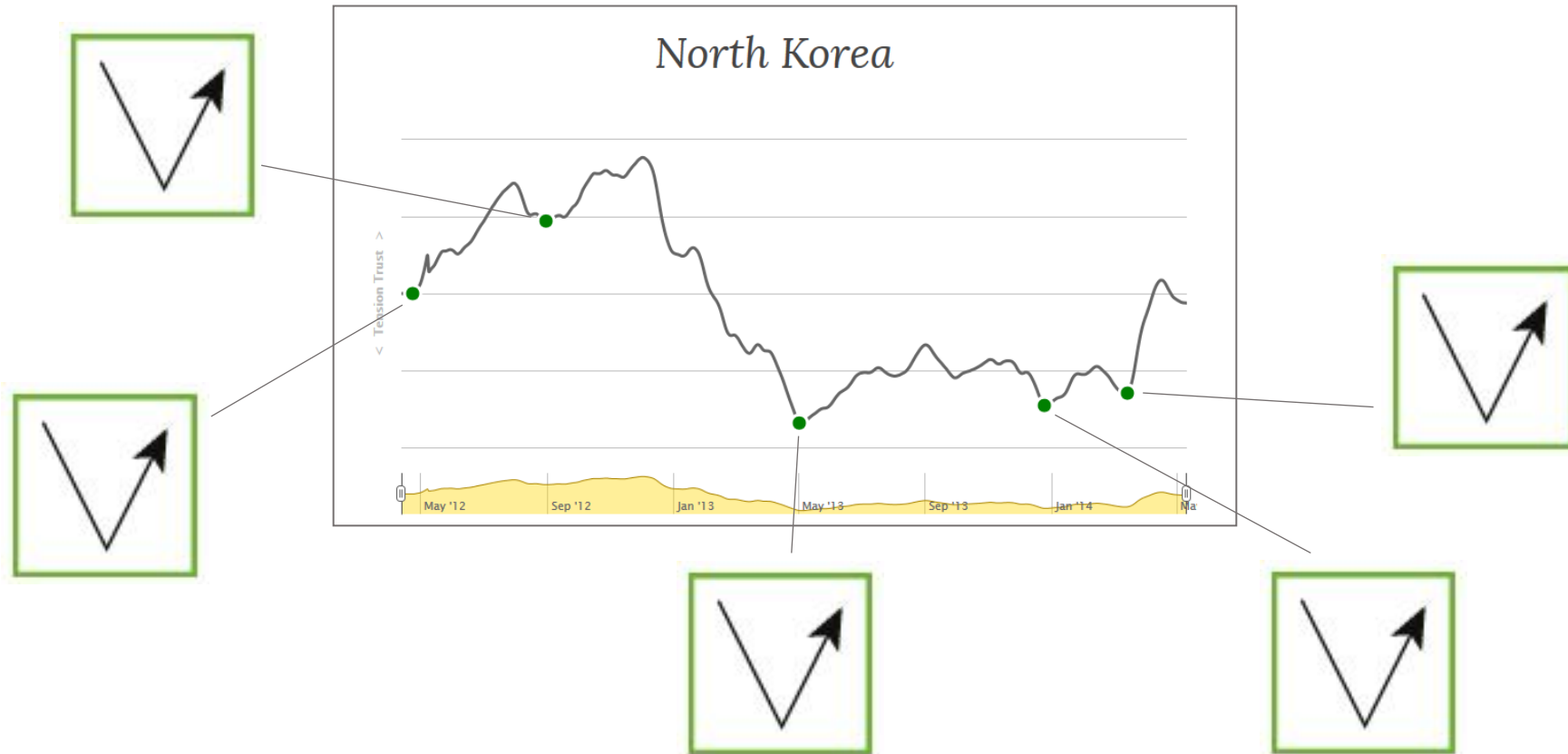
To do this we need something objective to **measure** the predictions against.  
How do we measure the existence of more or less tension?



Tensions are reflected in negative sentiment in the news. Sentiment in the **online news** can be quantified over time using SARA.

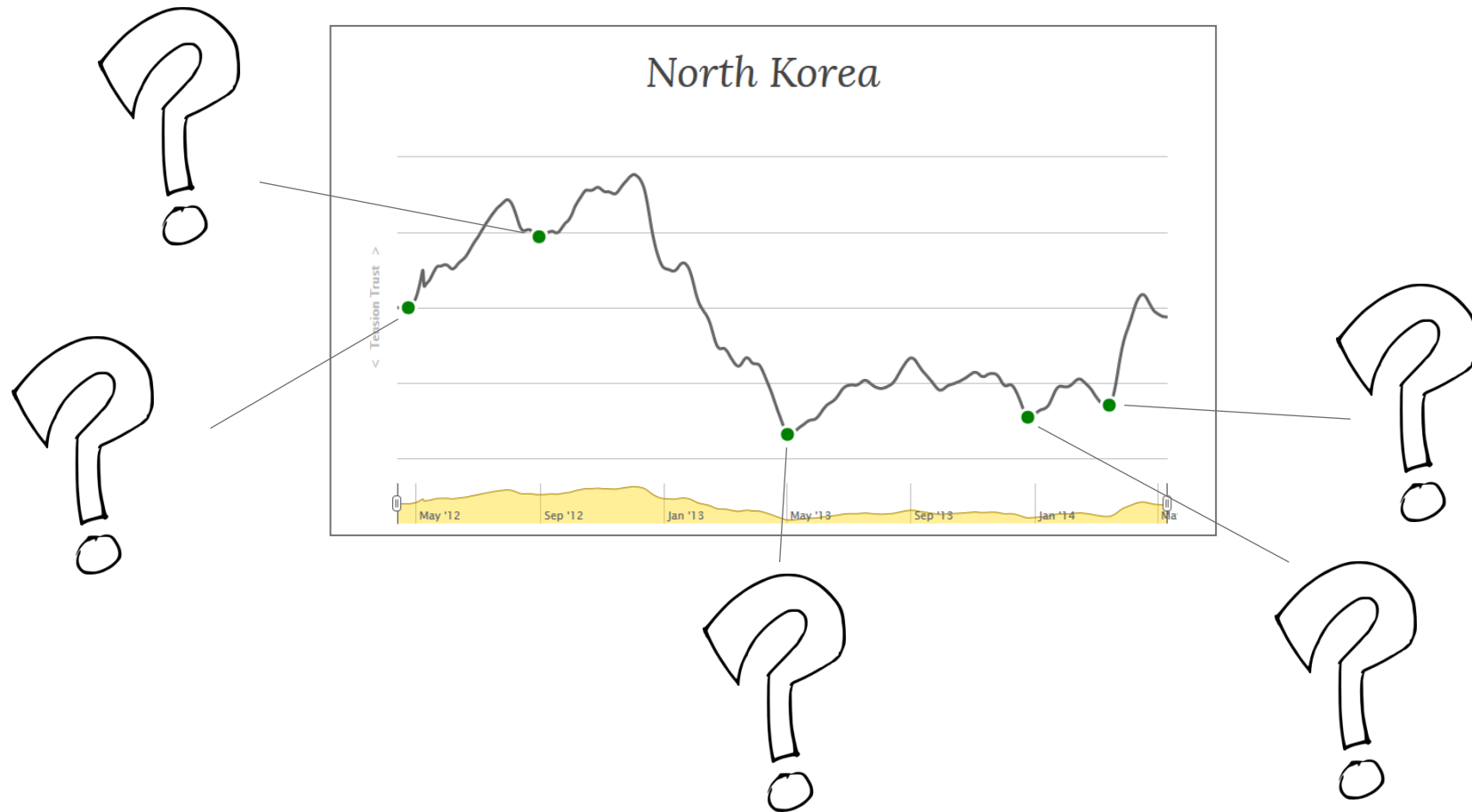


Now that we have a way to objectively measure tensions we may turn our attention to the next question: How do we make a prediction? First, we find recurring **patterns** in negative sentiment in the news.

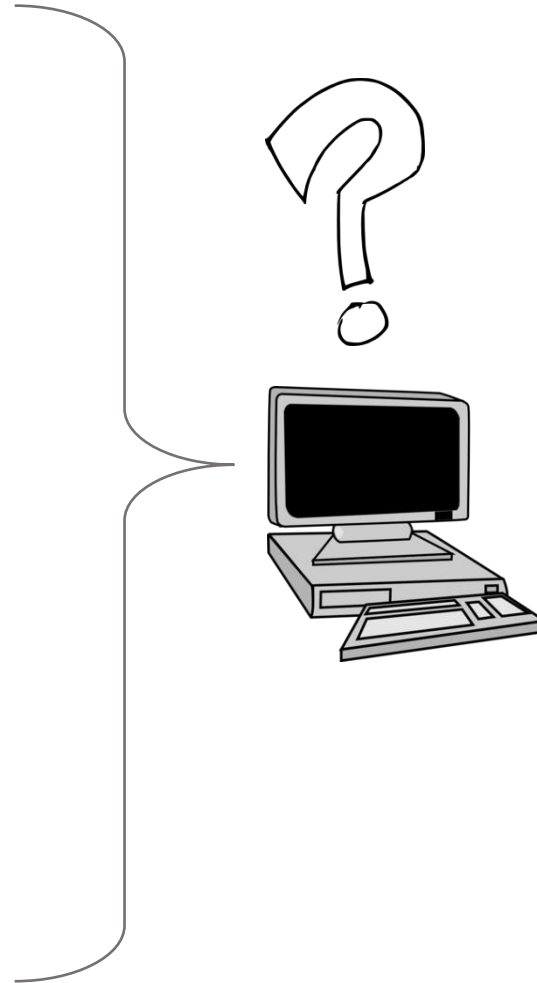
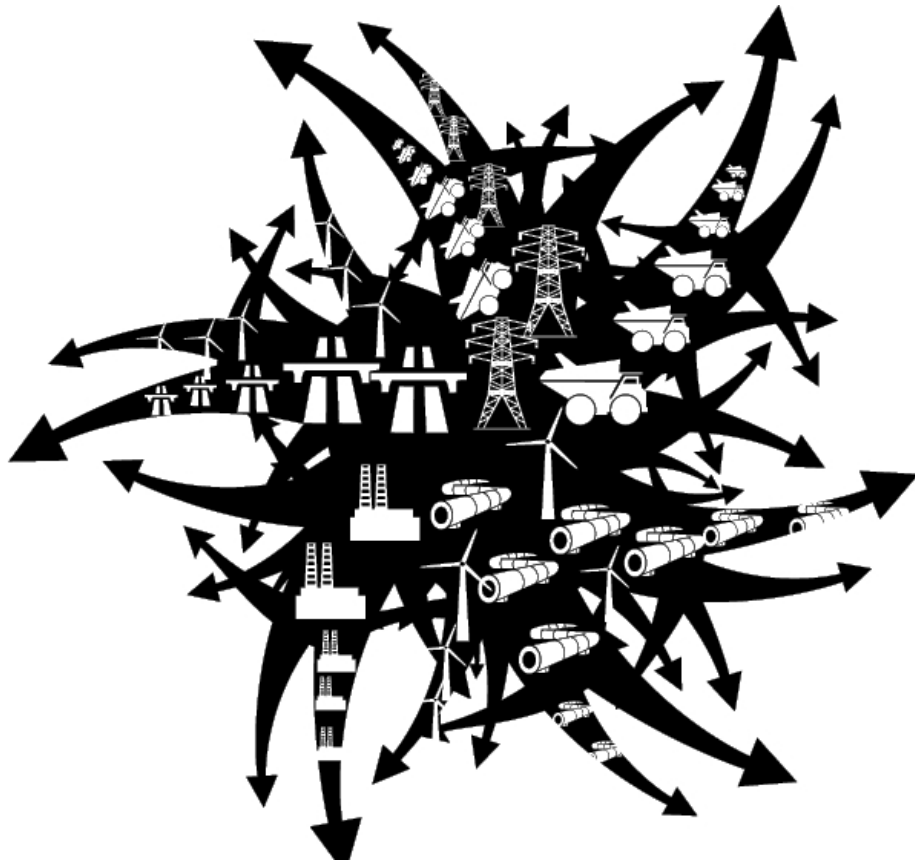




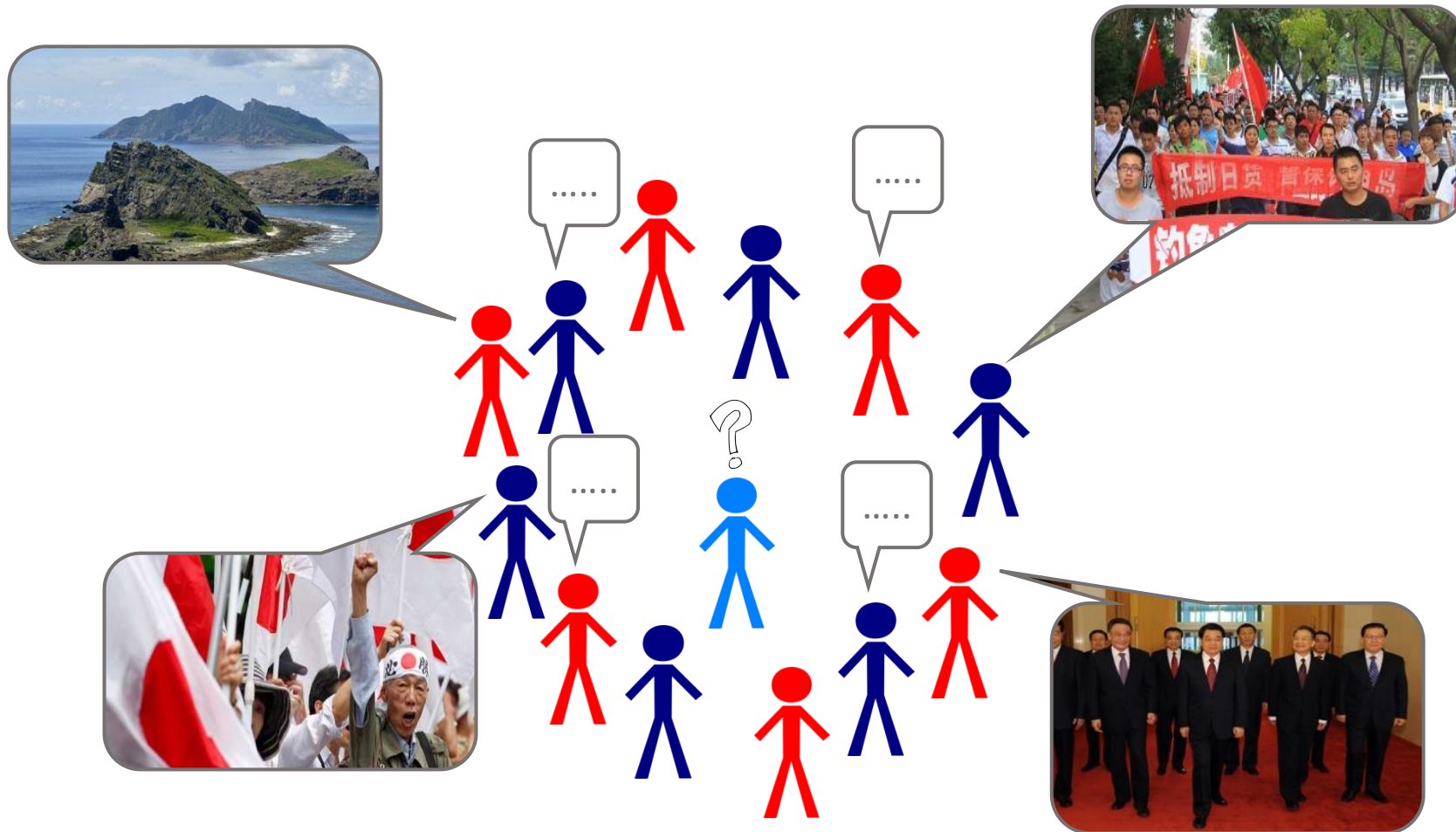
Next, we use SARA to identify what are the common **characteristics** to all of those events in the past. What was happening in different subtypes of online data (the mainstream media, blogs, search trends...)?



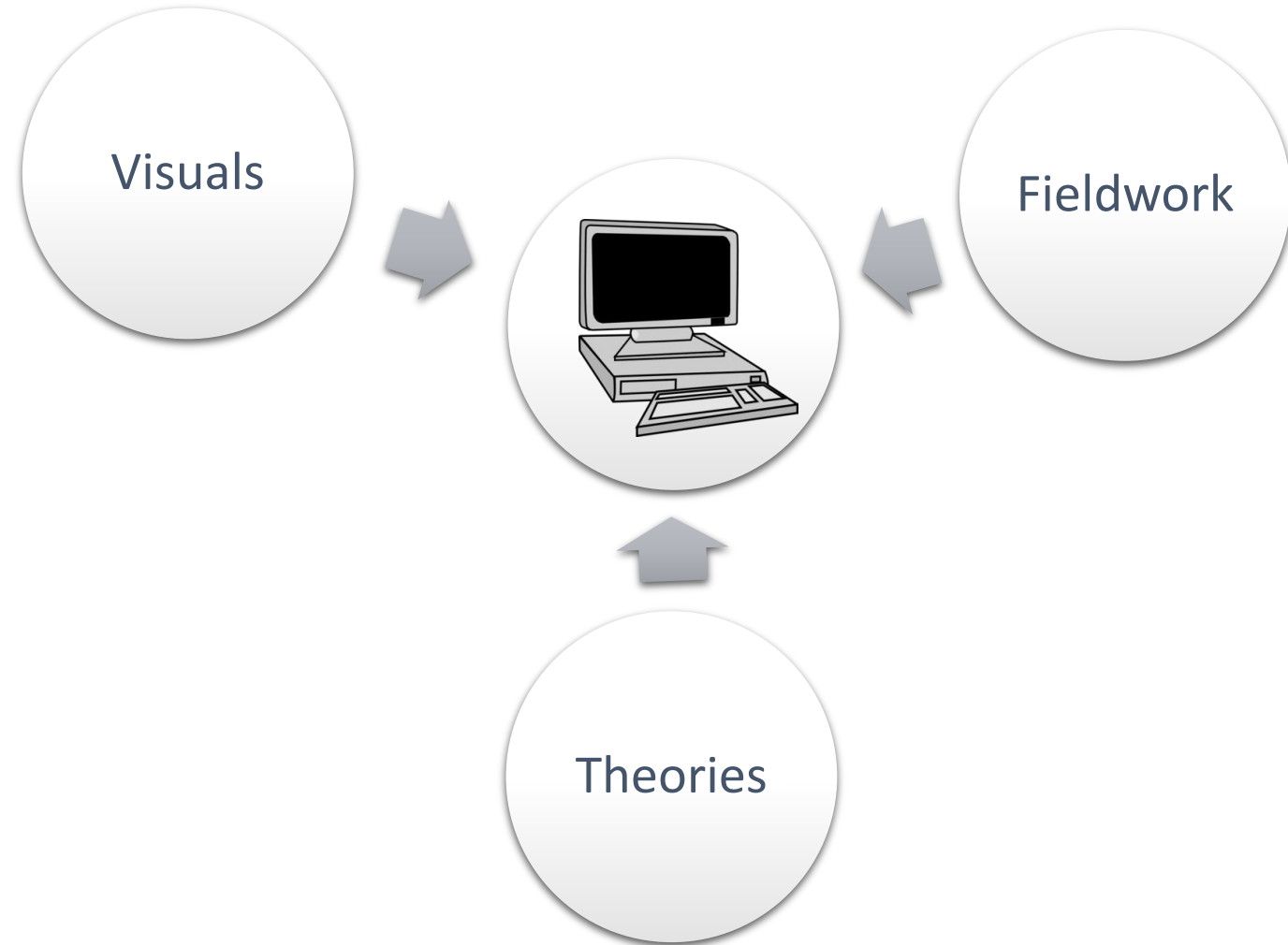
However, algorithms often fail to properly contextualize random or unexpected events. **Human perception** is necessary to make the connections that machines cannot possibly be programmed to look for in advance.



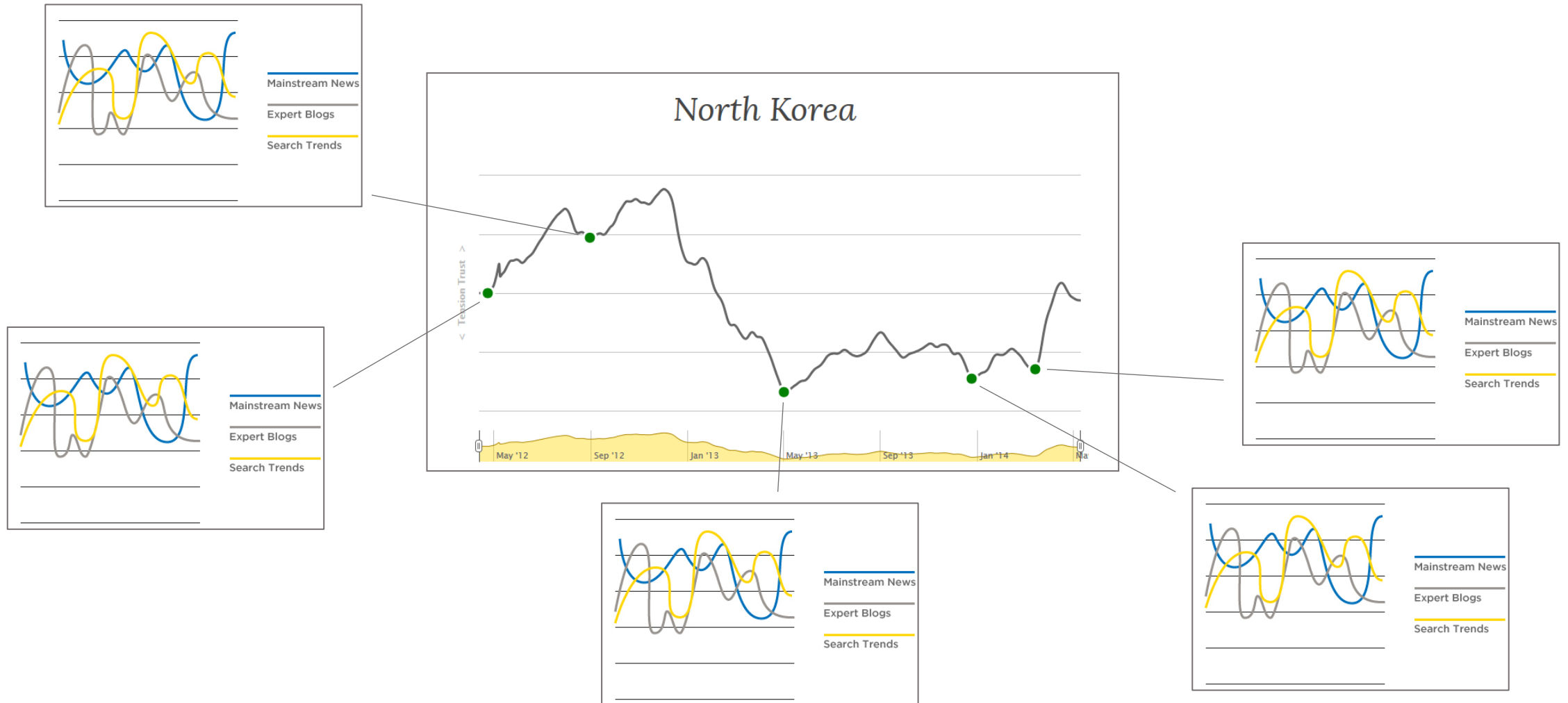
Through **fieldwork** we get information that we cannot get through data analytics alone. This information is then used to fine tune SARA's algorithms.



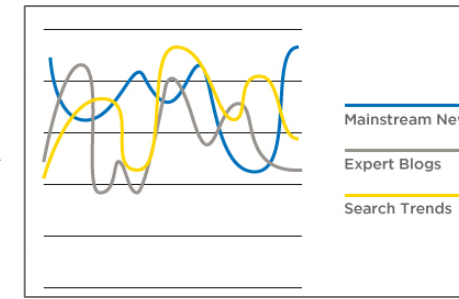
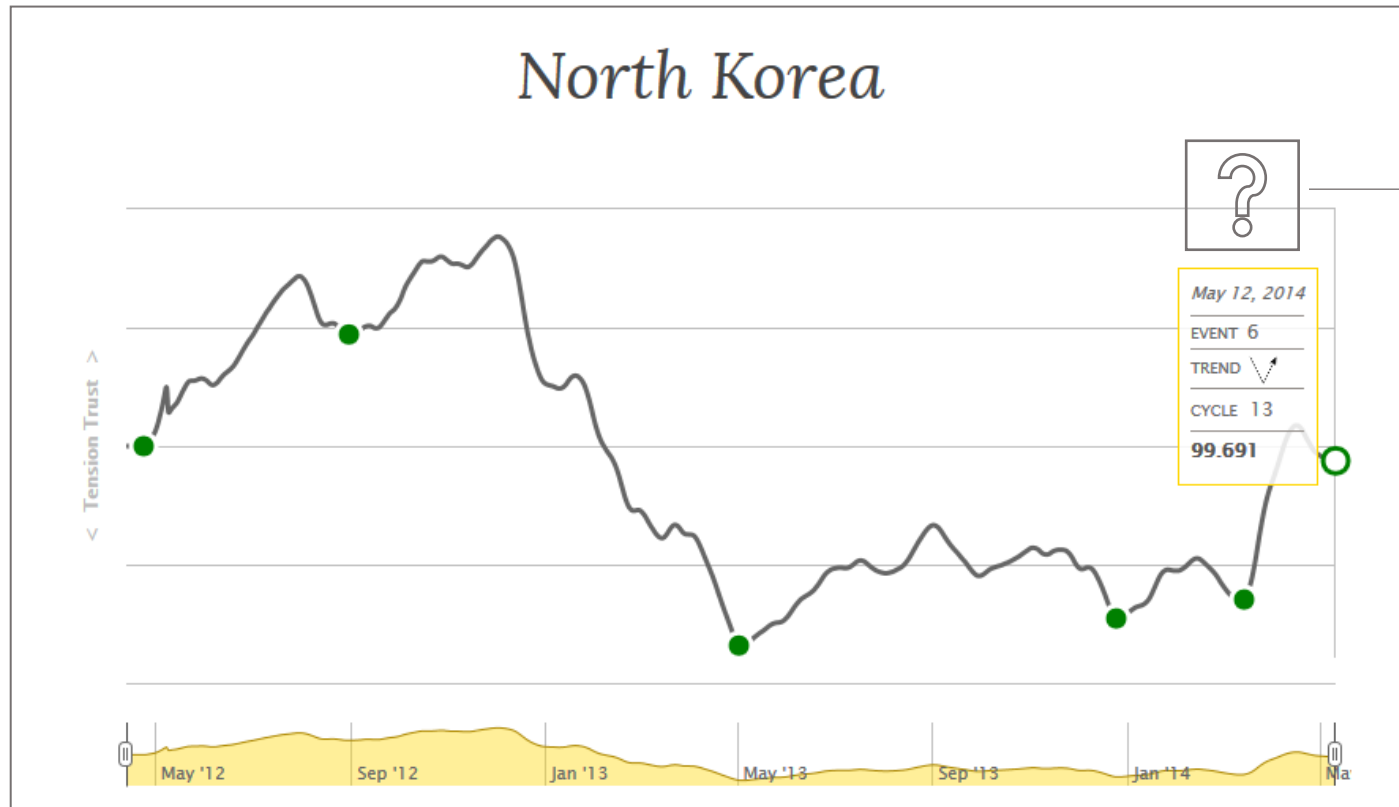
As mentioned above, a **continual recalibration** of the algorithms used is necessary to keep SARA sharp. Calibration comes from three sources: the visuals produced by SARA, fieldwork, and theoretical considerations.



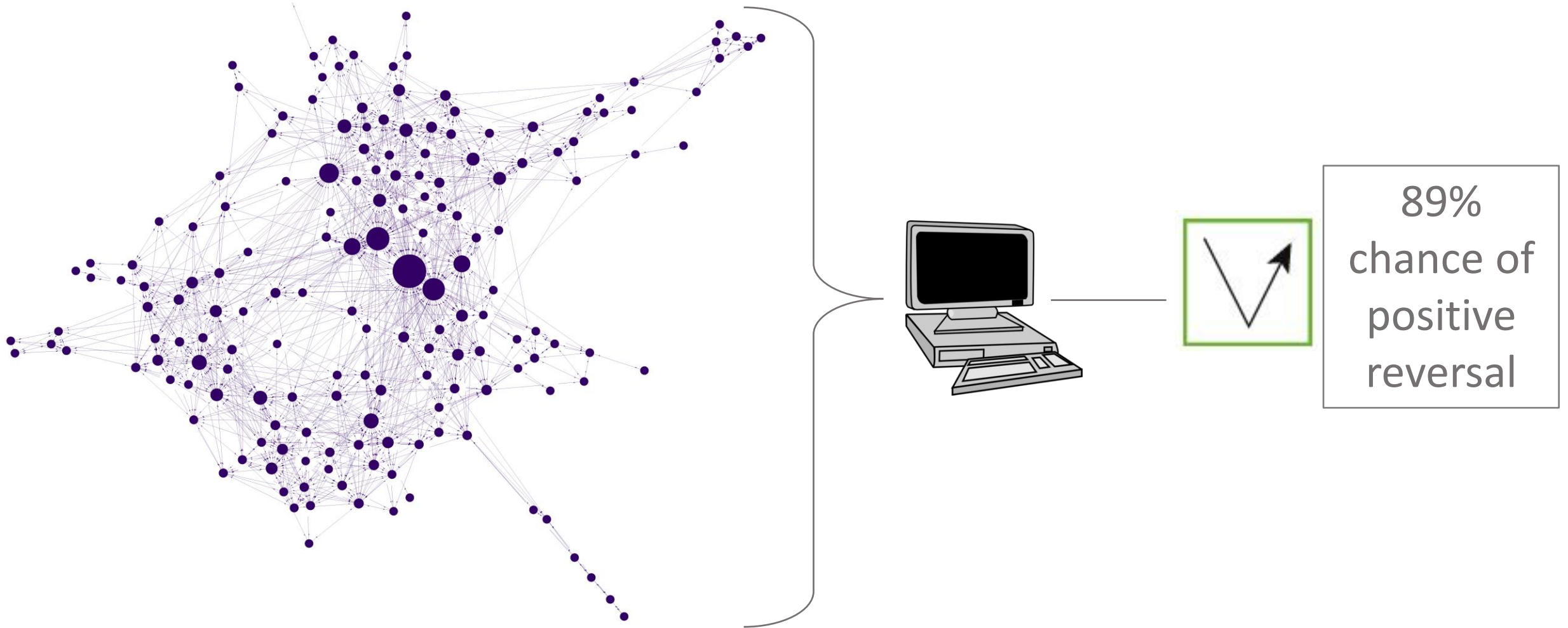
Once recalibrated, SARA can uncover **recurring patterns** in the subtypes of online data that led to a specific development each time.



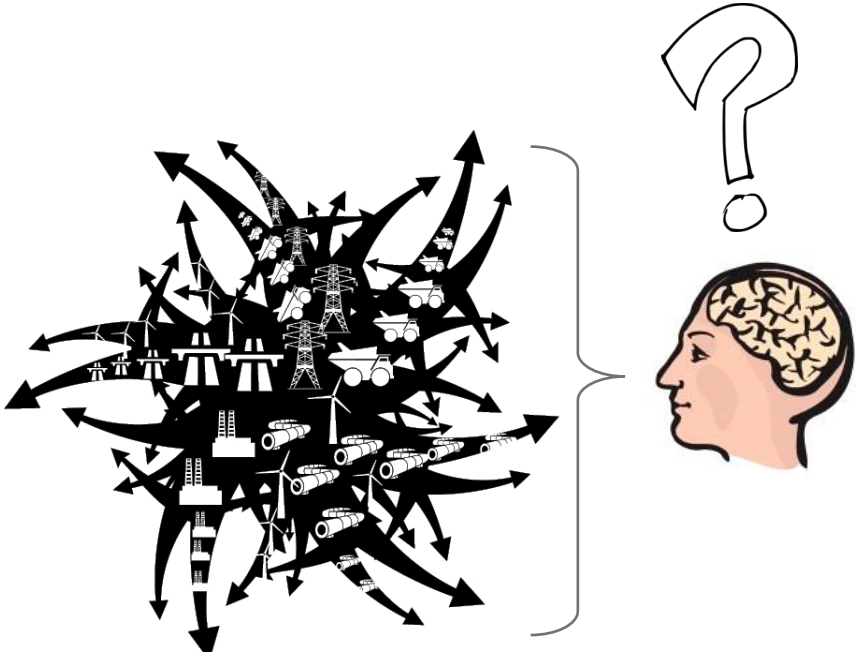
Lastly, SARA looks at what is happening in **real time** data. If patterns in the subtypes of online data are the same as they were in the past, a signal is made.



It is called **Social Asset Risk Analysis** (SARA) because it allows us to look at relations between social phenomena (past behavior) and quantifies risk as a percentage of possibility (in the present).

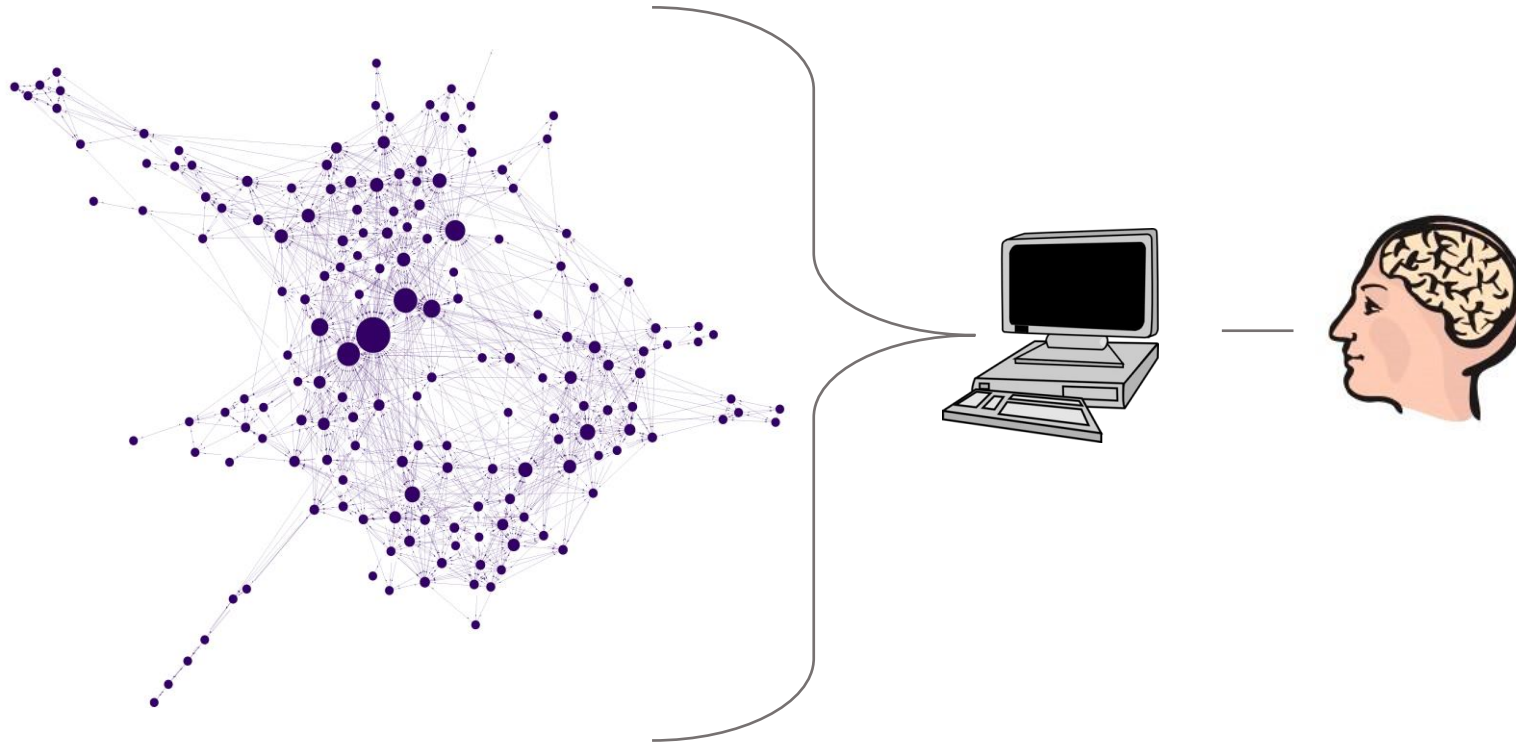


Artificial Intelligence allows for a **prosthetic intelligence** which can help clarify political scenarios that are otherwise too complex.





It is thus possible to uncover hidden connection, **patterns** and correlations.



**Does this work?** Yes, it is possible to obtain accurate predictions on the development of international crises in Asia. Here are some examples. The accuracy rate in all cases exceeded 80% in the past two years.

## Senkaku/Diaoyu Islands



**Sleepy Islands and a Smoldering Dispute**

Claims to the uninhabited islands known as Senkaku or Diaoyu are complicated by past alliances and modern interdependency between China and Japan.

By MARTIN HOOGHEIJER and ANDREW JOHNSON  
Published: September 20, 2012

**ISHIGAKI, Japan** — In the fishing harbor here, Japan has increased the number of sleek, white Coast Guard cutters to fend off the Chinese patrol boats that have stepped up their challenge of Japan's control of disputed nearby islands, one sign of a smoldering conflict that has threatened relations between Asia's two giants.

But even here in Ishigaki, at the southern edge of Japan closest to the contested territory, many fear that the heated showdown may scare off other, more welcoming Chinese visitors: tourists who sustain the town's resort-based economy.

The conflicted feelings are emblematic of the quandary both nations face as they once again clash over sovereignty of the uninhabited islands in the East

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## North Korea



**North Korean Leader Makes Overture to South**

By CHOE SANGHUN  
Published January 5, 2013

SEOUL, South Korea — The North Korean leader, **Kim Jong-un**, called for an end to the "confrontation" with rival South Korea on Tuesday in what appeared to be an overture to the incoming South Korean president as she was cobbling together South Korea's new policy on the North.

North Korea issued a major policy statement on New Year's Day, following a tradition set by Mr. Kim's grandfather, the North Korean founder Kim Il-sung, and continued by his father, Kim Jong-il, who died in December 2011, bequeathing the dynastic rule to Mr. Kim.

Although Mr. Kim inherited the central policies of his father, outside analysts see him as trying to distance himself in a variety of ways from his father's ruling style. Kim Jong-il was more feared than respected among his people, and his rule was marked by a major famine.

The most significant feature of Kim Jong-un's speech was its marked departure of tone regarding South Korea.

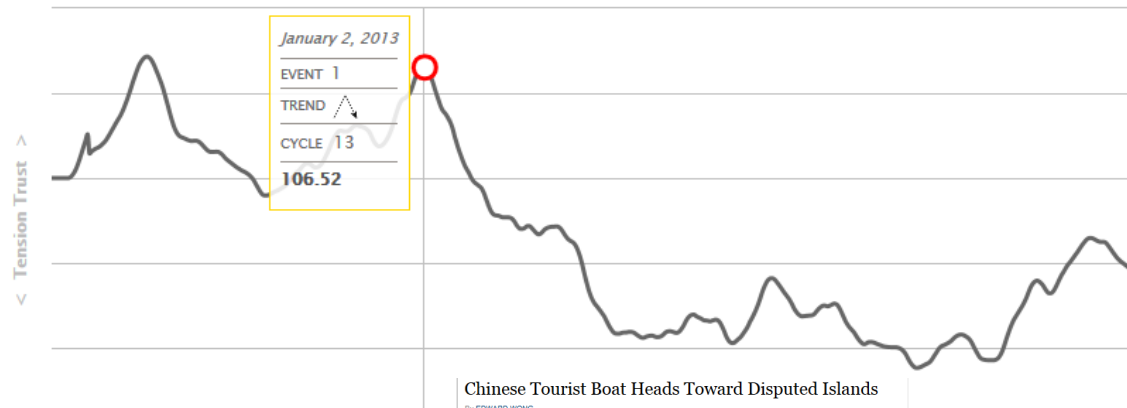
"A key to ending the divide of the nation and achieving reunification is to end the situation of confrontation between the North and the South," Mr. Kim said. "A basic precondition to improving North-South relations and advancing national reunification is to honor and implement North-South joint declarations."

He was referring to two inter-Korean agreements, signed in 2000 and 2007, when two South Korean presidents, Kim Dae-jung and Roh Moo-hyun, were pursuing a "Sunshine Policy" of reconciliation and economic cooperation with North Korea and met Mr. Kim's father in the North Korean capital, Pyongyang.

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# Spratly Islands

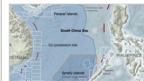


## Chinese Tourist Boat Heads Toward Disputed Islands

By EDWARD WONG  
Published: April 29, 2013

A cruise ship carrying Chinese tourists has embarked on a trip to the Paracels, a group of islands in the South China Sea that are claimed by both China and Vietnam. [Vietnamese news reports](#) said the ship left the coast of mainland China on Sunday despite protests against any such trip by the Vietnamese government in early April.

### Multimedia



Interactive Map  
Territorial Claims in South China Sea

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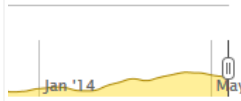
Twitter List: Reporters and Editors

China and Vietnam have long disputed sovereignty over the Paracels. China is also competing with other Southeast Asian nations to lay claim to other parts of the South China Sea, notably the Spratly Islands.

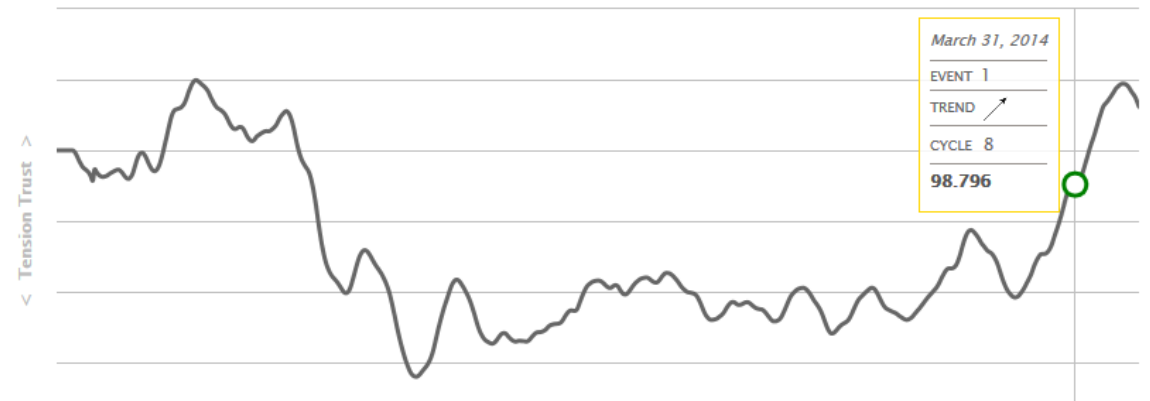
Thanh Nien, a Vietnamese state-run news organization, said Vietnam's National Border Committee under the Ministry of Foreign Affairs had filed a protest on April 5 against the plans for the cruise, arguing that Vietnam had "incontestable" sovereignty over the Paracels and Spratlys. China's territorial claims have come under closer scrutiny recently as the country exerts its military strength more prominently. This month, Chinese soldiers set up camp inside the remote Ladakh region of northern India, Indian officials said. It is unclear why the soldiers made that move.



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# Mindanao



## The Philippines: Peace Accord Is Signed

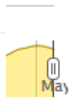
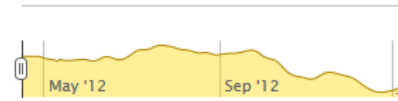
By THE ASSOCIATED PRESS MARCH 27, 2014

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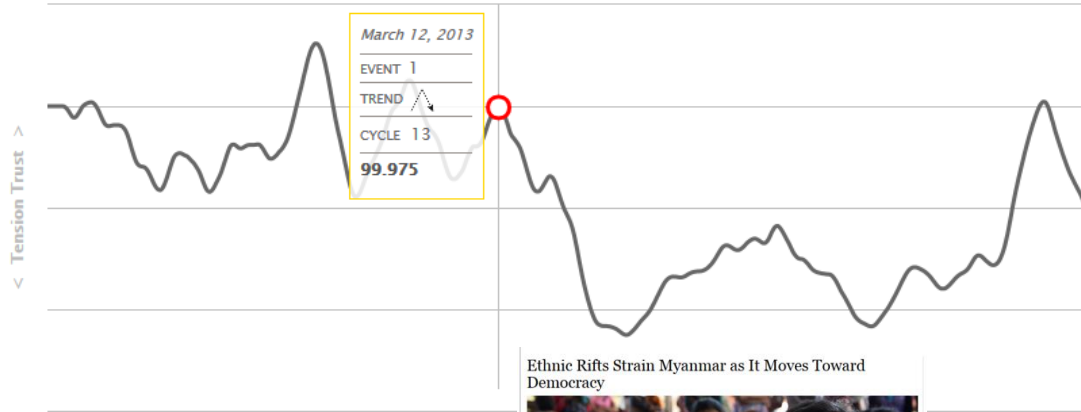


The Philippine government signed a peace accord with the country's largest Muslim rebel group, the [Moro Islamic Liberation Front](#), on Thursday, the culmination of years of negotiations. The deal grants largely Muslim areas of the southern Mindanao region greater political autonomy in exchange for an end to armed rebellion, although other insurgent groups have vowed to keep fighting for full independence. The deal calls for rebel arms to be put "beyond use" by 2016, a government negotiator said. More than 120,000 people have died in separatist violence since the 1970s in Mindanao.

A version of this brief appears in print on March 28, 2014, on page A10 of the New York edition with the headline: The Philippines: Peace Accord Is Signed. Order Reprints | Today's Paper | Subscribe



# Burma/Myanmar



Ethnic Rifts Strain Myanmar as It Moves Toward Democracy

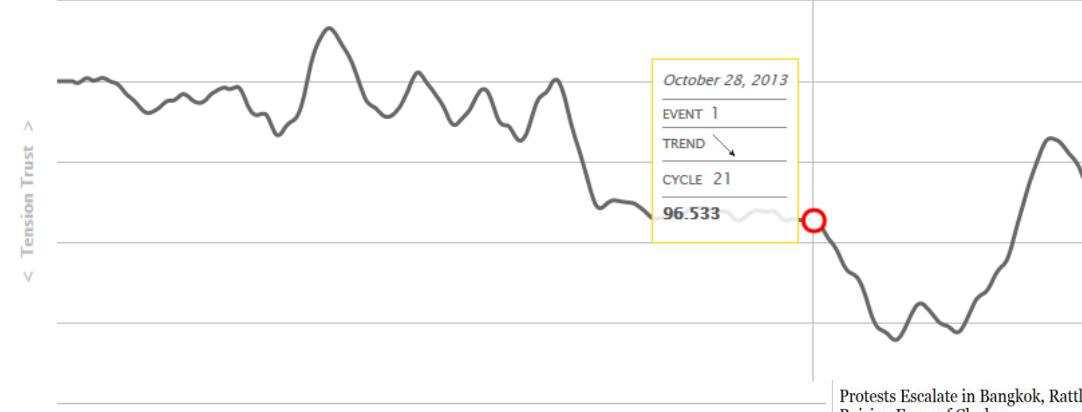


Adam Osan for The New York Times  
A Kachin village, who fed the continuing conflict between the Burmese Army and the Kachin Independence Army wept at a peace march in Myanmar, Myanmar. More Photos »

MYITKYINA, MYANMAR — When residents of this northernmost region of Myanmar talk about the tremendous changes of the past two years, they are not referring to the media freedoms or the economic liberalization transforming other parts of the country.

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# Thailand



Protests Escalate in Bangkok, Rattling Government and Raising Fears of Clashes



Demonstrators filled a Bangkok street during a rally against an amnesty bill on Monday. Thousands of protesters gathered in several parts of the city.  
By THOMAS FULLER  
Published: November 11, 2013

BANGKOK — With thousands of antigovernment protesters in the streets of Bangkok on Monday, Thailand's opposition announced a campaign of civil disobedience, including a three-day general strike later this week and a call for businesses to delay paying their taxes.

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**Value added # 1:** this type of semi-automated analysis helps avoid emotionality and vagueness (mainstream media) or informing conclusions with a political agenda (think tanks).



**Value added # 2:** developments concerning international crises can be correlated with the fluctuation in price of particular economic assets.

### Thailand

