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Rapid Report

The latest news from Cogito

March 2006

Cogito

With the Academy Awards behind us and tax season in front of us we thought you would enjoy two things about March 2006: NCAA basketball and the 4th issue of the Cogito Rapid Report.

This issue highlights the value of fusing data using our Knowledge Center and how it can help create hypotheses for investigation and analysis. We also take a moment to show a bit about notable Hollywood connections using the Internet Movie Database and the Cogito Knowledge Center.

Enjoy the articles and if we come up with a way to do your taxes with Graph-Based Relationship Analytics we will be sure to advise early next month.

Fusion, Not Confusion

Coleman Barney, CEO



There's a show on the History Channel right now that explores the tremendous influence of "Star Trek" on today's technology. The premise is simple—Star Trek introduced outlandish ideas (social as well as technology, by the way) and viewers believed the possibility and made it happen. Star Trek introduced us to ion propulsion, mobile communications, laser surgery and highly searchable computer systems.

In the past decade another show (and its progeny) has greatly influenced our understanding of crime scene investigation and how connections can be made between seemingly unrelated objects, people and events. CSI has created a generation of viewers that believes that crime can be solved in an hour, because the clues can be tied together by smart people using cool technology.

And why not? What keeps us from making connections between the disparate pieces of information available to us? Usually the answer is that we've done a very good job of designing systems to store data and not such a good job of automating the process of finding relationships within the data. Traditional systems are not optimized for this, leaving the task largely to serendipity.

The Cogito Knowledge Center, on the other hand, is a master at what we call data fusion. Fusion is the process of bringing data together into a melded state and modeling it, importing it and linking the data together into a graph such that relationships can be discovered, patterns detected, and networks followed. Fusion begins with modeling which is defining how the data entities are connected, followed by the ingest process, where data is imported and

linked as nodes and arcs (objects and relationships). Unlike an RDBMS, which assigns data to fixed tables and rows, Cogito is based on a graph database which offers a flexible and adaptive schema, supporting pre-defined and re-defined searching on the fly.

The process of Cogito's data fusion is tremendously more efficient than an RDBMS import, both in the physical storage space and in the time required to define nodes and arcs instead of processing the relationships out of rows and tables. This efficiency extends to the search process, where no procedure writing is required and searches take only moments to define and milliseconds to execute.

The true value of fusion is appreciated when an analyst begins to interrogate the data. Then things begin to resemble Star Trek again. Imagine the interaction between analyst and computer:

Analyst: "Show me all recent jewelry heists involving a deadly weapon."

Computer: "Here are five heists, identified in police records."

Analyst: "Correlate to the MO of known jewelry thieves not currently in prison."

Computer: "Three thieves on parole have a similar MO, according to police and court records."

Analyst: "What connections are there between these thieves?"

Computer: "Two were cell mates. No known connection with the third, based on department, court and prison records as well as phone activity."

Analyst: "Which of these thieves have been in touch with known jewelry fences?"

Computer: "One of the thieves called a fence today, according to phone records."

Analyst: "Show me a mug shot of my prime suspect."

Computer: "Here it is, fetched from the Corrections Department files."

Sounds like Star Trek, but it's not. It's reality. It's Cogito Knowledge Center.



A Hypothesis, My Kingdom for a Hypothesis!

Joe Celko, Industry Consultant

Data is available in huge, computerized quantities. You gather it, you buy it or you find it on the Internet. Yet data is not very interesting or useful on its own—it is not information much less wisdom. To get from data to information you must come up with a testable hypothesis.

So how do you develop a hypothesis? When you have no particular starting point and there are hundreds of factors in thousands of cases to consider, traditional approaches are critically flawed. At best they demand a strong knowledge of statistics and at worst they introduce difficult to detect prejudices, either stemming from your vantage point or from the lack of context in the data analysis. What you really need at the start of a project is a

quick way to look over all the factors involved, so that you can avoid these problems.

Fortunately a new tool called the Cogito Knowledge Center now makes it possible for any analyst to generate a testable hypothesis without requiring a deep knowledge of statistics. This tool keeps relationships in context as it provides a quick way to look over all the factors involved. The Cogito Knowledge Center starts with a visual model that lets you discover the relationships hidden in the mass of data. Then, using relationship analytics, you can continue to drill through the information to find non-obvious relationships and repeatable patterns.

Another benefit of this approach is that it lets you show a non-technical person how you got to a testable hypothesis with a few factors when you had so many factors to consider in the first place. That kind of quick intuitive explanation would not be possible with a traditional statistical tool. Traditional charts do not help, because they assume you already know the relationships among the factors and you are making those relationships visual to explain them after the fact.

Six Degrees of Pamela Anderson

Last month we described a benchmark where we found the degree of separation between two actors or actresses. This benchmark was based on a game called the Six Degrees of Kevin Bacon, where participants must find the shortest path between a given actor and Kevin Bacon.

So imagine my surprise (and pleasure) when I was leafing through a recent issue of Entertainment Weekly and came upon an illustration of the degree of separation between Pamela Anderson and Dakota Fanning. The illustration ties them together through 5 well-known actors.

This, of course, got me to thinking. Is there another path between the two? Is it shorter? It took only seconds using the Cogito Knowledge Center to get the answers. We found four different paths with only two degrees of separation. Pamela was in "Pauly Shore is Dead", along with four others (Clint Howard, Paris Hilton, Sean Penn, and Mark McGrath) who were all in another movie with Dakota Fanning. Here is a [diagram of the actors and movies](#).

This, of course, got me to thinking about Pamela Anderson and her connections in Hollywood. Just how influential is she? I decided to see if she could be connected to some of the Oscar winners. Here's what I found:

- George Clooney (2 degrees, 2 different ways)
- Philip Seymour Hoffman (2 degrees, 5 different ways)
- Reese Witherspoon (2 degrees, 1 way)
- Rachel Weisz (2 degrees, 3 different ways)
- Morgan Freeman (2 degrees, 7 different ways)

Isn't that amazing? Do you think it's just a coincidence that the Oscar winners are closely associated with Pamela Anderson? With the Cogito Knowledge Center you could continue to explore relationships in Hollywood and develop



your own hypothesis!

News and Events

What's going on in Cogito

- In March we welcomed Tim Jarvis as our new Chief Software Architect. Tim has a long background in enterprise applications. [Read press release.](#)
- If you are in the intelligence sector, look for us at [GOVSEC](#) in Washington D.C. from April 25-27, 2006.

We have a limited supply of GovSec Show Passes available by request through the Talk Back link below.

About Us

Cogito is a software company that specializes in Graph-based Relationship Analytics and has developed an innovative and patented solution based on mathematical graph theory that provides data analysts and users tremendous power in structuring, querying, analyzing, and viewing data and data relationships. Using the Cogito Knowledge Center, information analysts – security experts, financial analysts, database administrators and researchers – can rapidly search, match, compare and discover patterns in data.
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