

Politics in Middle East: Particulars and Facts

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UCLA, Fall 2002

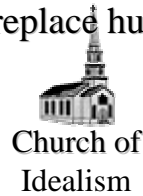
www.isi.edu/~adibi/InternationalRelation.htm

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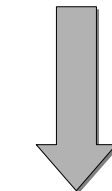
Data Mining Trend

Computers replace humans

- Expert Systems
- Decision Support Systems
- Machine Learning
- Data Mining



- Theory
- Research
- Prototype
- Application



School of
Realism



Computers for decision support

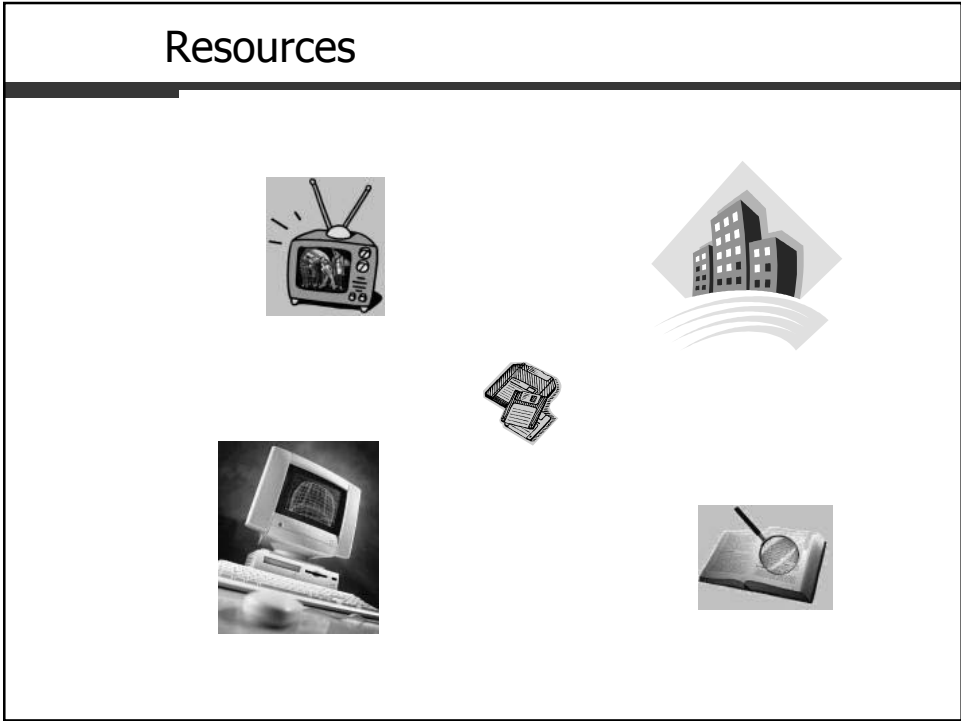
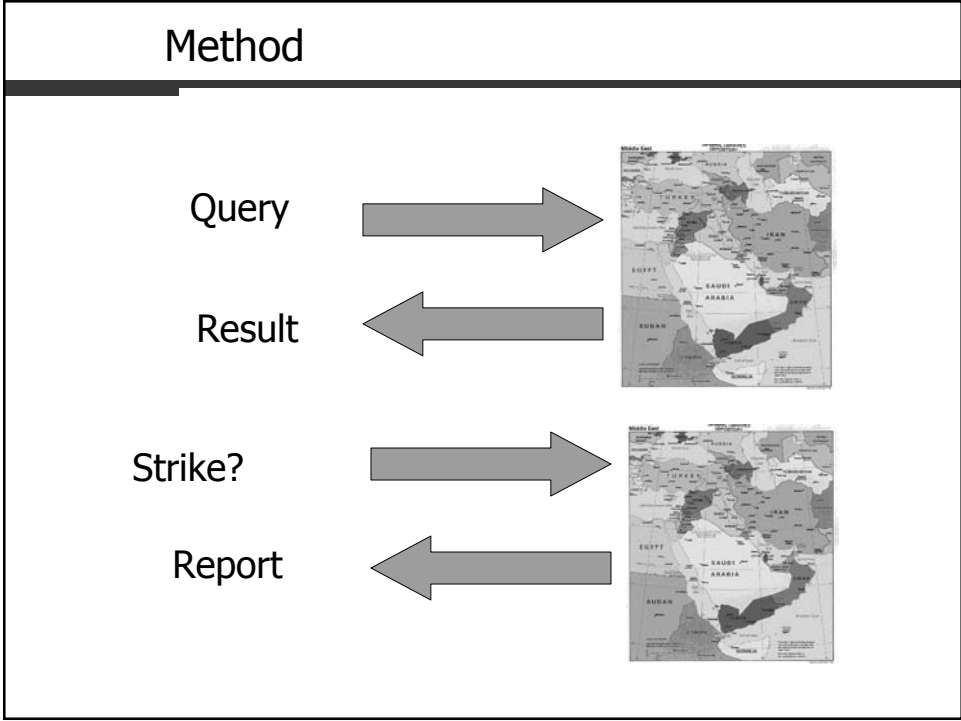
Dilemma !

- Human invented computer !
- Computer helps human to design faster computers !
- Computers help human to decide
- Computers help human to decide faster
- Computers crash every other day!
- Human make a new computer every 18 month or less!
- Human is very selfish!
- Human never trusts computer!
- Computer never trust human!
- We use computers in in every aspect of our live

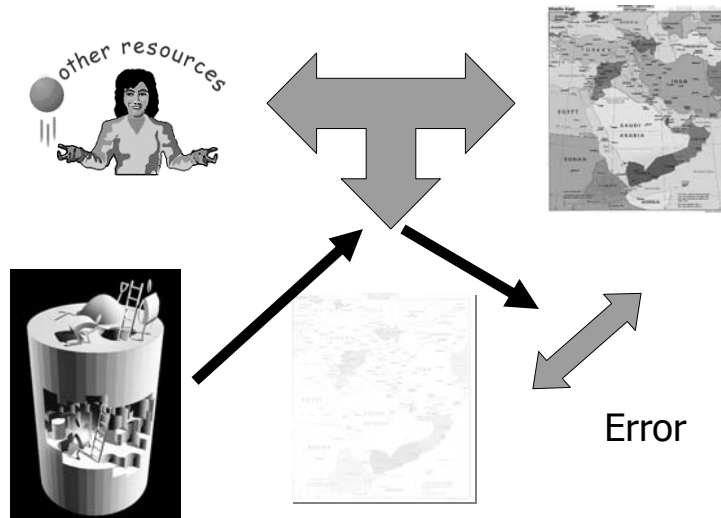
Vision

- Computer Science
 - Artificial Intelligence
 - Machine Learning
 - Data Mining and Knowledge Discovery
- International Relations
 - Early Warning System
 - Conflict Resolution

Application of Computer Sciences in
Early Warning Systems
Conflict Resolution



Process



Example

- Reliability of CNN = .05%
- Reliability of ABC = .06%
- Reliability of FOX = .007%

- News: Iraq is going to attack Turkey!?
- Probability $\cong 0$!

Example

- Iraq current situation
- Query
 - Have we ever seen a similar situation in past ?!
- Method
 - Extract features of all known cases in the region
 - Parties
 - UN reaction to the case
 - UK position, US position
 - Etc....
- Find the most similar one
 - The result of the crisis could be similar to the similar case

Why is this possible ?!

- New technologies
- Novel techniques
- Data
- Information
- Knowledge

Middle East and McDonalds

Thomas Friedman



- Middle East and McDonalds Theory !

We Love to see you smile !

McDonalds Theory



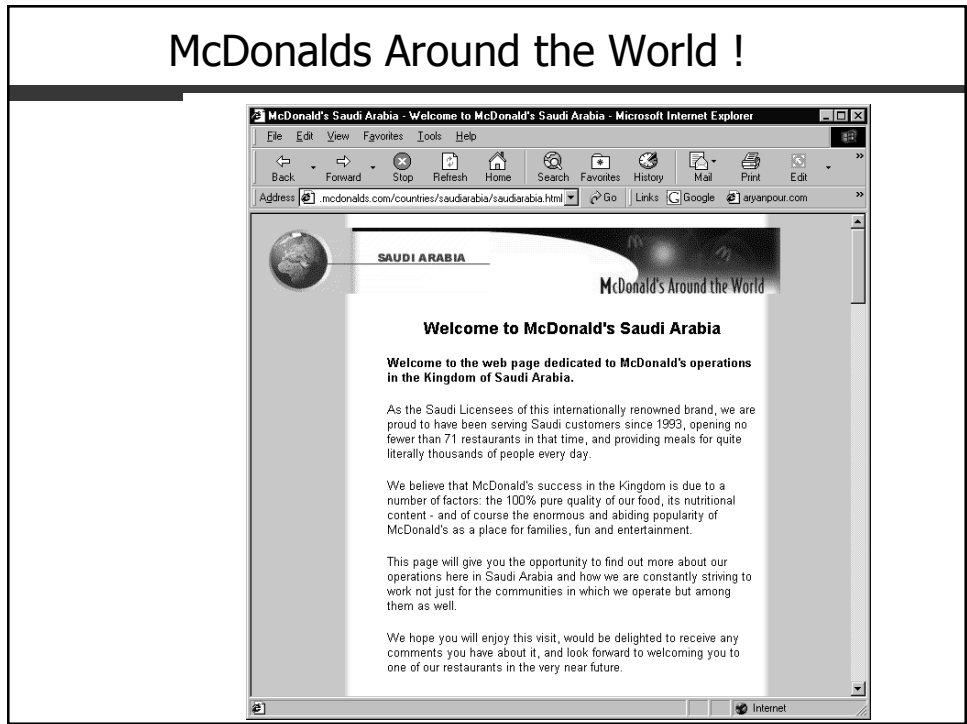
- There will be no war between two countries with active McDonalds stores!
 - Beef Industry
 - Agriculture
 - Economy
 - Health
- Counter Example !

McDonalds & Saudi Arabia



PS150553. Segregation at McDonalds. Women queue on the left section, Men on the right. May 2000. Riyadh, Saudi Arabia.
© Copyright Photograph by Eubank Jones 46 Stockwell Park Rd, London SW9 0DZ. Tel 020 7734 0155 www.duimage.com

McDonalds Around the World !



McDonalds



HH Prince Misha'al
Bin Khalid Bin
Fahad Al Faisal Al
Saud Licensee
McDonald's
Central & Eastern
Provinces



Coca Cola !



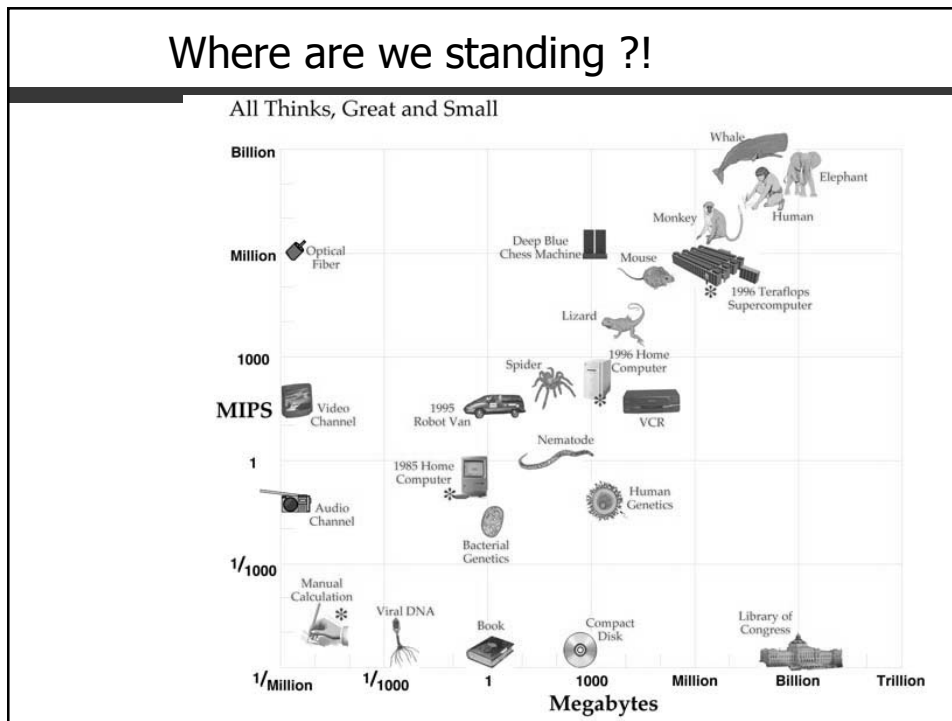
- **Saudi Arabians boycott Coca Cola and Pepsi for Iranian Zamzam**
Saudi Arabia-Iran, Economics, 8/23/2002

- An Iranian beverage drinks company has been witnessing great turnout in Saudi Arabia by boosting "an Islamic alternative" for the American drinks like Coca Cola and Pepsi Cola, due to people's boycott of the American products.

The Saudi promoter of the Iranian drink which is called "Zamzam Cola" said that the demand for this drink exceeds three times the expectations during the first week of selling the drink in the markets of the eastern area of the Kingdom.

Information of Age vs. Age of Information

Where are we standing ?!



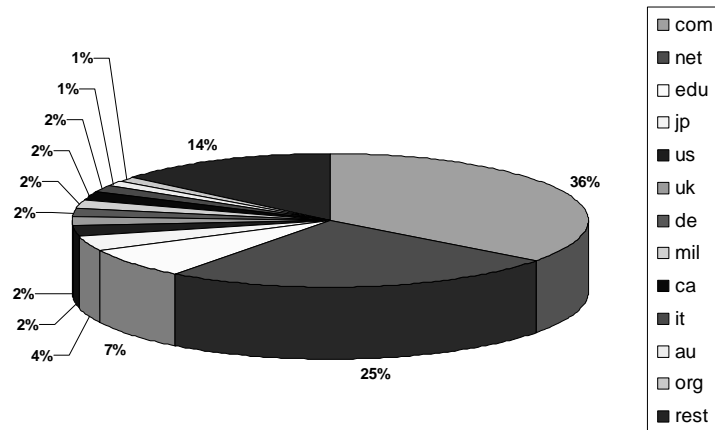
Computing and Communications

- Performance/Price doubles every 18 months
- 100x per decade
- Progress in next 18 months = ALL previous progress
 - New storage = sum of all old storage (ever)
 - New processing = sum of all old processing.
- Aggregate bandwidth doubles in 8 months!
- E. coli double ever 20 minutes!

Cyberspace is a New World.

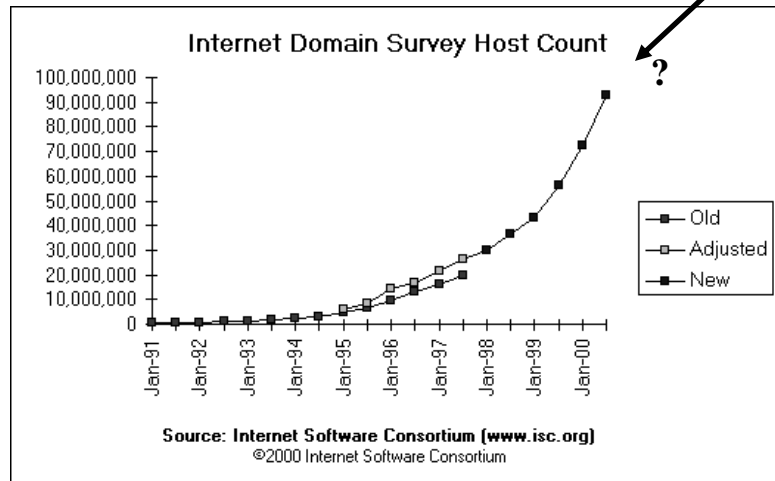
- We have discovered a “new continent”.
- It is changing how we learn, work, and play.
 - 1 T\$/y industry
 - 1 T\$ new wealth since 1993
 - 30% of US economic growth since 1993
 - And going down for a while !
- There is a gold rush to stake out territory.
- Even though the “Dot Com” era is over but Internet, networking and cyber space is growing.

Internet in the World



Distribution of Top-Level Domain Names by Host Count

Internet Growth



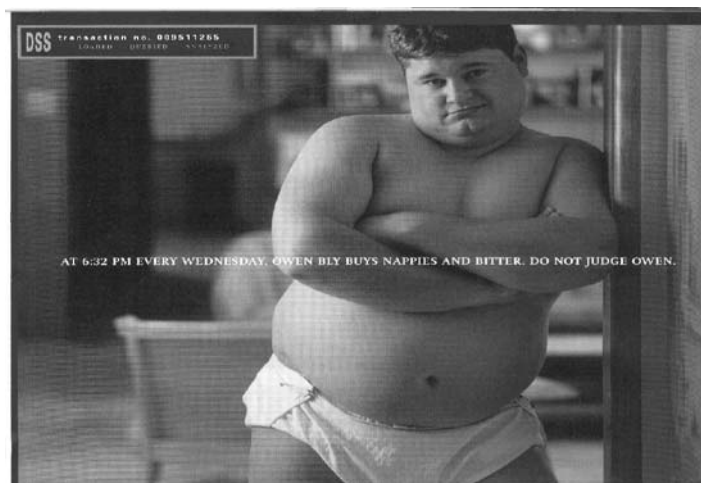
Content Distribution

- 28.32% of all computers will be in the USA; Europe will have 26.73% and countries like India or Mexico will only share 1.08%.
- Although there are over 6,000 different languages in the World and only about 470 million people are speaking English, 90 percent of information is stored in this language.
- This means at least 90% of Internet content is ready to mine!

Data Mining Overview and Definition

**“We are
drowning in Data
but
Starving for
Knowledge”**

Diapers and Beers !



Picture from Tandem™ advertisement

Diapers and Beers !

- Diapers and Beers
 - The most famous example of market basket analysis for the last few years.

If you buy diapers you tend to buy beer

- K. Heath at Terradata's Industry Consulting, ran a self joins SQL, trying to find two time sets that have baby items, which are particularly profitable.
- Found this pattern in their data for 50 stores/90 day period.

Ack: Ron Kohavi

Knowledge Discovery in Databases (KDD)

It is iterative. As you uncover "nuggets" in the data you learn to ask better question

Generalized to the Future

Not something we already know

- The non trivial process of identifying valid, novel, potentially useful, previously unknown and ultimately understandable patterns in large databases

[Fayyad et al.]

For our task. Actionable

Process leads to human insight

Size is matter

- Discover a higher level of knowledge representation, interpretation and abstract knowledge from low levels of raw data.

Fayyad, Shapiro, etal. 1995

Data Mining Definition

- A step in the KDD process, data mining refers to the application of statistical and artificial intelligence techniques (i.e., algorithms) for discovering patterns and regularities (i.e., actionable information) in large volumes of data
- Fitting models to or determining patterns from very large datasets.
- A “regime” which enables people to interact effectively with massive data stores.
- Deriving new information from data.

Data Mining in Six Words

- Valid: generalize to the future
- Novel: what we don't know
- Useful: be able to take some action
- Understandable: leading to insight
- Iterative: takes multiple passes
- Interactive: human in the loop

Terminology (Buzz)

- 1 Knowledge discovery in databases (KDD)
- 2 Database mining
- 3 Data mining
- 4 Knowledge Extraction
- 5 Data Archeology
- Use 3 if you talk to industry
- Other buzzwords!
 - Data warehousing
 - On-line analytical processing (OLAP)

Ack: Piatetski-Shapiro

Evolution of Database Technology

- 1960's : Data Base Inventions
 - Data collection, database creation, IMS and network DBMS
- 1970's : DBMS
 - Relational data model, relational DBMS implementation
- 1980's : Advance Models
 - RDBMS, advanced data models (extended-relational, OO, deductive, etc.) and application-oriented DBMS
- 1990's: From Database to Data Mining !
 - Data mining and data ware housing, multimedia databases and Web technology

Ack: Jiawei Han

Evolution of Data Mining Technology

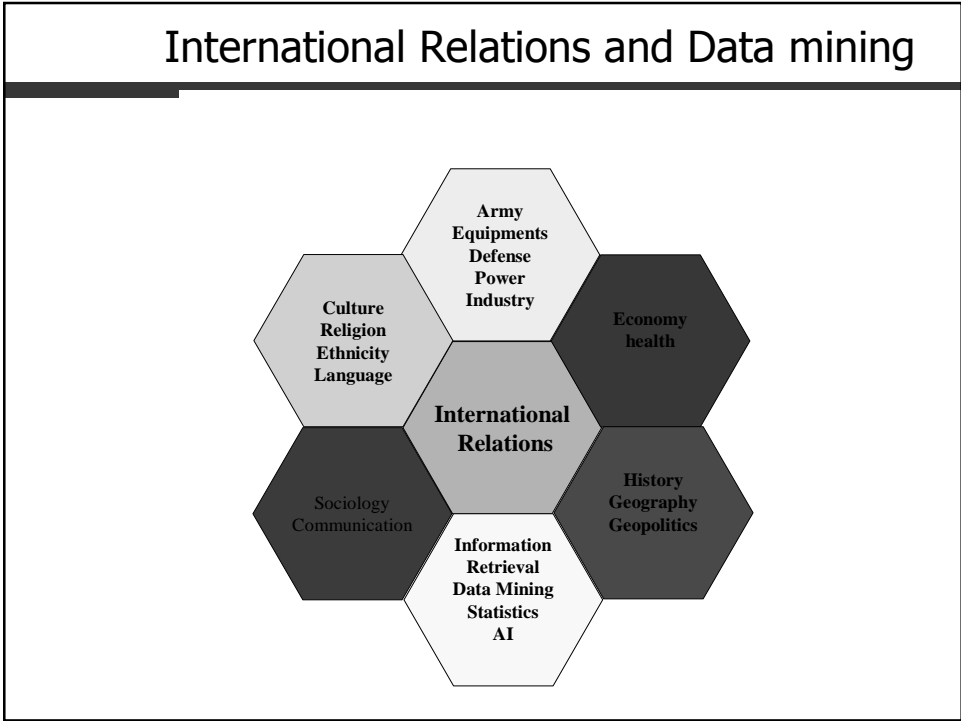
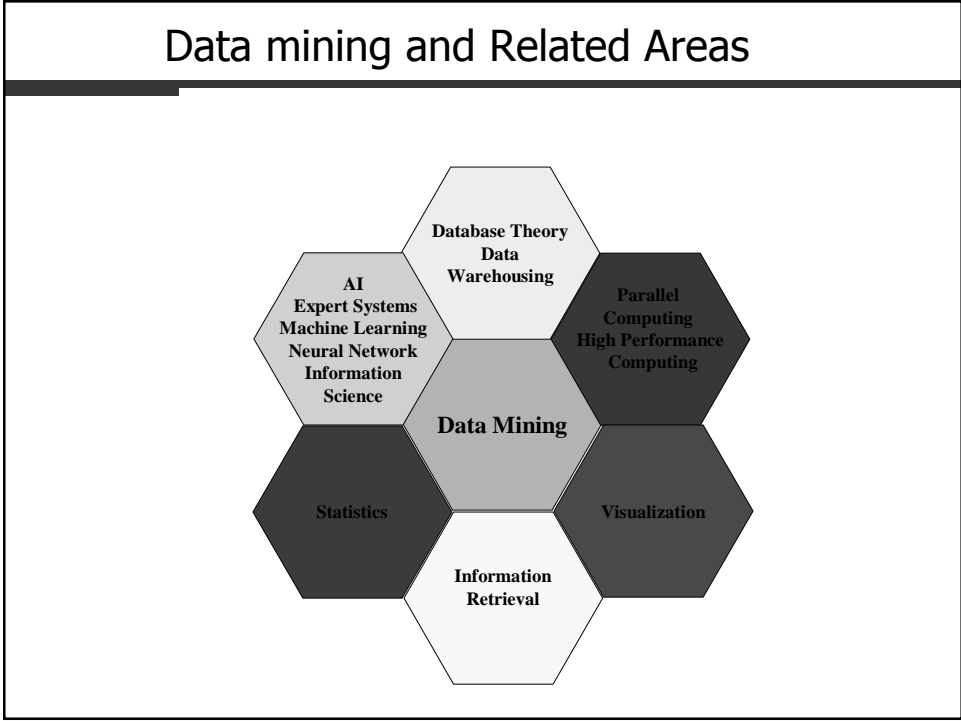
- 1960's : Data Mining = Data Fishing , data Dredging
- 1980's - present : Data Mining
- 1989: Knowledge Discovery in Database
 - AI, Machine Learning researchers, Statistics Community
 - IJCAI89 workshop on Knowledge discovery in Databases
- 1995-1999
 - More researcher form different fields got involved
 - International Conference on KDD (KDD'95-98), ACM SIGKDD (1989-1999)
- 2000 : Mining the internet, Agents, e-commerce

Ack: Piatetski-Shapiro

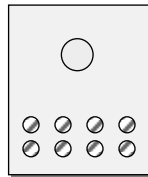
Why Data Mining?

- Raw data is easy to collect, expensive to analyze
- More data than can be analyzed using traditional methods
- Suspicion that important knowledge could be there
- Successful applications and interesting result in science and technology
- Successful Methods: machine learning, statistics, databases, AI
- A tool for exploratory data analysis

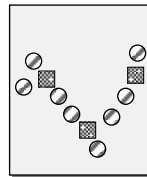
- Because: larger disks, faster CPUs, high-powered visualization, networked information



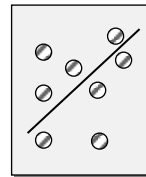
Data Mining Methods



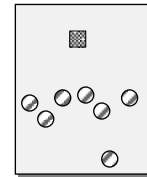
Abstraction



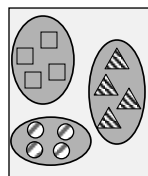
Time Series



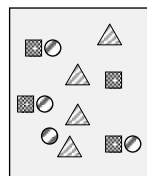
Regression



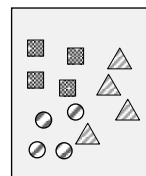
Deviation



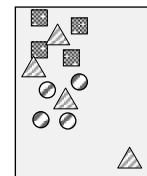
Classification



Association



Clustering



Similarity search

Data Mining Applications I

- Market analysis and management
 - Target marketing :
 - Determine cluster of customers
 - Determine customer purchasing pattern over time
 - Cross market analysis
 - Association between product sales
- Customer profiling:
 - What types of customers buy what products
 - Identifying customer requirements:
 - Best products for different customers

Data Mining Applications II

- Risk analysis and management
 - Finance planning: Cash flow analysis, trend analysis, etc..
 - Resource planing
 - Competition: monitor competitors, segment
- Fraud detection
 - Credit Card services
 - Telecommunication (phone card fraud)
 - Insurance

Data Mining Applications III

- Summarized Information:
 - Multidimensional summary reports
 - Text Mining, Text clustering
- Internet Agents
- Sports and Entertainment
- Web Mining
 - Mining User profile
 - Instant Mining
 - Dynamic Web constructing

Applications in International Relation

- Conflict Prevention
 - Mining News, texts, messages, articles, doctrines
 - Find similar doctrine
 - Find similar messages
 - Find similar Languages
 - Classify point of views
 - UN may act faster than what it does at the moment
 - Text summarization
 - Analysts cannot read every thing

Applications in International Relation

Conflict Resolution

- Provide a unique database for a set of conflicts
- Find similar conflicts to this conflict
 - The result of similar conflicts in past
 - Study similar conflicts to find patterns
- Early Warning Systems
 - Hostilities
 - When a conflicts goes to hostilities phase
 - Phase transition
 - When a phase transition happen and why

Data Mining Examples I

- Auto Insurance
 - Detect a group of people who stage accidents to collect on insurance
- Money Laundering
 - Detect suspicious money transactions (US Treasury's Financial Crimes Enforcement Network)
 - Medical Insurance
 - Detect professional patients and ring of doctors and ring of references

Ack: Jiawei Han

Data Mining Examples II

- Medical treatment pattern
 - Australian Health Insurance Commission identifies that in many cases blanket screening test were requested (save \$1m /yr.)
- Telephone Fraud
 - British Telecom identified discrete group of callers with frequent intra-group calls and broke a multimillion dollar
- Retail
 - Analyst estimate that 38% of retail shrink is due to dishonest employees!

Data Mining Examples III

- Sport
 - IBM Advance Scout analyze NBA games statistics
 - NHL Ice: real time scoring system for hockey statistics
- Astronomy
 - Cal tech and Palomar Observatory discovered 22 quasars
- Internet Web Surfing
 - IBM Surf-aid applies data mining algorithms to Web Access logs for market related pages to discover customer preferences

Data Mining Examples IV

- Dynamic web construction
 - Making your own portal (my Yahoo!)
- Text mining
 - Machine translation at IBM
 - Matching resumes
 - Cluster News, e-mails, papers

Data Mining Dream

Dear Mr. Jones:

We noticed you have not buy any flower (including red rose) at your local supermarket recently (your last purchase was 9 weeks ago). Further, you have stopped buying beauty supply products, but have sharply increased your frozen pizza and dinners usage in the same time frame.

It's clear that Ms. Jody Sanders has dumped you. We confirmed this with the post office data base -- yep, she filed a change of address...

We at the "Data Mining Dream International" would like to offer you

Politics in Middle East: Particulars and Facts

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Why Middle East ?

- Oil
- Geopolitics
- History / Religion
- Other factors?

World in 2002

- Population: 6.2 billion
- If the world had 1,000 people, then:
 - 564 would be Asians In 2020: 577
 - 210 would be Europeans In 2020: 107
 - 86 would be Africans In 2020: 185
 - 80 would be S. Americans In 2020: 93
 - 60 would be N. Americans In 2020: 38

Ack: World Bank

World Population Growth: club of Rome Projected in 1970

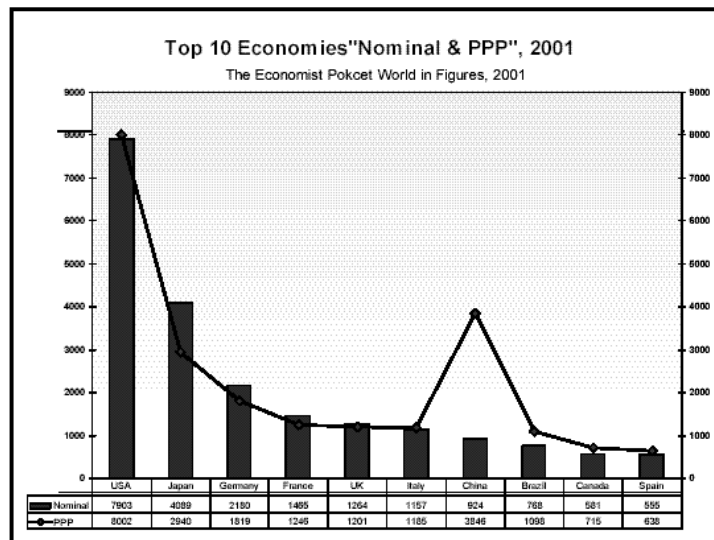


The World in 2001

- World GDP: \$30,000 billion
 - Africa: \$ 310 billion
 - East Asia (excluding Japan) \$ 1,370 billion
 - South Asia \$ 450 billion
 - E. Eur. & Central Asia \$ 1,200 billion
 - Middle East & N. Africa \$ 300 billion
 - Latin America \$ 1,800 billion
 - OECD-29 \$24,500 billion
 - ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT
 - Big Guys

Ack: World Bank

Top 10



How the World Shared Wealth 1999

- Shares of GDP
 - Richest 20% took 86% of world GDP
 - Middle 60% took 13% of world GDP
 - Poorest 20% took 1% of world GDP
- Shares of Foreign Direct Investment (FDI)
 - Richest 20% took 68% of all FDI
 - Middle 60% took 31% of all FDI
 - Poorest 20% took 1% of all FDI

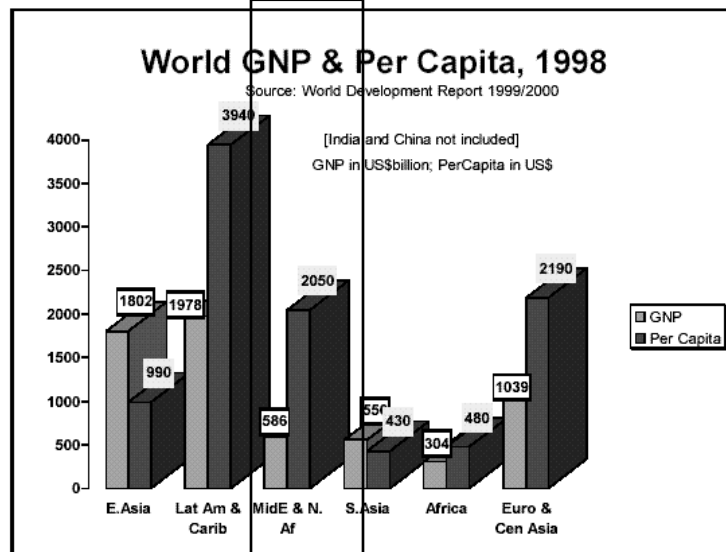
Ack: World Bank

How the World Shared Wealth 1999

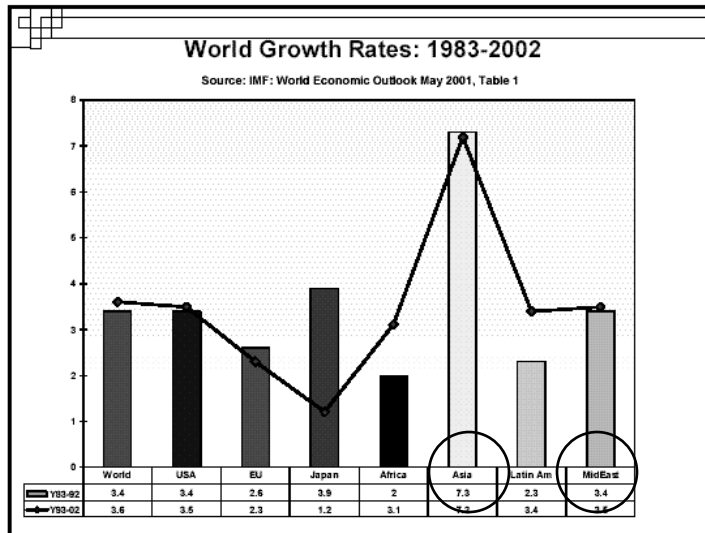
- Shares of Exports of Goods & Services
 - Richest 20% held absorbed 82%
 - Middle 60% held absorbed 17%
 - Poorest 20% absorbed was responsible for 1%
- Shares of Internet Access
 - Richest 20% used 93.3%
 - Middle 60% used 6.5%
 - Poorest 20% used less than 0.2%

Ack: World Bank

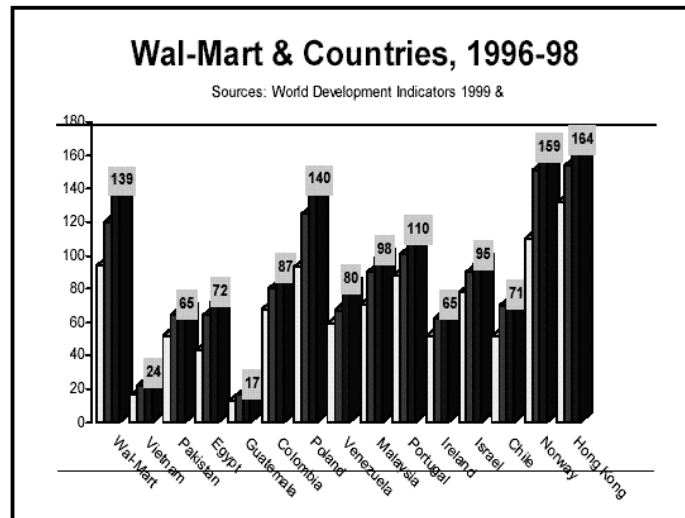
World GNP



World Growth Rates



Wal-Mart !



Middle East and Globalization

What Drives Globalization

- Jeffrey Sachs
 - Cross-border trade and FDI
 - Trade & FDI have grown five times faster than GDP
- Kenichi Ohmae
 - Technology
 - A dying nation-state system
 - The rise of region-markets and region-states (NAFTA, the European Union, Mercosur, etc.)
- Susan Strange
 - Unrestricted movement of FDI
 - Trade
 - Revolutionary technologies in informatics, telecommunications, and air transportation

Thomas Friedman



- Shrinking, disappearing borders
- The Internet
- Cellular phones
- Borderless money
- The 2d and 3d worlds embracing free market system

Thomas Friedman

- Globalization as Americanization
 - From Big Macs to iMacs, from IBM & Disney World
- Nothing new: similar approaches has been developed before such as Turkification of the Balkans and Central Asia
- US cultural icons can replace other cultures and political systems
 - The price of #23 (MJ)

Thomas Friedman

- Homogenizing vs. Americanizing
 - Starbucks: American or global?
 - Italian coffee machine + Colombian Coffee + outsized mugs = American invention & fad
- In the Cold War: “How big is your missile?”
- In this era of globalization: “How fast is your modem?”
- “Electronic herds” (global investors) cannot be controlled

Common icons !

- 1998 Visit
- US, Canada
- France, Belgium, Germany, Netherlands
- Iran, Tajikistan, Uzbekistan, Gherghizestan, Kazakhstan

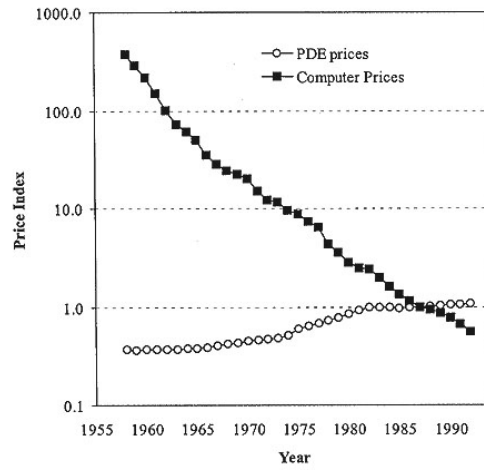


The Effect of IT in Middle East Politics

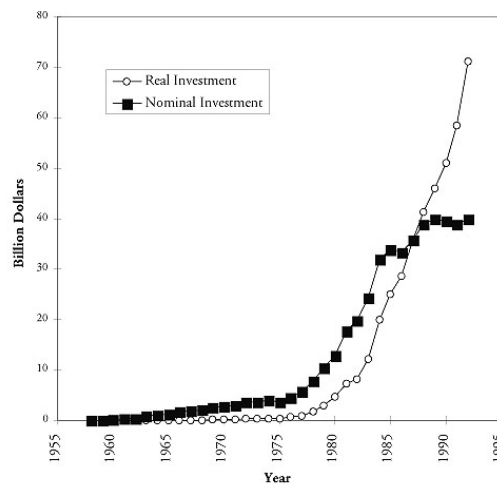
Information Technology

- Mining huge databases
 - Understand better
 - Reduce error
 - Find the right source
 - Combine different sources
 - Find Hidden patterns
- Effect of IT in middle east politics
 - Communication
 - Policies
 - Programs

Costs of computing



Investments in computers



Bill Gate

- Bill Gates' conjecture is that a lack of telephone infrastructure can be an advantage for developing countries, as they do not need to use the roundabout way of mainlines but can go for direct use of mobile radio stations.
- Middle east is a very good example for this scenario

Middle East on the Net

Rank	Country	Number of Subscribers	Number of Users per	Number of Users Account	% of Population
1	UAE	220,000	3	660,000	24.44
2	Bahrain	35,000	3	105,000	16.67
3	Qatar	25,000	3	75,000	10.27
4	Kuwait	55,000	3	165,000	8.25
5	Lebanon	75,000	3.5	262,500	6.56
6	Jordan	35,000	6	210,000	4.57
7	Palestine	12,000	5	60,000	3.53
8	Oman	28,000	3	84,000	3.36
9	Tunisia	70,000	4	280,000	2.89
10	Saudi Arabia	190,000	3	570,000	2.59
11	Egypt	70,000	8	560,000	0.82
12	Morocco	55,000	4	220,000	0.73
13	Algeria	45,000	4	180,000	0.60
14	Libya	4,000	5	20,000	0.40
15	Syria	8,000	4	32,000	0.18
16	Yemen	3,500	4	14,000	0.08
17	Sudan	7,000	4	28,000	0.08
18	Iraq	500	25	12,500	0.06
	Total	938,000		3,538,000	1.29

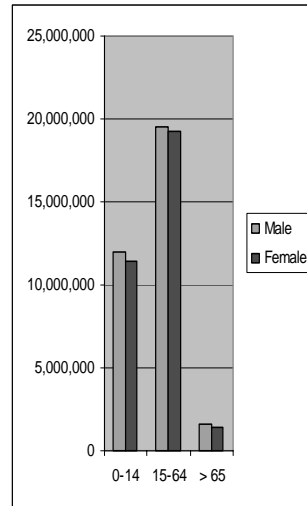
IT

- Dubai
 - Free zone
 - Coca Cola
- IT collaboration
- Jordan
- Silicon Middle East ?!
 - India
- Out sourcing
 - Offshore development

Case Study: Iran

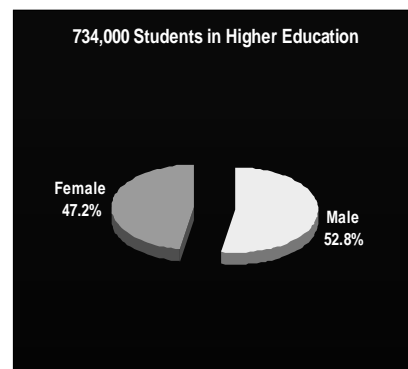
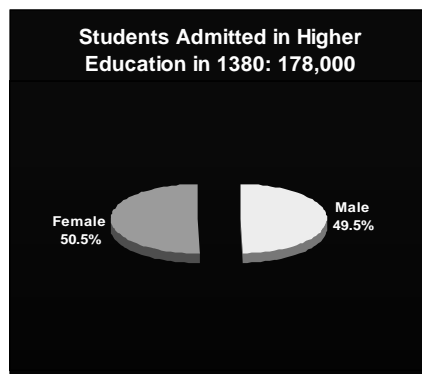
Iran at a Glance

- Population: 61.835 million (1998)
- Area: 1,648,195 Sq. Km.
- Population growth rate: 1.07%
- Women in Higher education: 43%
- Literacy rate: 85%+
- Literacy rate among 6-40 year olds: 98%+



Coming Wave

Iran is one of the youngest nations in the world



Communications

- Telephones: 9.5 million+ (2000 est.)
- Telephone system: domestic: 25
- Regional telecommunications authorities created in 1996; these authorities are responsible for implementing paging services and cellular systems; microwave radio relay extends throughout the country with the system centered in Tehran.

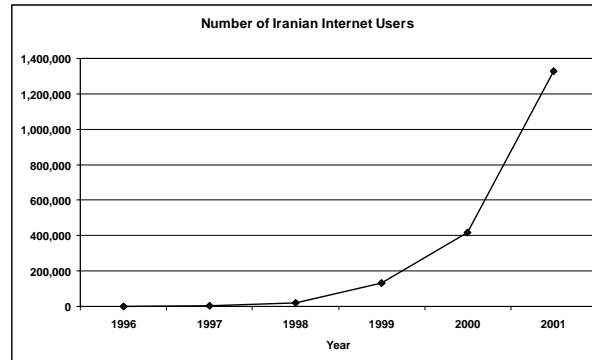
Ack: ORN

Communications II

- System is moving toward digitization (80%+) and direct-dial (90%+) capability
- 255 long-distance circuits (1999 est.)
- 366 telephone exchanges (1995 est.)
- 204,400 microwave channels (1996 est.)
- About 2 million cell phone subscribers (2000 est.)

Ack: ORN

Internet in Iran



- **Average growth rate:** 317%
- **User growth:** 30% every 6 months
- **Number of hosts:** 3,000+

- **Internal Iranian Network:** 155 Mb DSL network in Tehran upgradeable to 2.5 Gb.
- 2 Gb nationwide network at 180 cities through a joint venture with Eutelsat planned by March 2002.

Iran's Rank in Global IT

- Aggregate rank in penetration rates for various telecom services and access technologies is 126 out of 206 countries and territories (ITU 04/01).
- Rank of 114 for telephone main line density; 162 for Internet host density, and 131 for cellular mobile subscriber density.
- Only 44 countries rank lower than Iran in Internet: Afghanistan, Libya, Iraq, Vietnam, North Korea, Haiti, Bangladesh, Syria, Yemen, ...
- Rwanda, beset by a bloody civil war and mass genocide, is ranked 23 places higher than Iran!
- In the Near East, Iran is behind every state by 2-3 orders of magnitude, except Iraq and Syria.

Ack: ORN

Internet in Iran

- Iran ranks **50th among the 60 largest economies** in the world, in terms of "e-readiness" – defined as the "extent to which a country's business environment is conducive to Internet-based commercial opportunities" (EIU 05/01).
- This makes Iran an "E-business laggard" which "risks being left behind, and faces major obstacles to e-business growth, primarily in the area of connectivity".
- Iran is only ahead of countries such as Romania, Algeria, Vietnam, or Pakistan, while lagging badly behind Israel (23), Turkey (37), Egypt (40), Saudi Arabia (44), and India (45).

Ack: ORN

Internet User Profile



Wealthy



Young



Urban

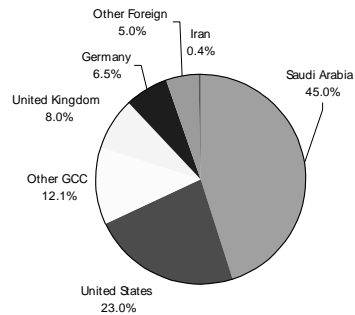


Educated

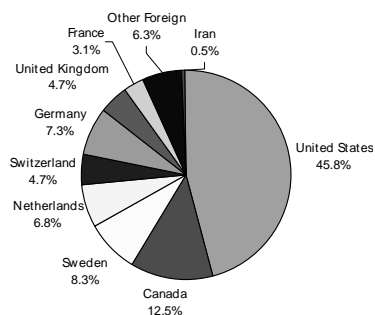
Information Flow

- To Iran
 - Full Access to all major web portals and clubs
 - Extensive use of free email services, VoIP
 - Extensive use of online news and research resources (papers, software,...)
- From Iran
 - Periodicals: Almost all major daily, weekly and monthly newspapers, and cultural magazines
 - magiran.com
 - Universities: (government funded)
 - iranet.net.ir
 - High Schools: (NGO funded – SAF)
 - science-arts.org, schoolnet.ir

Information Flow



Traffic flow to leading religious web sites in Iran



Traffic flow to an amalgam of Persian- and English-language media and commercial sites based in Tehran, Isfahan and Kish.

Ack: P. Arabshahi

Culture

- Independent newspapers and magazines – political empowerment
– gooya.com
- Film and Cinema – awards at international festivals – cultural awareness
– fcf-ir.com
- Live online radio & TV, news – global views
– irib.com, irna.com



Ack: P. Arabshahi

Politics

- All major political parties are online – jebhemosharekat.com
- Presidential candidate and election web sites – iranelections.org
- Active online political discussion lists – akunews.com
- President Khatami on the web – president.ir



Ack: P. Arabshahi

Society and Culture

- Chat, Chat, Chat
- Internal e-mail (low)
 - Country
 - City
 - Organizations
- External e-mail (high)
- Internet clubs
- CNN & Yahoo
- Impact of satellite dishes
- The B-Log phenomenon

Language

- English is preferred
- Finglish! (Farsi with English Alphabet)
- Farsi
- Increased the level of education
- English language getting more popular among young generation
- Unicode is going to be established

Scientific Sector

- Currently, all universities and colleges are connected to the Internet
- Domestic and International conferences
- Sharif CE ranked 1st in RoboCup 99 robot soccer world cup in Stockholm
 - All communication was through Internet

Dilemma

- "Information is only one of many needs. Email is no substitute for vaccines, and satellites cannot provide clean water. High profile technology projects risk overshadowing basic priorities."
 - Human Development Report 1999: Chapter 2, New technologies and the global race for knowledge; UNDP 1999
- However, Internet growth and access can accelerate awareness of such needs, and development of solutions to address them through empowering the youth of a country.

Foreign Investments

- Siemens
 - \$300 million for transmission backbone (est.)
 - \$50-\$70 million for GSM expansion from 2 mill lines to 4 mill lines (est.)
- Nokia
- Alcatel
- Ericsson
- Italtel

Issues

Risks

- Any economic plan should consider the inherent risks of the country, as well as those risks that are associated with the job at hand.
- Officials have solved many problems; however many other issues around the Internet are still ambiguous and unclear.

Awareness of Education

- Need for awareness of e-commerce, reflected incorporate and organizational strategy of public and private sector
- e-commerce needs help from current banking system

Legal System

- Inadequate legal & regulatory framework
- No cyber-law
- Legal human resources require training
- Need for specialized circuits

Government Role

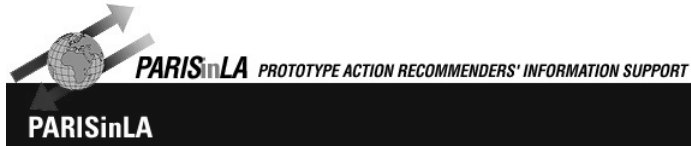
- Need for strong, coherent IT policy
- Government is a role model to the country: largest consumer and largest investor
- Transparent and predictable legal system
- Consumer protection
- Look at Internet as a solution rather than a problem
- Emphasis on Privatization
- e-commerce needs help from current banking system

Barriers

- Price
 - Personal computer
 - ISP
 - Telephone call charge
- Infrastructure
 - Telecom network
 - Internet gateways
- Content
 - Language
 - National sites

Problems

- Main content comes from outside
- No viable Search Engine
- Font Standardization
- Brain drain
- Under development of Internet culture
- Privacy Issues



PARISinLA: Prototype Action Recommended Information System

PARISinLA Mission

- Case-based reasoning system to provide conflict prevention tools
- Integrate coded data generated by past scholarly studies
- Discover knowledge of collected databases
- Provide PARIS web site as an illustrative resource of information and techniques

Ack: H. Alker

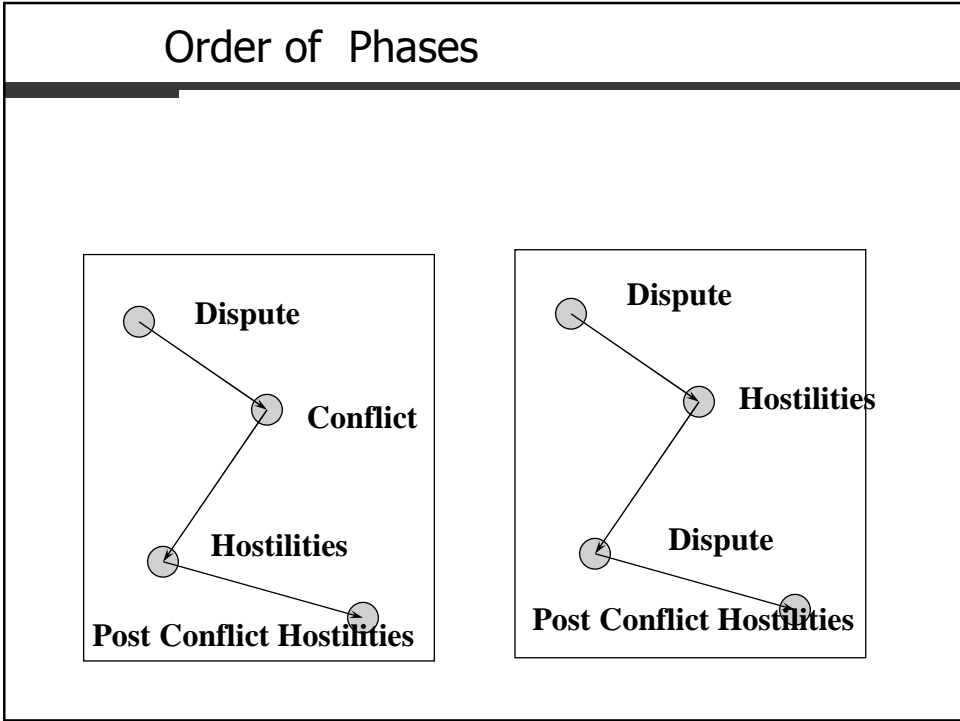
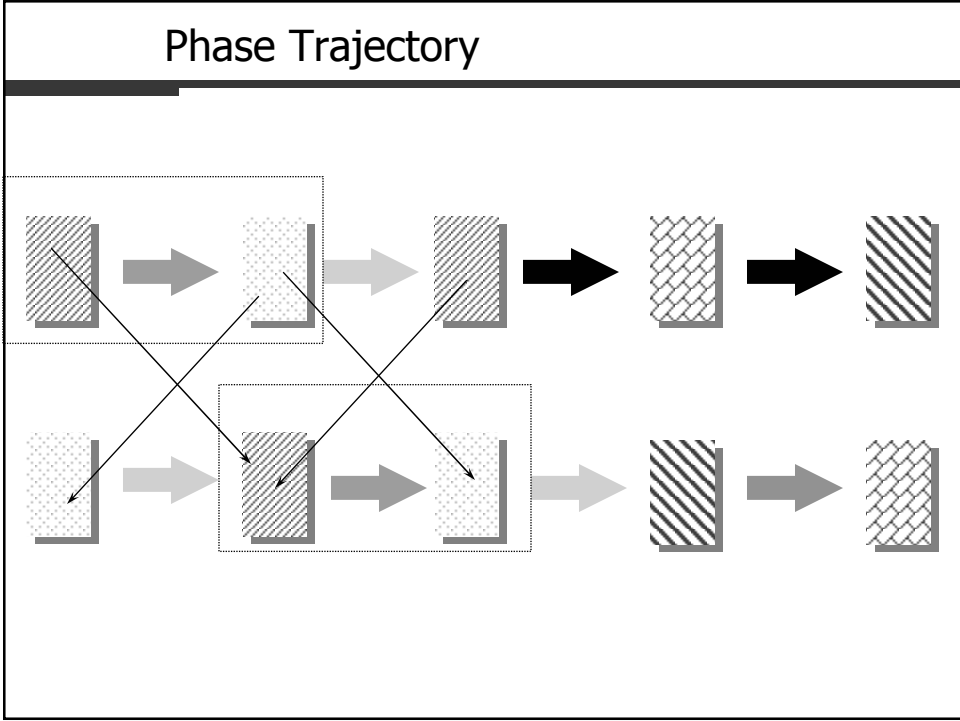
PARIS Databases

- Haas & Butterworth (Ernest Haas & Robert L. Butterworth)
- CASCON (Lincoln P. Bloomfield & Allen Moulton)
- SHERFACS (Frank L. Sherman)

Phase structure

- Dispute
- Conflict
- Hostilities
- Post-Hostilities Conflict,
- Post-Hostilities Dispute
- Settlement

- Might be slightly different in different databases



Haas Database

- Ernst Haas, a distinguished political scientist on the faculty of the University of California at Berkeley, has been doing empirical research on the performance of the UN Collective Security System at least since the 1960s
 - UN cases
 - Regional cases
 - UN and regional cases combined

CASCON Database

- Phase structure
 - Dispute, Conflict, Hostilities, Post-Hostilities Conflict, Post-Hostilities Dispute, Settlement
- 85 cases since 1945
- 571 identified factors
- 11 attribute categories
- Judgment about features tending in particular phases of a dispute toward or away from violence

CASCON factors

- T3 : Much influence toward use of military force
- T2: Some influence toward use of military force
- T1: Little influence toward use of military force
- N: No influence (but present in the case)
- A1: Little influence away from use of force
- A2: Some influence away from use of force
- A3: Much influence away from use of force
- F: factor false or not present in the case
- -: No information available about factor

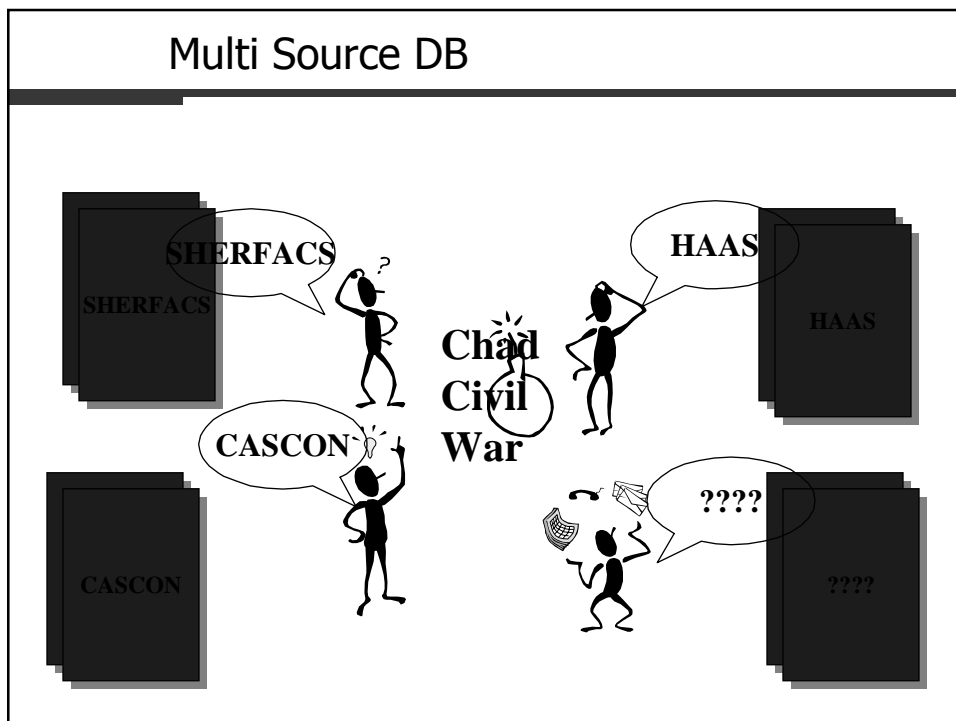
CASCON Attribute Categories

- R: Previous or general relations between sides
- G: Great power or allied involvement
- X: General external relations
- U: International Organization
- N: Ethnic (refugees, minorities)
- M: Military-Strategic
- E: Economic/resources
- P: Internal politics of the side
- C: Communication and information
- D: Action in disputed area

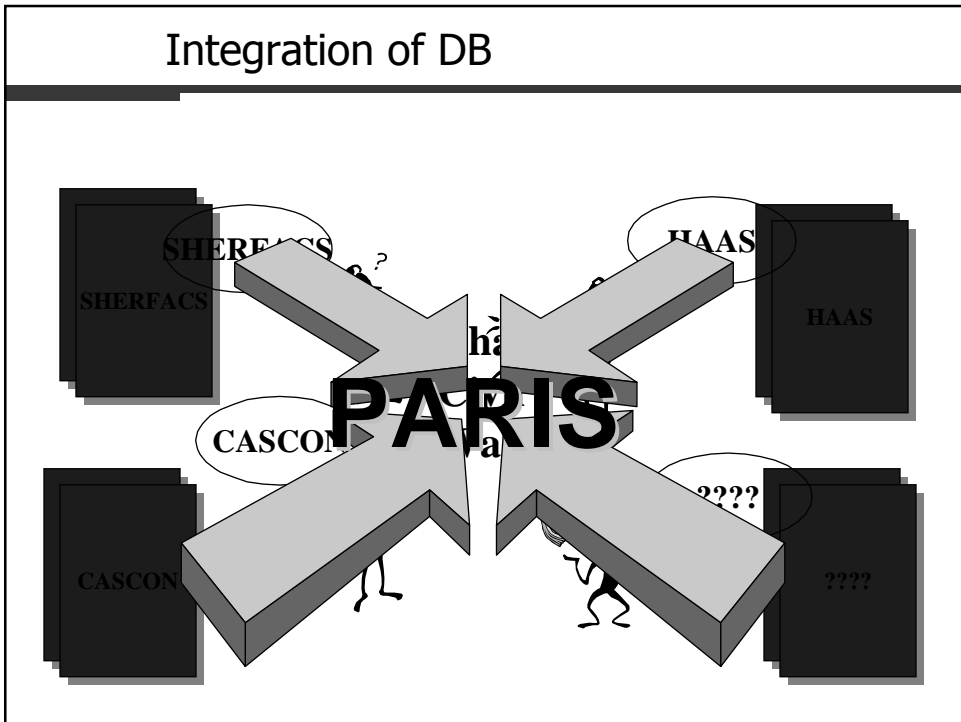
SHERFACS Database

- Revision of FACS
- about 200 dispute and 1000 quarrels of potentially international significance
- Phase structure
 - party structure
 - Management structure
- More than 500 attributes for each case

Multi Source DB



Multi Source DB			
	CASCON	HAAS & BUTTERWORTH	SHERFACS
15	Western Sahara 1973 -	Spanish Sahara Independence 64-75	Spanish Sahara 1958-976
		Western Sahara War 1976	Western Sahara 1976 -
16	Lebanon Civil War 1975 -	Lebanon Civil War 1976 -	Lebanese Civil War 1975
17	Chad 1979 - 1994	Chad Border 1976	Chadian Civil War 1960 -
		Aouzou Strip (Chad - Libya) 1983	Chad - Libya : Border 1987
		Chad - Libyan Tension 1965-1966	
18	Kuwait - Iraq 1961 - 1963	Kuwait Independence 1961-1963	Kuwait Independence 1961-1963
		Kuwait Independence	
19	Aden (South Yemen) 1963-1967	Aden Independence 1963-1968	Yemeni Civil war 1948-1972
			South Yemeni Independence 1963-1967



PARIS Site

- Integrate different sources of information
- Provide an integrated version of each case and it's relevant cases
 - I : Inside, part of the case
 - R: related to the case
 - S: Subsequence of the case
 - A: Antecedent to the case
- Provide tools for data analysis and knowledge discovery
- Provide tools for conflict prevention management

Analysis in PARIS I

- How could we *describe* conflicts in terms of features or attributes in the most appreciate way?
- Given a data base of well described case, we are often presented with a new case , which prior case is most *similar* to the new case?
- How could we define a good overall *distance* measure for conflicts or management/prevention package?

Analysis in PARIS II

- Can this measurement approach be extended to more specifically characterized features of related conflicts or conflict management process?
- How can we compare the different modalities of textually describing, codifying conflicts?
- How can most accurately and usefully classify conflicts and cases?
- Can we detect pattern associating conflict attributes and conflict-tools employed by managers?

PARIS Analysis Techniques

- ACCESS
 - Relational Database Model (Tables)
- ALTFACS
 - Finding similar case based on text matching
- Path Mining
 - Finding similar phase trajectories
- C4.5
 - Inductive tree algorithm



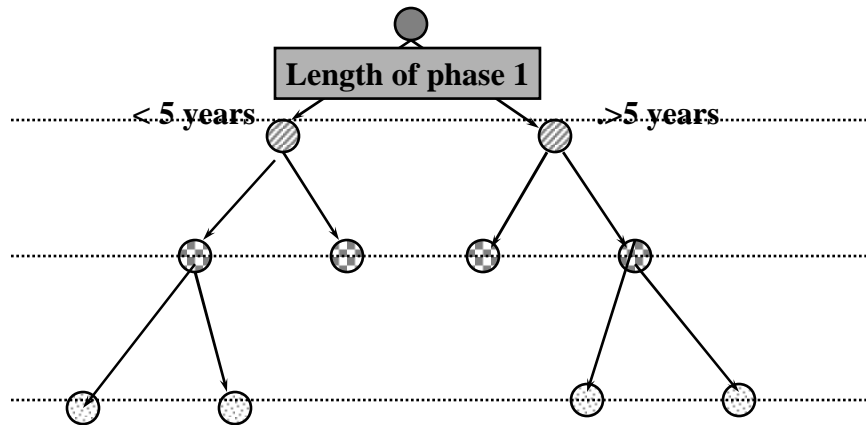
ACCESS on Line

- SHERFACS database
- Haas database
- Queries
- Share result with others
- Data Analysis & Statistics
- Down Load the database

C4.5 Decision Tree (Quinlan 93)

- Tree Induction method
- Uses of Information gain (entropy)
- Accept noise in data
- Result
 - Decision tree
 - Rules with degree of certainty
- Testable under new data

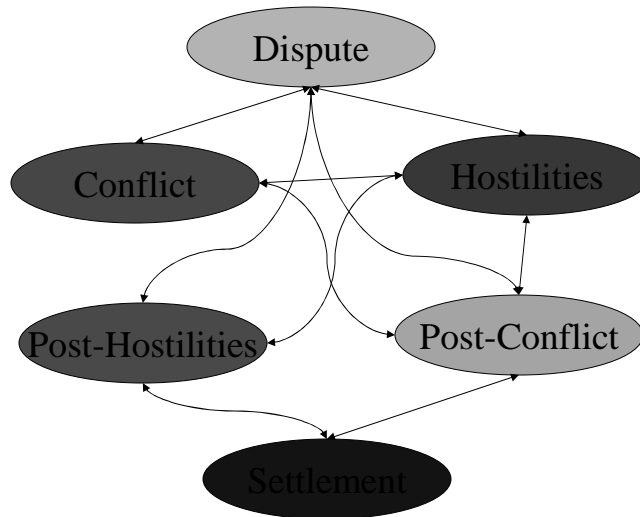
Decision Tree



PATH Mining

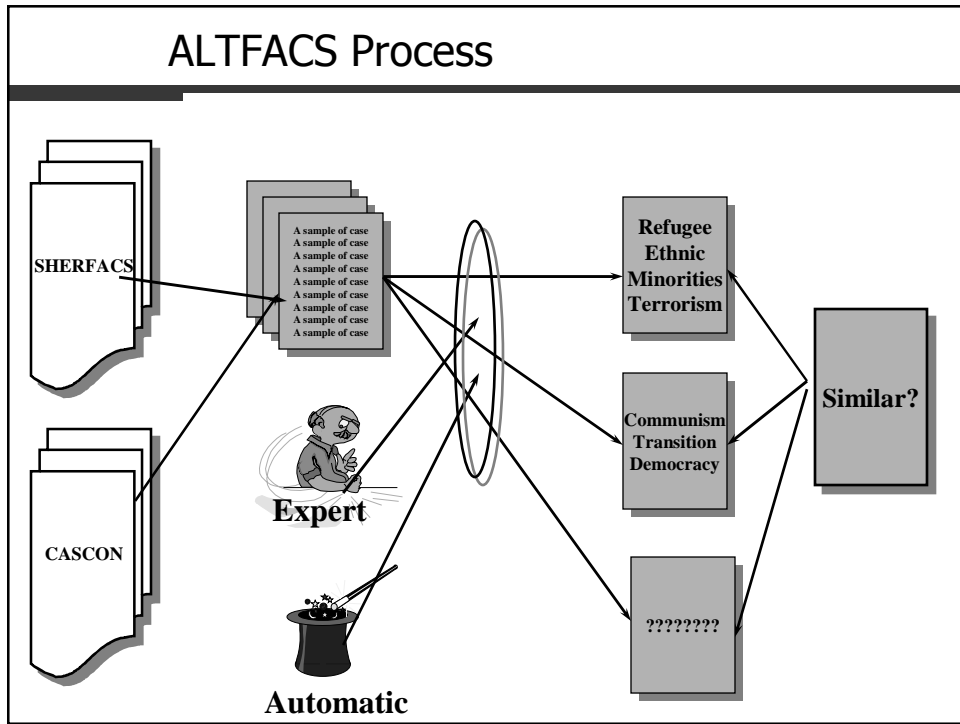
- Finding phase similar trajectory
- Order of phase sequence in the trajectories
- Classification or Clustering
- Differentiate between two cases with the same phases on the basis of the different order
- Covers sequences with different lengths
- Address loops and cycles
 - Arab - Israel conflict

81 Possible Phase Trajectory



ALTFACS Linguistic Toolkit For Analyzing Case Summaries

- A text is coded version of a case
- Finding signature (combination of words) of a text
- Extract such signature form a text
- Finding similar case based on text matching
- Communism, Transition, Democracy
- Refugee, Ethnic, Minorities



- ### ALTFACS Features
- Look at a given case
 - Compare two cases in a given database
 - Compare two cases from different databases
 - Compare a defined new case with each previously defined database
 - Define a new language and a new set of features for comparison

Result

- Role of International organization in conflict management
- Significance of IO :
 - Not Applicable , Irrelevant, Constructive, Mixed Impact, Counterproductive.
- Most relevant attributes:
 - Actions in the disputed area, Ethnic (Minorities, Refugee), general relations and Economics resources

Result

- 20 cases not “knocked out” by strong negative Ethnic or Relational factors
- IO involvement is likely to be constructive in a variety of cases where there are no violence-intensifying economic/resource factors and there are at least 2 moderately ameliorative economic/resource factors.
- 5 cases did not fit the patterns

Term Paper Ideas

- SHERFACS database
 - On-line
 - Analysis
 - Decision Tree: find most important factors
 - Phase trajectory analysis
- Text Mining
 - Presidential speeches in past
 - Find association between the speech and the reaction

Thank You !

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