

Data Collection Philosophy Applied to Decision Making: Chaos Theory vs. Thin-Slicing

A New Approach to Collecting Data for
Decision Support Systems – August 2006

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Subtitles – Help in Understanding

- A New Approach to Collecting Data for Decision Support Systems.
- The Power of Thinking Without Thinking - Blink.
- Making a New Science - Chaos.
- Revolutionizing the Way We Understand the World Within & Without – Chaos & Blink.
- A Way of Seeing Order & Pattern where Formerly Only the Random, the Erratic, the Unpredictable – in Short, the Chaotic – had been Observed.
- Many More – Perhaps You'll Think of Others

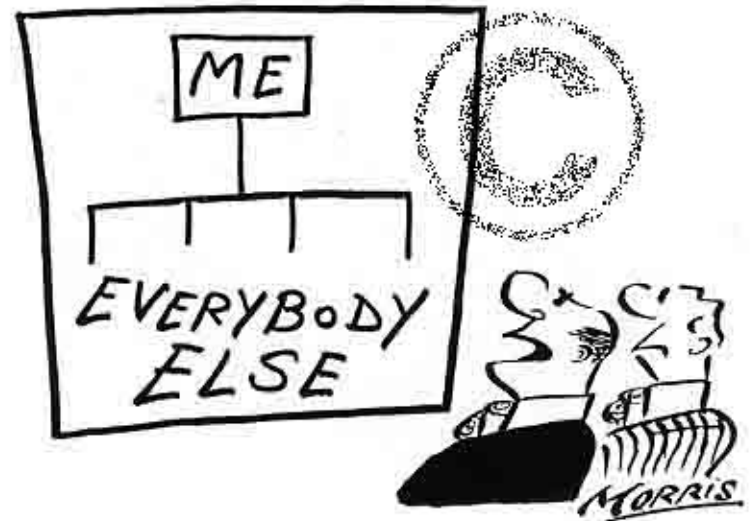
Goals & Objectives

- Provide Brief Overview of Chaos Theory
- Gain a Basic Understanding of Thin-Slicing
- Relate Chaos/Blink to Information Gathering
- Examine Data Collection Analysis Methods
- Expand Our Views on Present Day Methods of Data-Based Decision Making
- Explore Additional Topics
- Spark Additional Discussion

Agenda

- Introduction
- Caveats
- Approaches to Data Collection
- Chaos Theory
- Thin-Slicing
- Examples
- Comparison
- Results
- Questions
- References

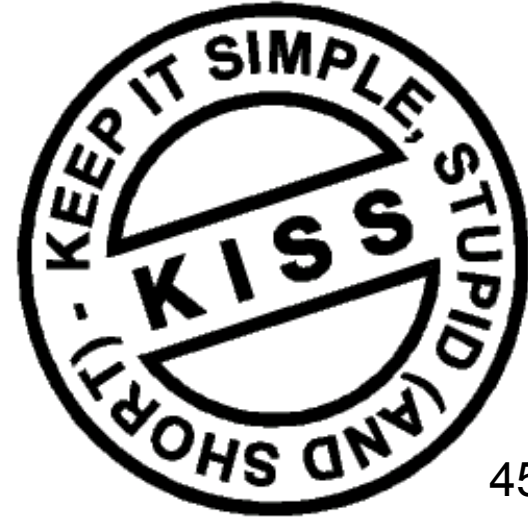
KEEP IT SIMPLE



"I like to keep things simple."

Caveats

- Information boom era
- We all use chaos
- We all thin-slice
- News gathering
- Decide by comfort level
- Study
- Smarter
- Decide on a Plan
- Act/Execute
- Evaluate Performance
- Reap Benefits 😊



45 Minutes

Clearly over simplified
Not a Chaos Theory expert
Not a Thin-Slicing expert
Using popular analysis tools to emphasize selected points
Begin discussion on data collection theory

Introduction – We Need Information

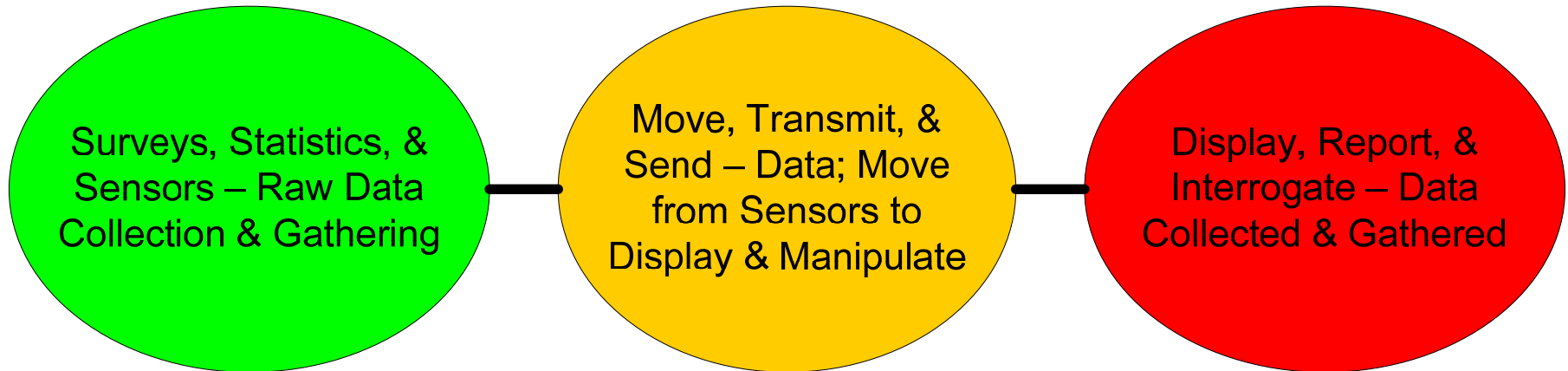
- The concept of knowing “What is going on?” becomes increasingly important as service providers:
 - compete for resources
 - increase service areas
 - expand customer options
 - solve budgetary constraints.

**remotely
collected real
time mobile
data**

**becomes
crucial**

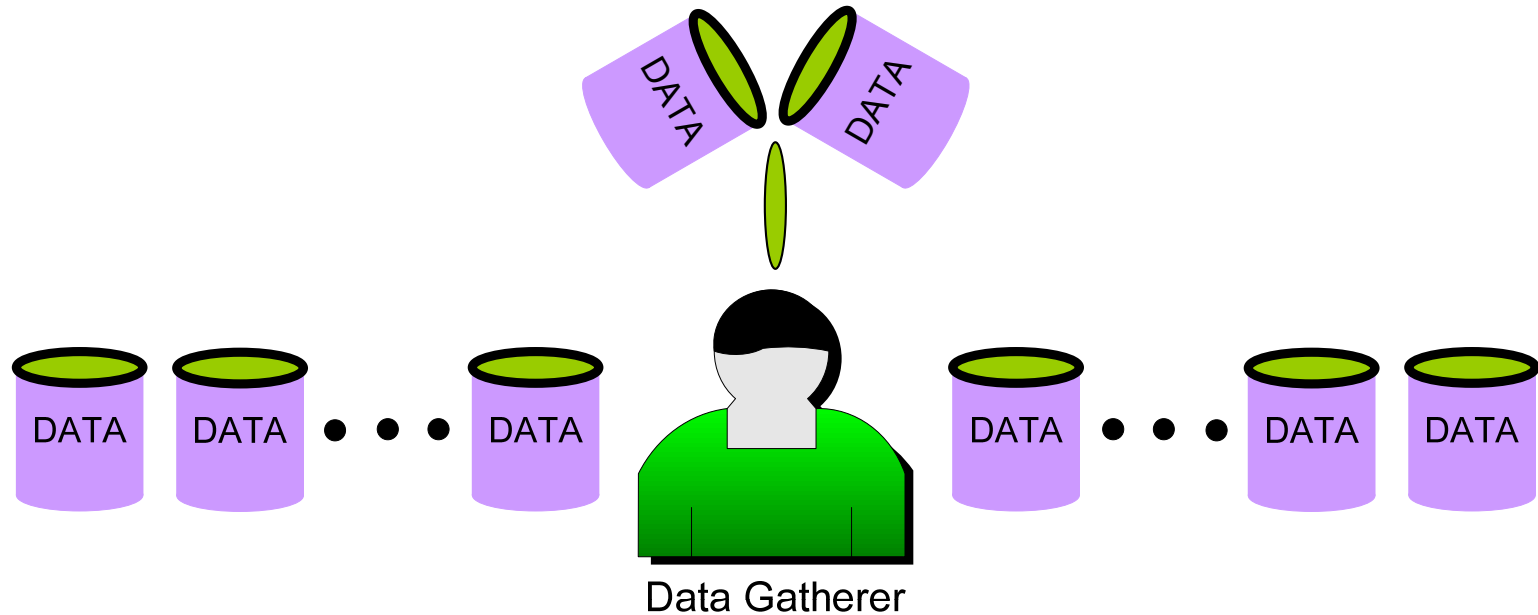
**creates a
virtual picture
of system
status**

Data Collection System Elements



- **Data Collectors**
- **Means of Transmission**
- **Employ Information – Make Decisions**

Challenge – Monstrous Amounts of Data

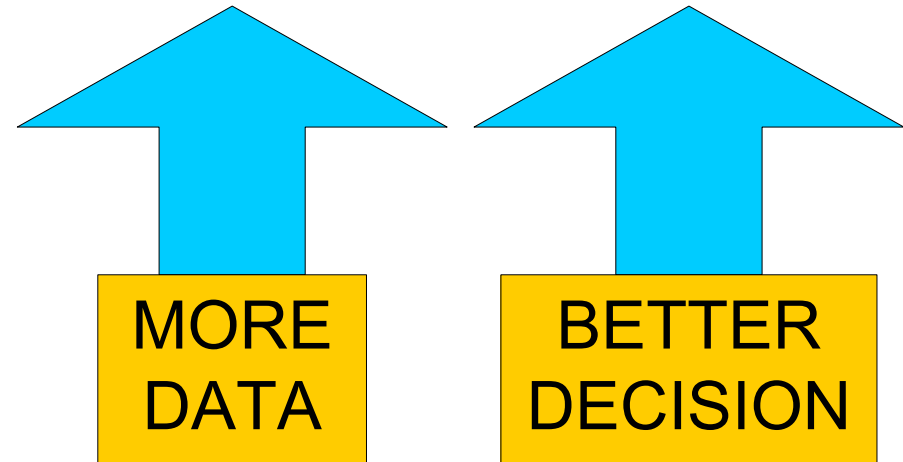


- However, the collection of data has become an epidemic. Lots of data is being collected – is it being used appropriately?
- There are several examples of information collected & its availability to others.

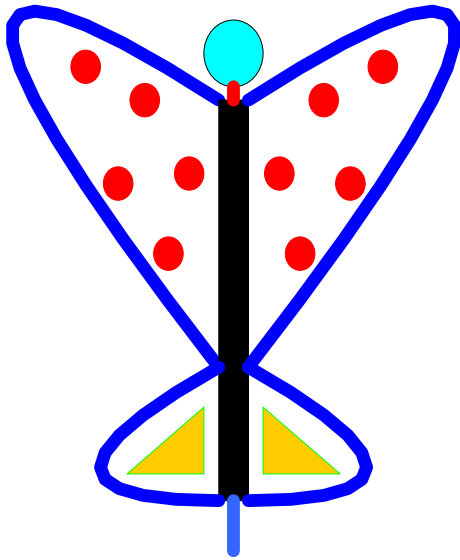
Chaos Theory

Chaos Theory

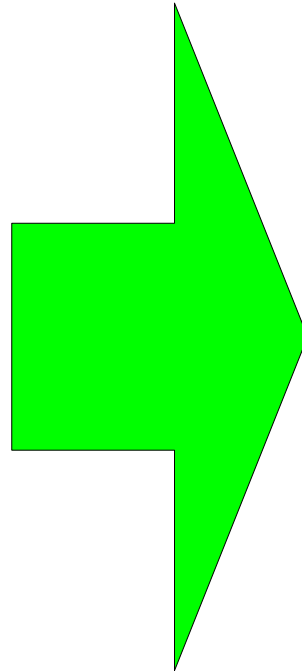
- Chaos Theory has been around for four decades.
- Opposite of entropy, purports that random systems become more ordered over time.
- Premise - the more data we collect and the more times we stir the pot, the better our result.
- Popularized during the last decade – the 90s.



Butterfly Effect - Chaos

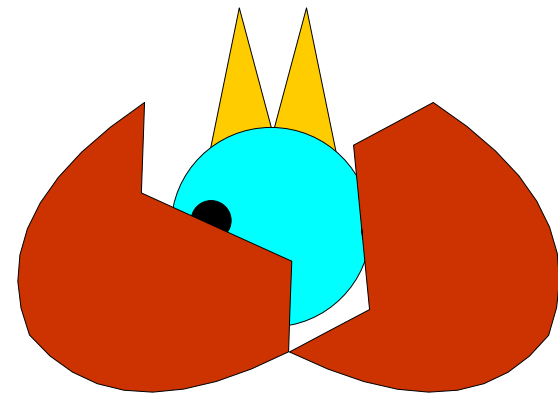
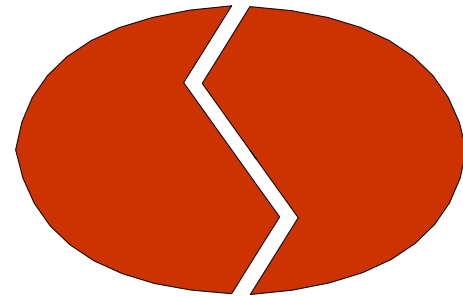
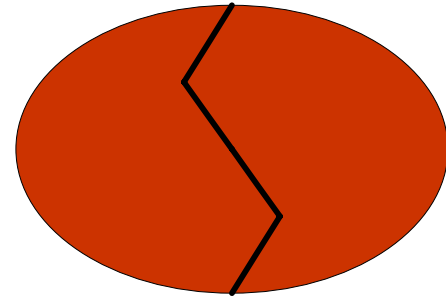


Butterfly
In Brazil

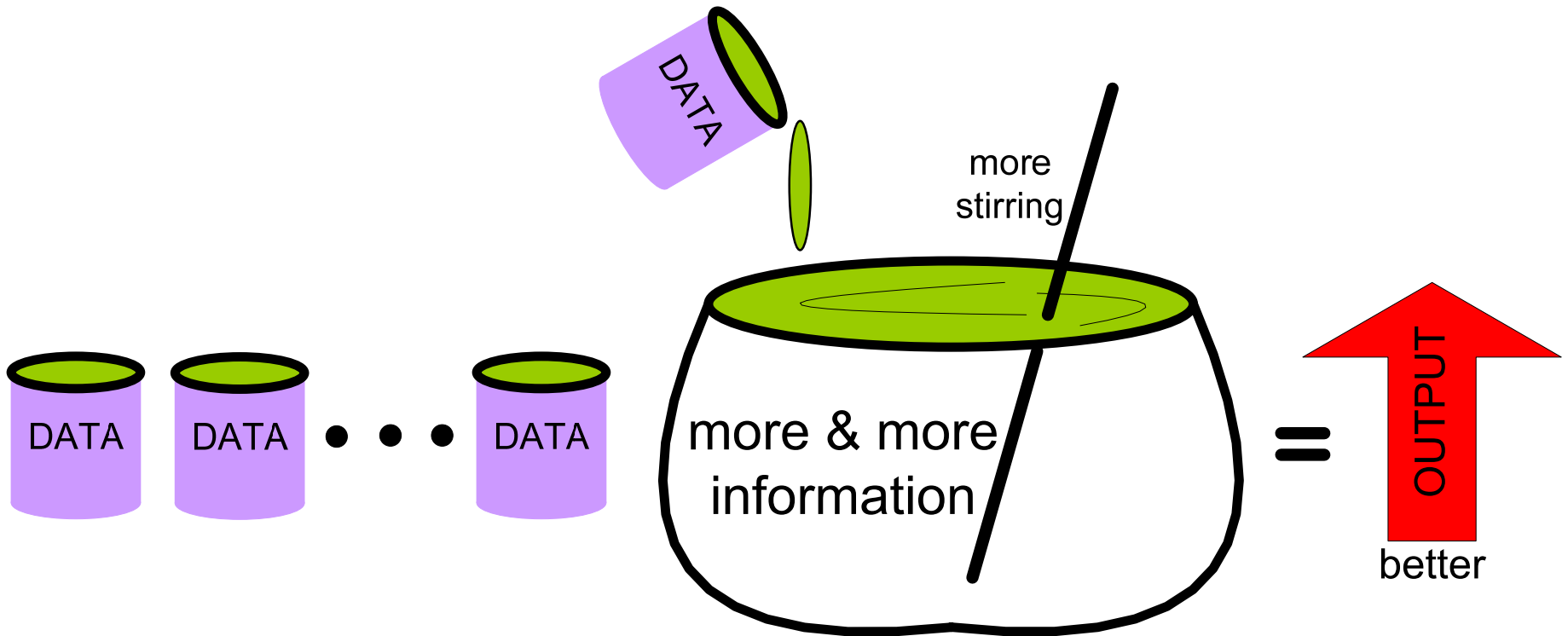


El Nino or
Hurricane

Life Will Find a Way – Jurassic Park

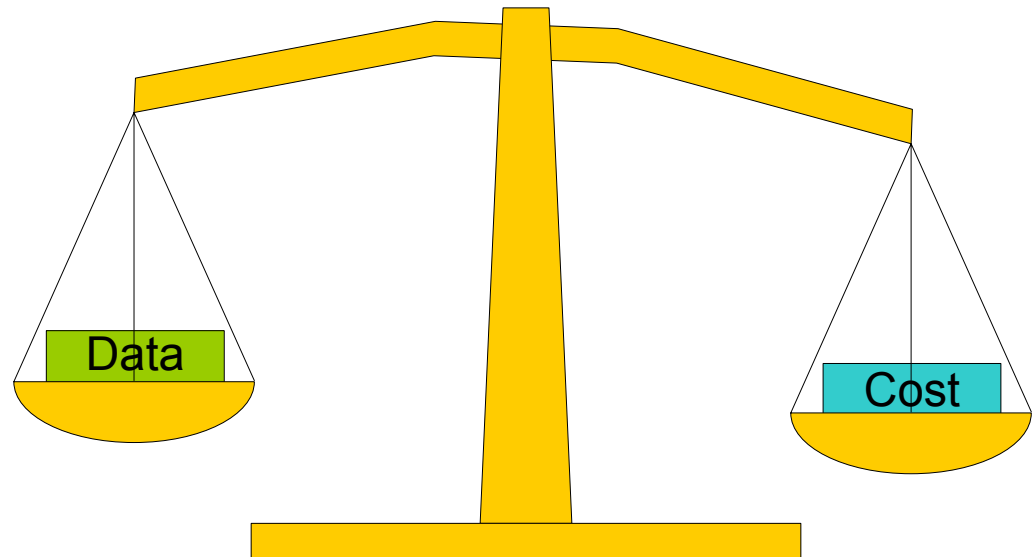


More Data & More Stirring = Better Output

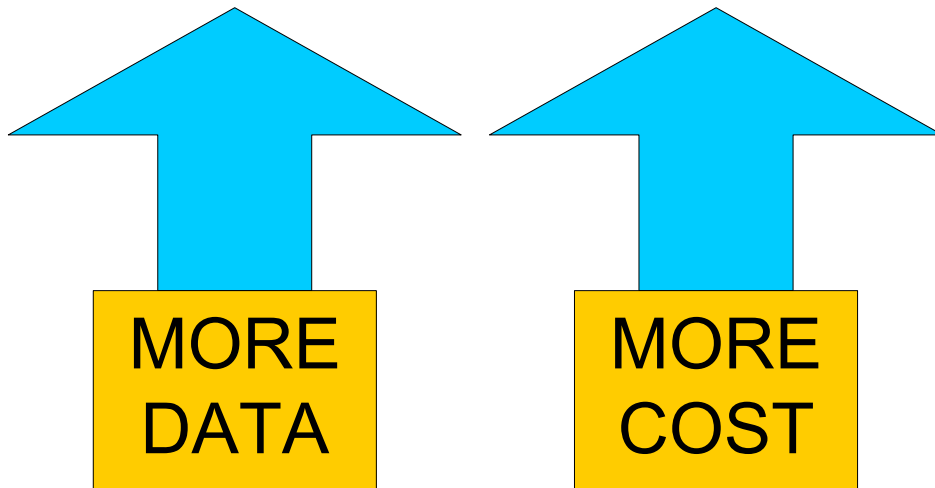


Obsession with Data Creates Dilemma

- Why collect data?
 - Increase efficiency
 - Improve safety
 - Reduce paperwork
 - Etc.
- Examples
 - News
 - Sports
 - Gambling
 - Credit
 - Schools
 - Weather
 - Others



Data Collection is Costly



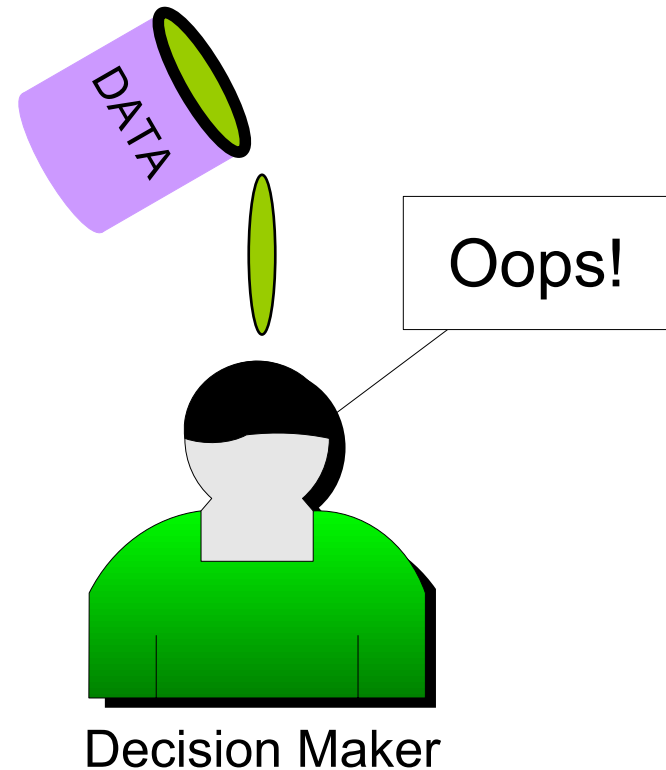
- Data collection systems are costly, especially real-time systems.
 - How do we know we're collecting the right data?
 - What is too much data?
 - Can we meet our decision making needs with only a few items of data?
 - All the things that surround a data system.
- Examine the relationship between data versus cost.

Thin-Slicing Theory

Thin-Slicing

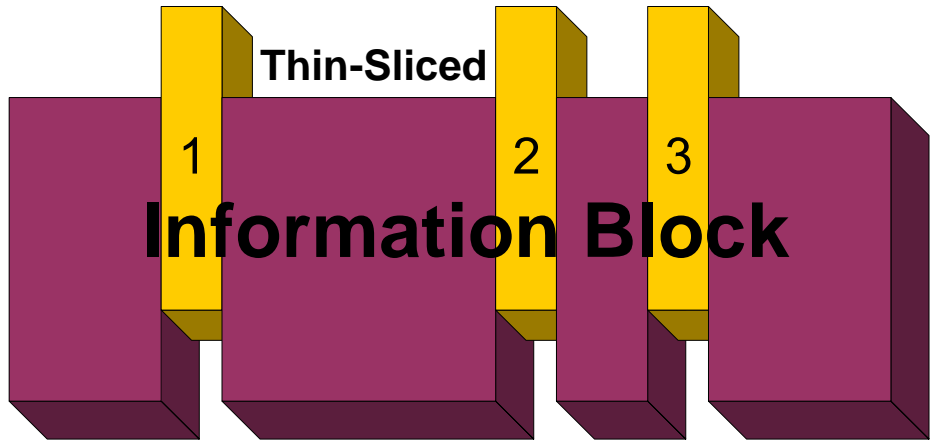
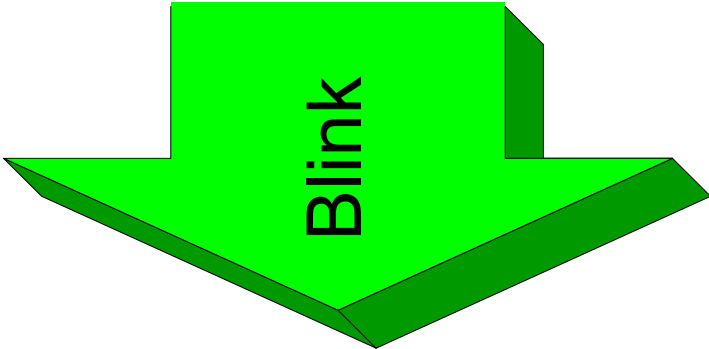
- Thin-slicing became popular over the last few years.
 - We make decisions very quickly based on a few pieces of data.
 - Additional data actually clouds the picture and makes decision making more difficult or even incorrect.
 - Thin-slicing is not an exotic gift, it is a central part of what it means to be human.

DANGER



Thin-Slicing

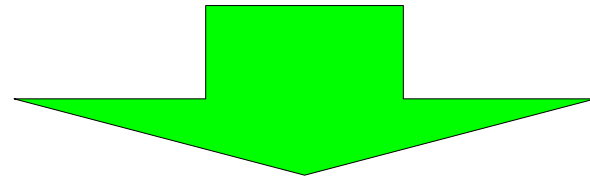
Information Block



Thin-Slicing

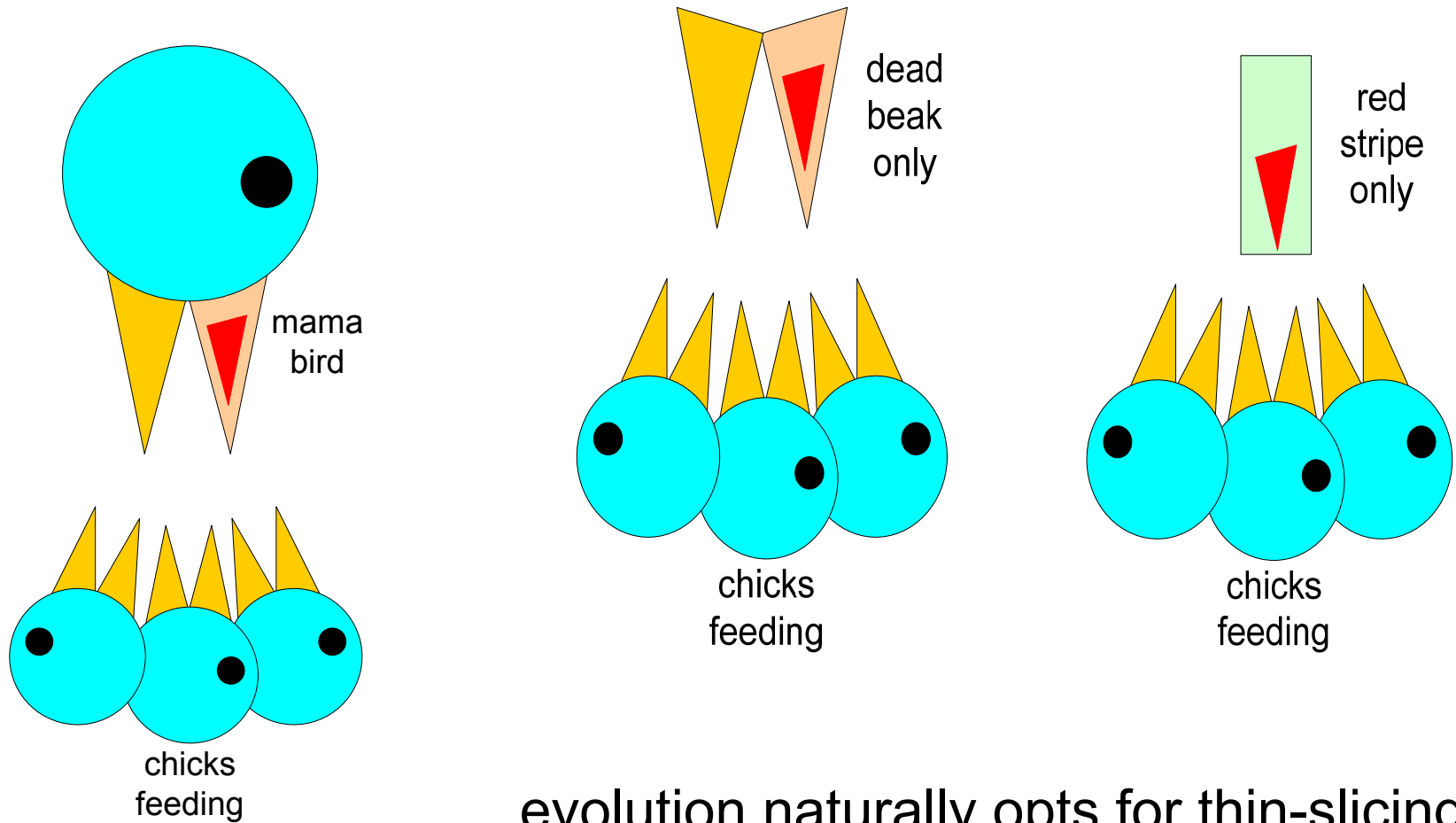
another view

Information
& Data



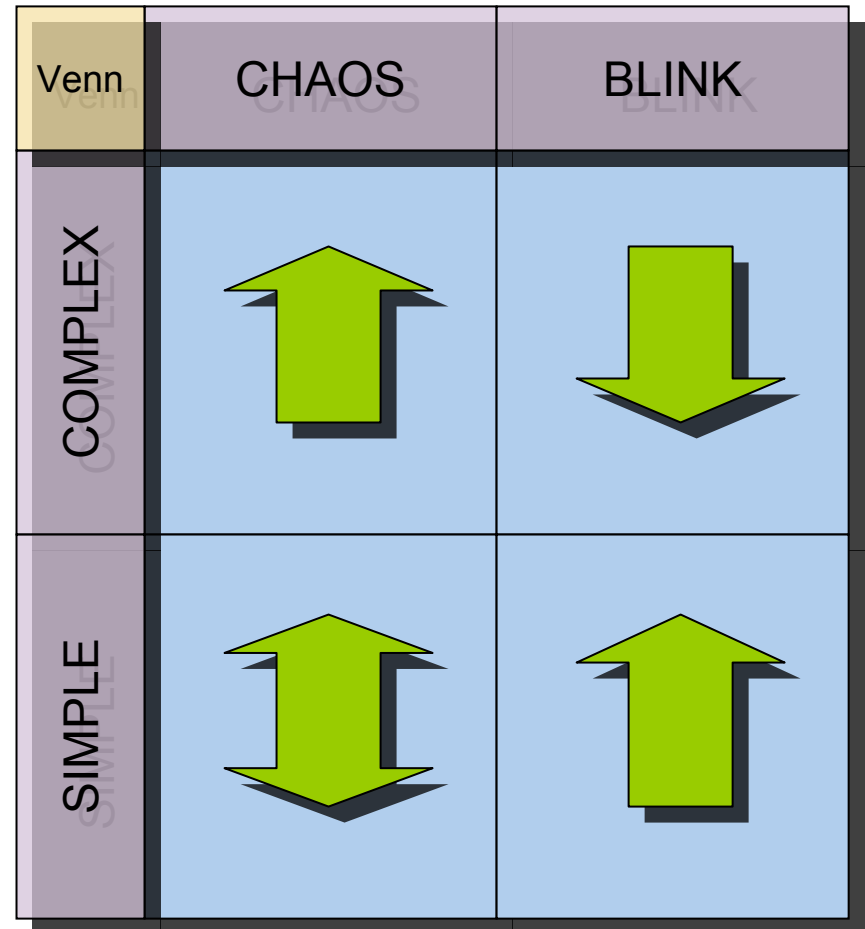
Information
& Data

Chicks & Red Stripe



2 x 2 Venn Diagram

- Chaos is complex.
- Blink or thin-slicing is simple, simple does not imply frivolous.
- Chaos has high simplicity & high complexity.
- Blink is simple.
- This Venn diagram illustrates the difference between Chaos Theory and Thin-Slicing.
- Different yet related 😊



Decision Making

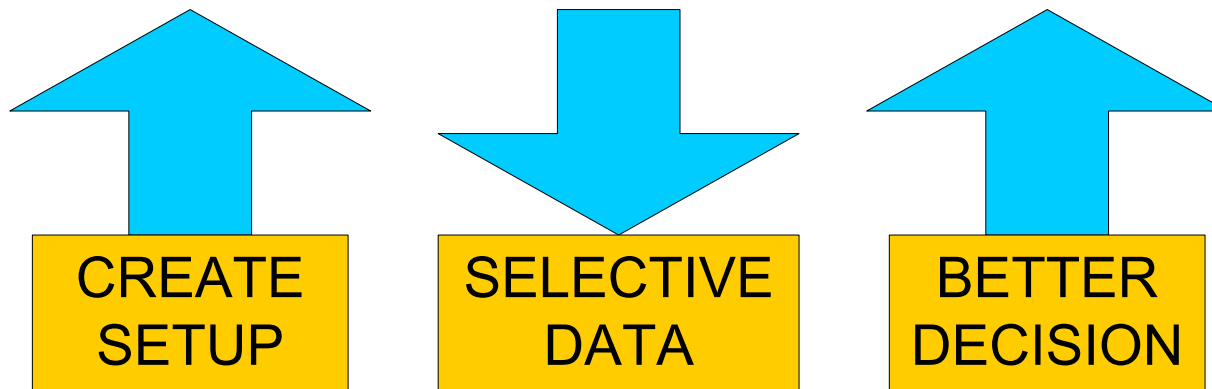
Over Simplified Decision Making



- “...truly successful decision making relies on a balance between deliberate & instinctive thinking”
- “...in good decision making, frugality matters.”
- “a general never knows anything with certainty, never sees his enemy clearly, & never knows positively where he is” (Napoleon Bonaparte)

Premise & Proposition

1. Data collection is important
2. Data items need to be selected carefully
3. Deliberately keep data items to a narrow few
4. Attempt to focus on only those items that affect decision making
5. Reduce costs & limit resources on data collection by starting small & expanding deliberately



How Do We Do This?

- Even the most complicated of relationships and problems have an identifiable underlying pattern (Chaos Theory)
- In picking up these patterns, less is more
- Overloading decision makers with information makes picking up that signature harder (Decision Support Systems)
- Successful decision makers have to edit 😊
- Trouble begins when editing process is disrupted – create an environment that let's edit

Conclusions

- The essence of ***Blink*** is that snap judgments are often based on fairly deep knowledge, freed from the constraints imposed by consideration of too much information.
- In a world of overwhelming perceptual stimulation, it seems that reducing the data and allowing intuition to guide us may be a useful coping strategy.
- We want to know everything
- Chessboard – you can see everything, win?

Quote from *Blink*

- It doesn't seem like we have much control over whatever bubbles to the surface from our unconscious. But we do, and if we can control the environment in which rapid cognition takes place, then we can control rapid cognition. We can protect people fighting wars, or manning emergency rooms, or policing the streets from making mistakes. (Gladwell)

Quote from *Blink*

- It's not life threatening where a wrong answer means immediate death, then the answer you get will be right most of the time and is extremely energy efficient.
- Given that the situations where such strategies arise are not often situations where the wrong answer means immediate death, it's not surprising that our brains are optimized for efficiency rather than 100% accuracy. (Gladwell)

Examples to Demonstrate Understanding

- Baseball Manager
 - Deep into the count
- Military General
 - Fog of war
- Snowfighter
 - Storm white-out
- You can't see what the other guy is thinking whether that's an opposing team, an enemy, or mother nature.

Management Styles

- Just in Time Management
- Total Quality Management
- Business Process Re-engineering
- Decentralized versus Centralized
- Information boom
- Communications overload
- World is Flat
- Leadership versus Management
- Decision Making has never been harder or never been easier

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Questions & Discussion

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