

# Characteristics of Big Data:

**Valence**

**After this video you will be able to..**

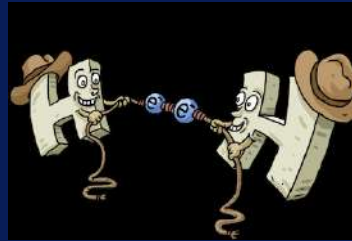
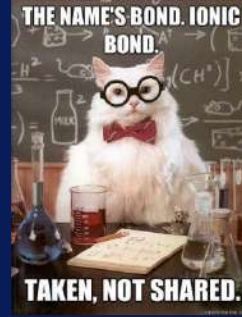
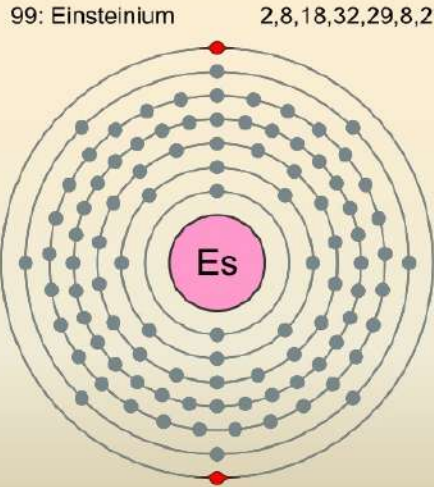
- Describe what valence means and how it relates to other Vs of Big Data
- Recognize when valence might become a challenging issue for a big data problem

**Valence == Connectedness**

# Valence – a Concept from Chemistry

**Valence  
Electrons:**

**ELECTRONS  
AVAILABLE  
FOR  
BONDING**



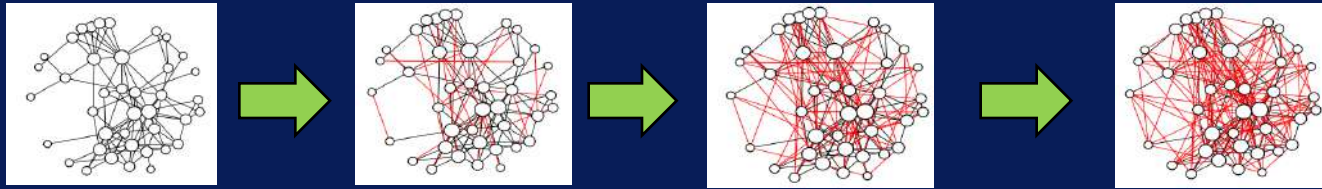
# Valence – Measure of Connectivity

- **Data Connectivity**
  - Two data items are connected when they are related to each other
- **Valence**
  - Fraction of data items that are connected out of total number of possible connections



# Why worry about Valence?

Valence increases over time



Makes the data connections denser

**Organizational  
Behavior**

As density increases, coordination and communication between participants grows and the promotion of shared behaviors and behavioral expectations increases the chance of stakeholders forming coalitions.

# Valence: Challenges

- More complex data exploration algorithms
- Modeling and prediction of valence changes
- Group event detection
- Emergent behavior analysis

