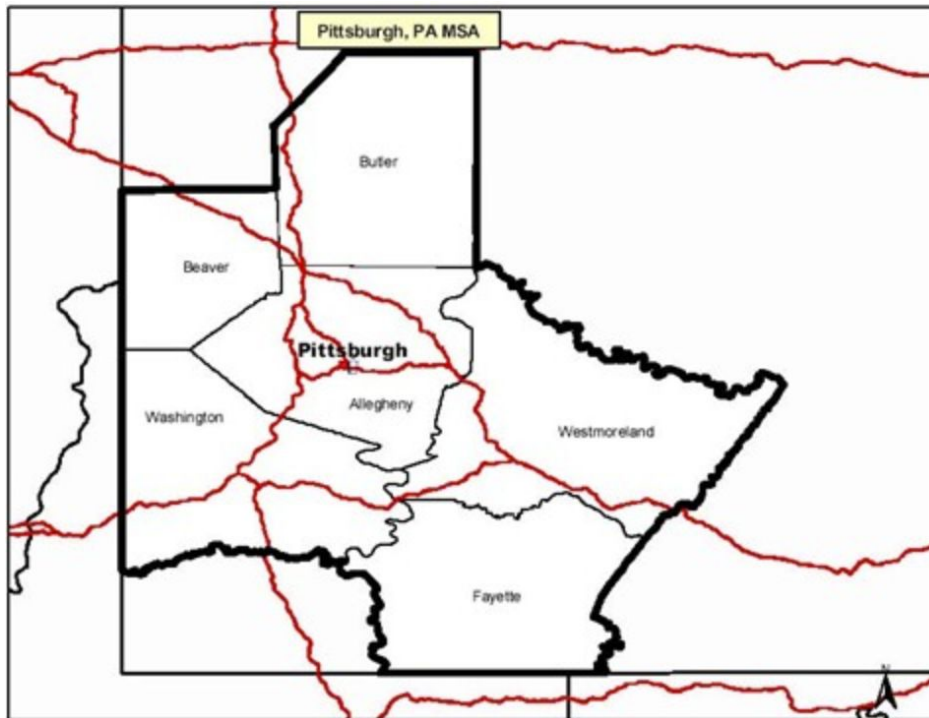# Exploring Regional Governance in the United States

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INFSCI 2415 – Information Visualization

December 5, 2017

GSPIA

**University of Pittsburgh
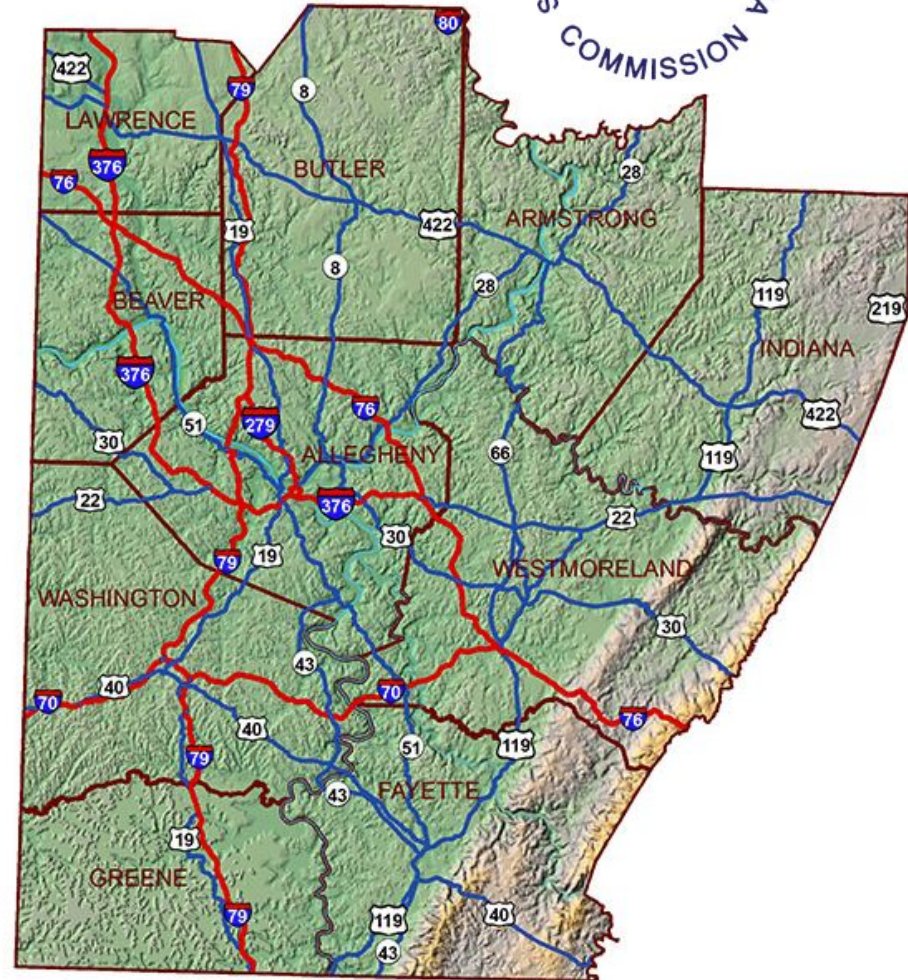Graduate School of Public
and International Affairs**

What is an MSA?

- Set by the federal government

- Based on
  - ➤ Population
  - ➤ Commerce
  - ➤ Commuting

Source:*https://www.bea.gov/regional/bearfacts/action.cfm?geoType=5&fips=383 00&areatype=MSA*

What is a RIGO?

- Established by local governments

- Reshaping public discourse practices

Source:*http://www.spcregion.org/reg.shtml*

RIGOs Project

- It is an ongoing project at the Graduate School of Public and International Affairs.

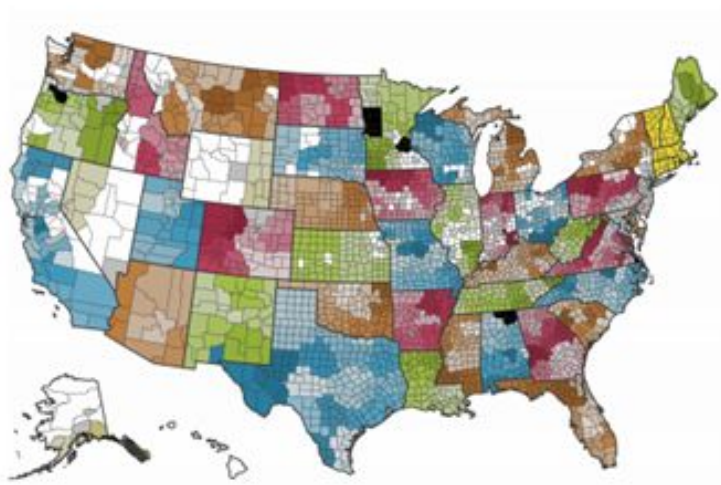- It aims to analyze and catalog the regional intergovernmental organizations (RIGOs) at the united states.
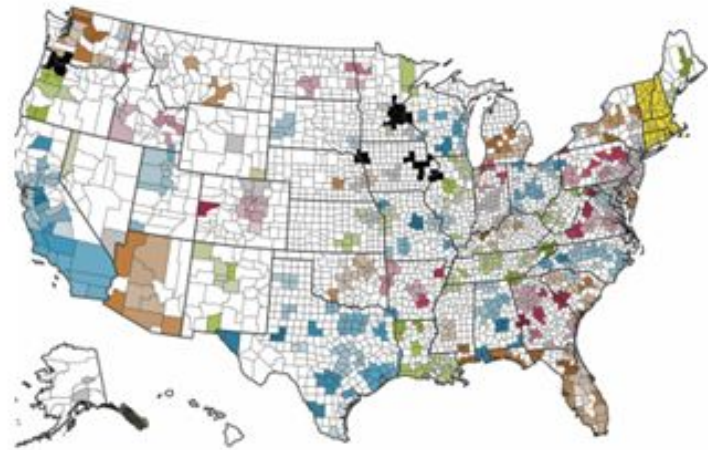
Visualization Design

- Message: designing a comparative visualization that helps users to explore counties that belong RIGOs, MSAs, or both
- Data: geospatial, RIGOs, and MSAs data
- Readers: can be researchers or public

Related Work

- The current visualization

RGOs   MSAs

Related Work

- Our Enhancements:

  1. State view
  2. Re-coloring (improve the visual encoding)
  3. Handling the New England
  4. Overlapped between Rigo 1 & Rigo 2
  5. Overlapped between Rigo & MSA
  6. Overall Statistics
  7. Providing an informative legend

Summary of Dataset

Attributes and Artifacts	Count
Data Files for MSAs and RIGOs split between county and municipality	5
Topojson shape-files	7
States	50
Counties	3007
Rigo	553
MSAs	296

New England States

- Challenges:
  1. Different shape-files.
  2. Different municipality structure.
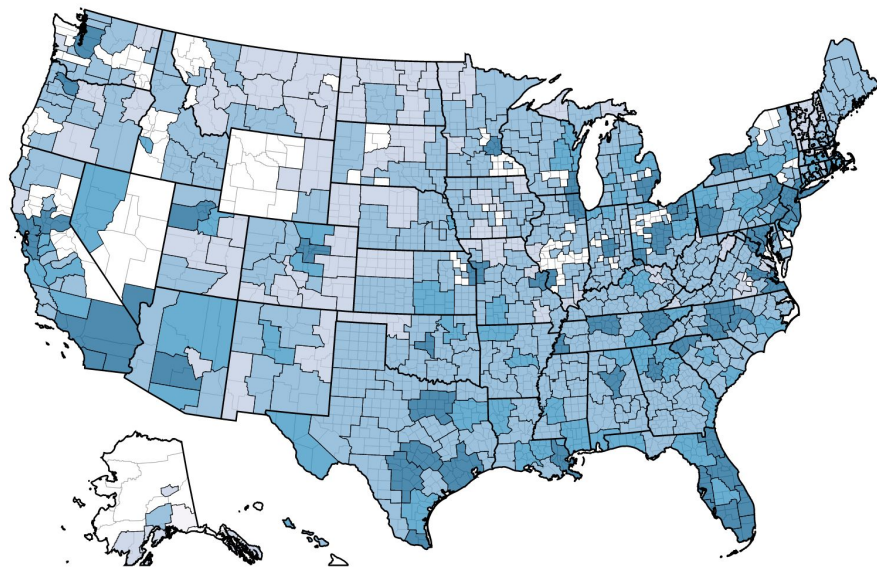 3. Different naming structure.

Source: http://www.new-england-map.com/

Visual Encoding

- We used preattentive visual attributes, such color and texture.
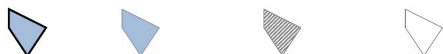- These attributes represent qualitative, quantitative, and relational data.

Healey, Christopher G, and James T Enns. "Attention and Visual Perception in Visualization and Computer Graphics." IEEE Transactions on Visualization and Computer Graphics
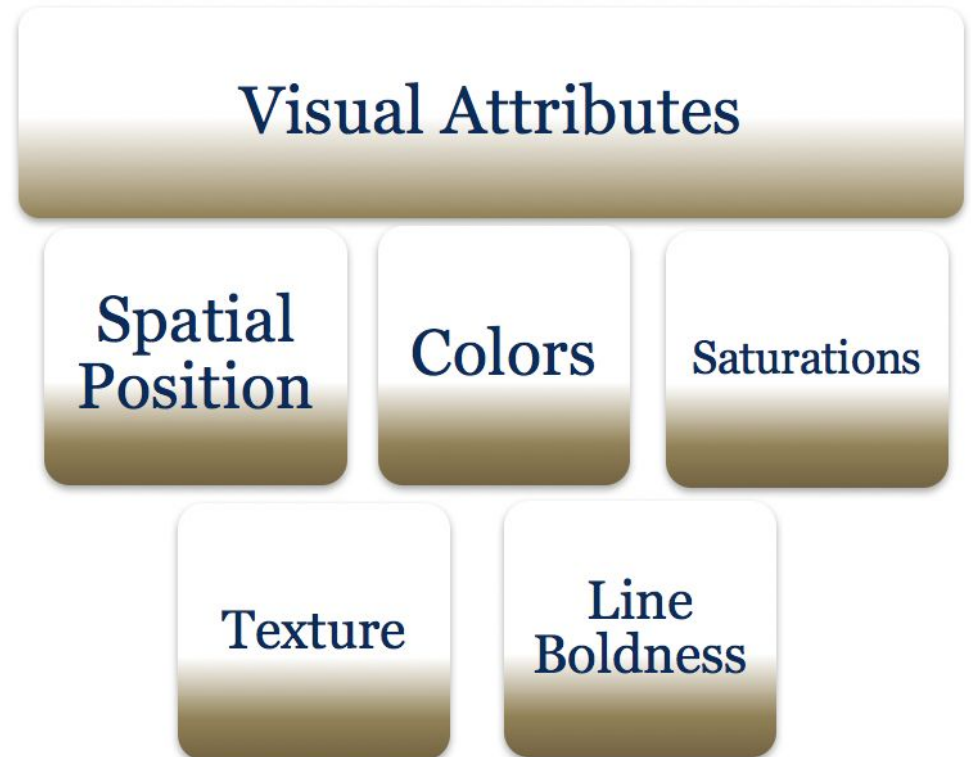
Visual Attribute

- Two colors and their saturations: used to map a quantitative and categorical data
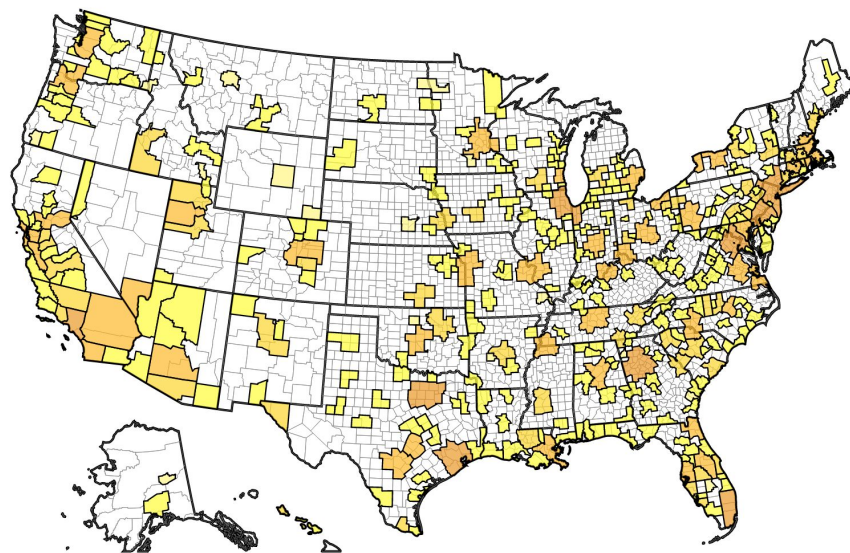
RIGOs

MSAs

Visual Attribute

- Lines boldness: state and RIGO borders
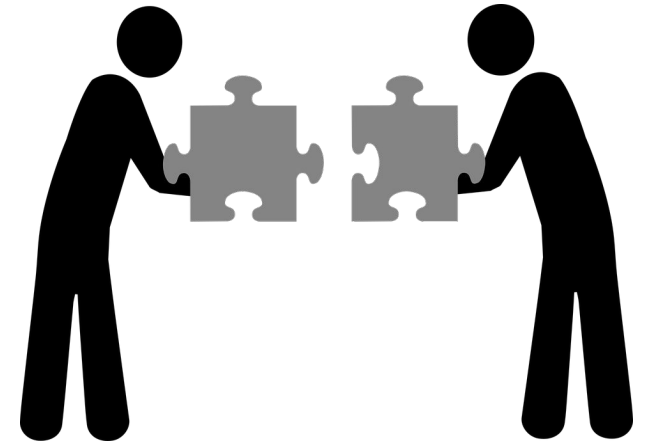- Texture: overlapping RIGOs
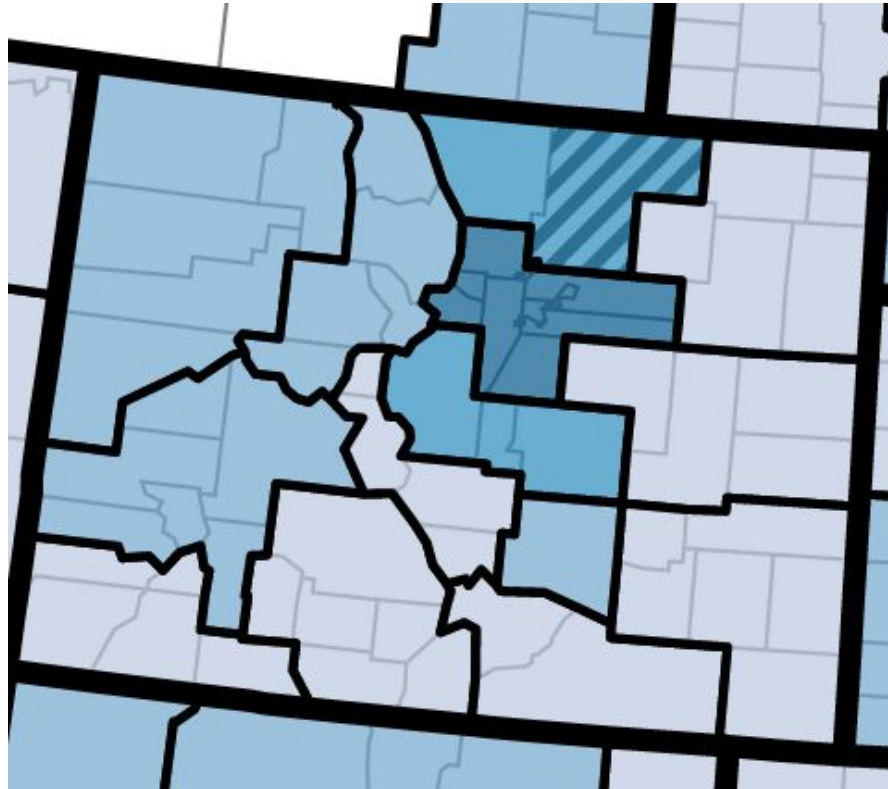
State of Colorado

Collaborative Process

Meeting 1: Introduction

- Meet clients
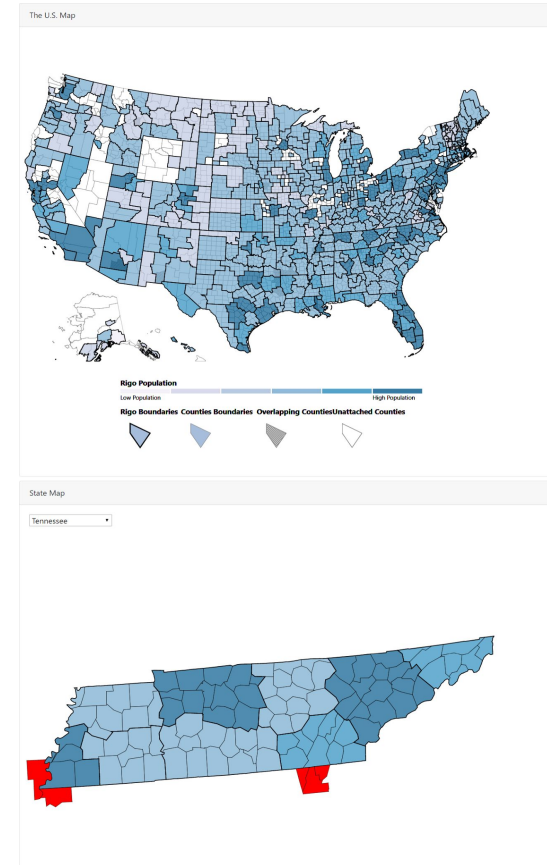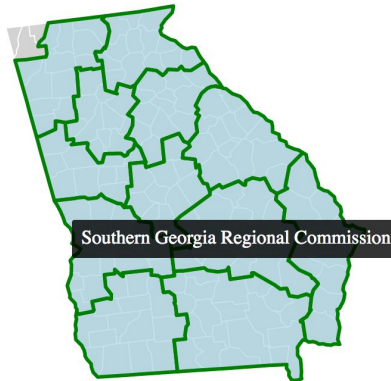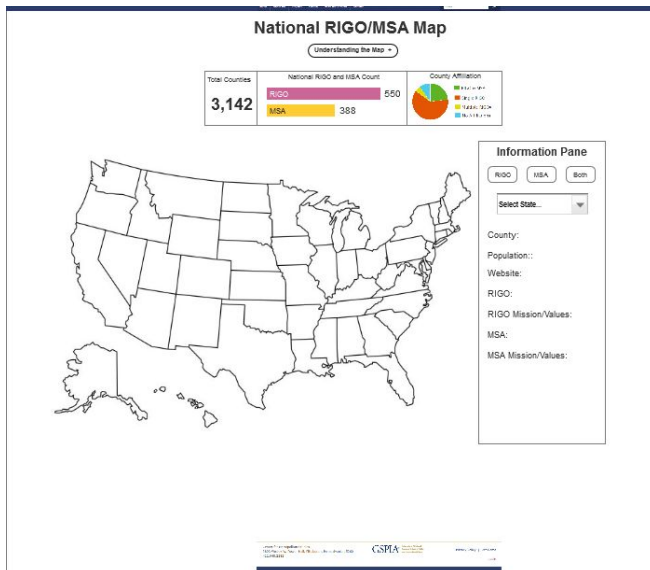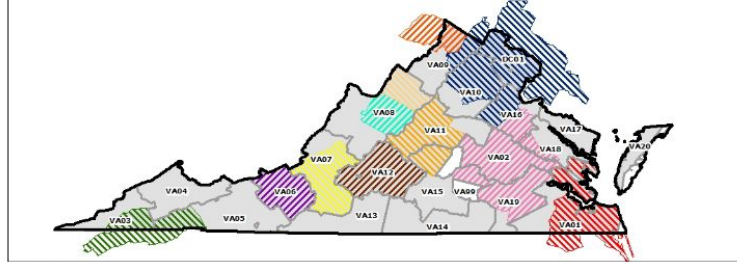- User and Task Analysis
- Design requirements

Meeting 2: Refining Ideas

- Present design approach in the form of prototypes

Iterative Designs

Interactivity

Dashboard
- High level overview of data

Buttons
- Change views

Select States

Hover/Click/ Zoom
- Low level detailed information
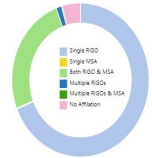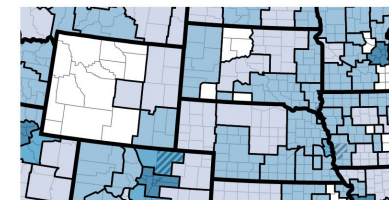
Justification for Interactivity

Given Heer's Taxonomy of Interactive Dynamics for Visual Analysis:

Data Specification

- Filtering (Donut Chart)
- Derive values (Given Statistics)

View Manipulation

- Organize (National vs State)
- Select view (MSA vs Rigo)
- Navigate (Hover/Zoom In/Out)
- Select (States)

[HS12] Heer, J., Shneiderman B. Interactive dynamics for visual analysis. Queue 10, 12 (2012), 30.5

Preliminary User Study Design

Part 1: Interaction with Visualization

- Complete tasks with current and previous visualizations

Part 2: Usability Assessment

- Survey assessing ability to effectively interact with visualization and interpret data
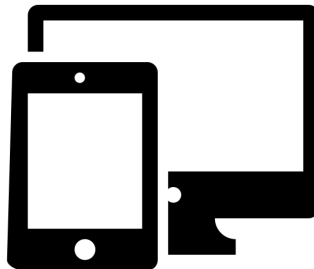
Moving Forward

Improved Interactivity

Searchability

Responsive Design

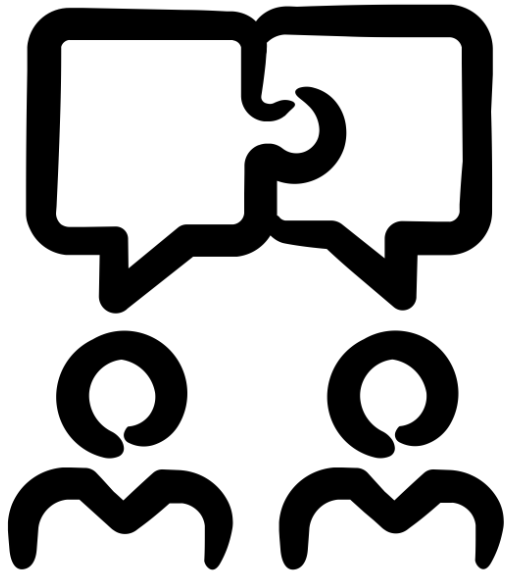# Insights Gained

Managing
messy data

Fostering a positive
client relationship

Thank You!