# Concepts interact with each other

## As in a network

### These quantitative properties can be recorded for a focus concept

# Questions

## Are these properties substantially unique for each topic?

### Will they cluster together?

## Can concepts be identified by these interaction “fingerprints”?

### Could someone create an application that would identify a concept with high accuracy?

# Objectives

## (to answer the questions)

# Methods

## Select topics (antibiotics, neoplasms, mental disorders, vaccines)

### List various levels of granularity for each topic

#### Example: First-level descendants, then further removed

## Apply machine learning methods to test hypotheses/questions

### Clustering

### ANNs

# Results

# Discussion

Description:

I begin with concepts that represent distinct classes – for example, antibiotics, mental disorders, neoplasms, etc.

(I use the MeSH tree structure in identifying these and to assure they are distinct, according to that structure).

In a ten-year span, for each entry date (EDAT) where an instance of the concept (i.e., antibiotics) occurs, I count the frequency of the concept, the frequency of the unique opposite arguments it interacts with, the frequency of unique predicates, and the frequency of unique semantic types.

I  might aggregate the data by month.

I cluster the data with k-means, with the centroid number matching the count of concepts.

I look at the class-to-clusters output

I use the data to train a multiperceptron.

I look at the multiperceptron’s accuracy

I repeat this for items within each class (e.g., penicillin, erythromicyn).

I discuss the differences in accuracy and the possible applications of this research in the paper.