

Analysis on Major Factor of Severity of Road Accidents in Victoria

Domain: Road Accidents

Research Question: What is the major factor that trigger severe and non-severe road accidents in Victoria?

Motivation: Reduce severity of road accidents.

Preprocessing, Integration:

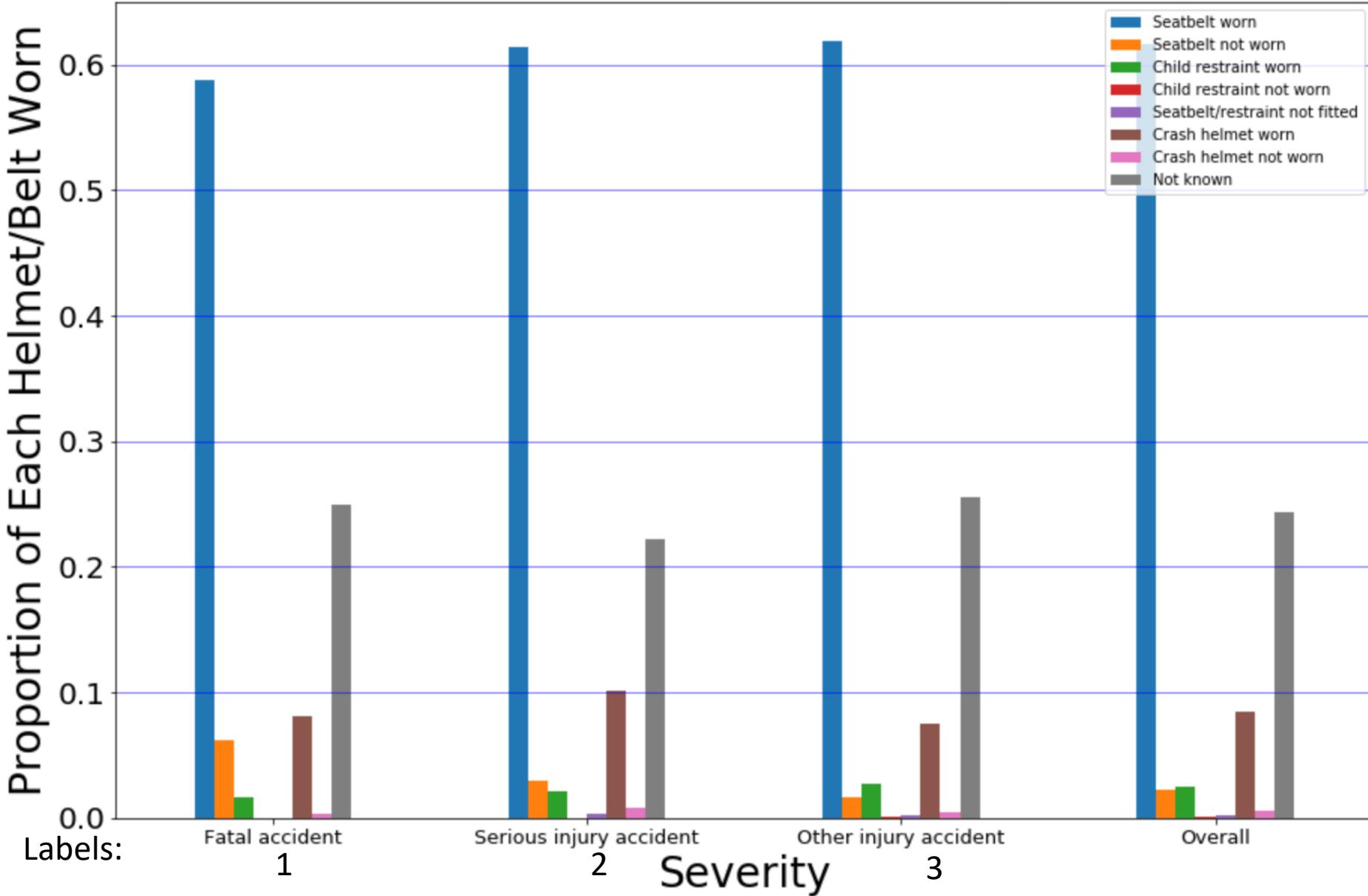
Person vs Accident :

- Metadata: <http://data.vicroads.vic.gov.au/metadata/Crash%20Stats%20-%20Data%20Extract%20-%20Open%20Data.html>
- Dataset: <https://www.data.vic.gov.au/data/dataset/crash-stats-data-extract>
- Random sampling, state =42
- Valid dates: 01 – Jan – 2006 to 31 – Dec – 2014.
- NAN -> not known
- String -> coded numbers for NMI

Structure

- Visualisations
- NMI
- Parallel Coordinates
- PCA
- Decision Tree Classifier

Distribution of Each Helmet/Belt Worn According to Severity

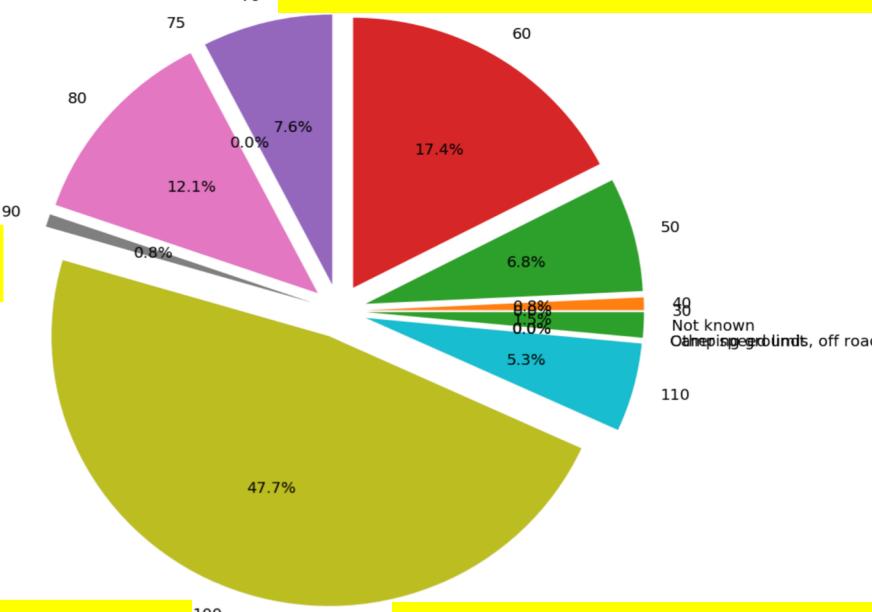


P.S.: Fatal means death.

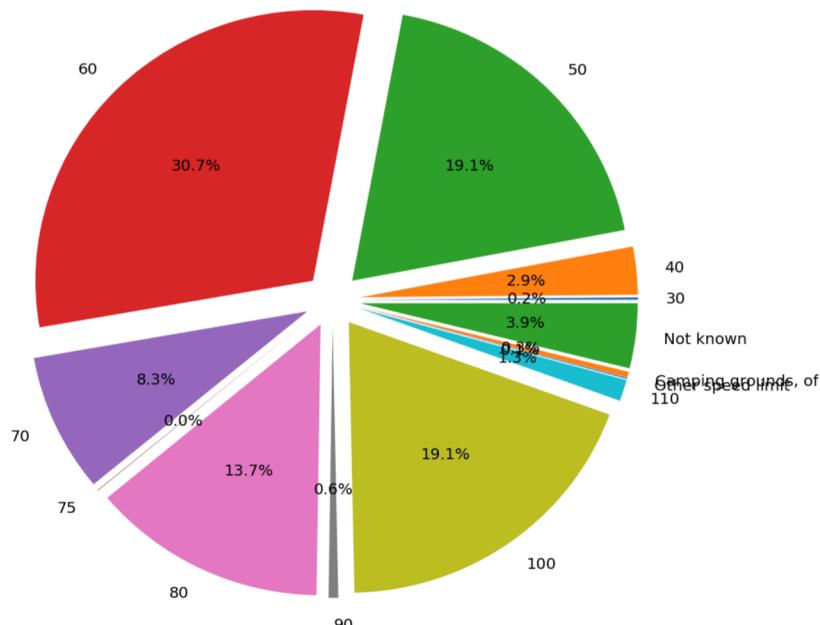
Does Speed Zones
affect Severity?

[Proportion of
Accidents According
to Speed Zones at...]

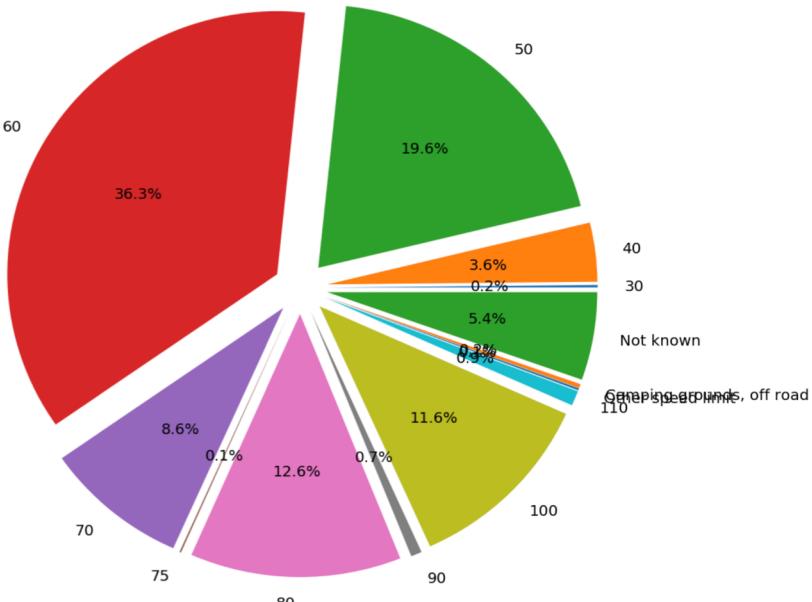
Fatal Accident Level



Serious Injury Accident Level

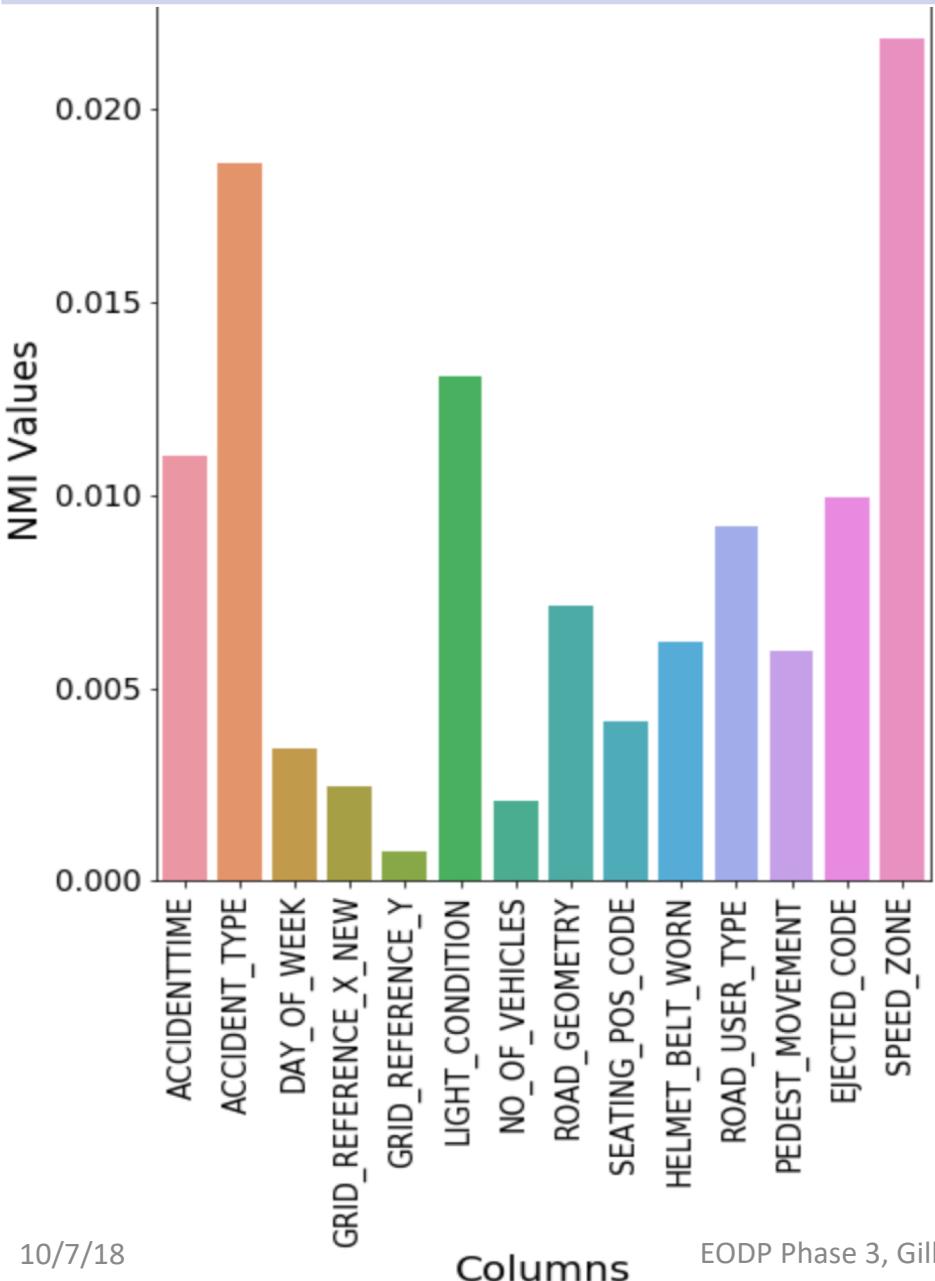


Other Injury Accident Level

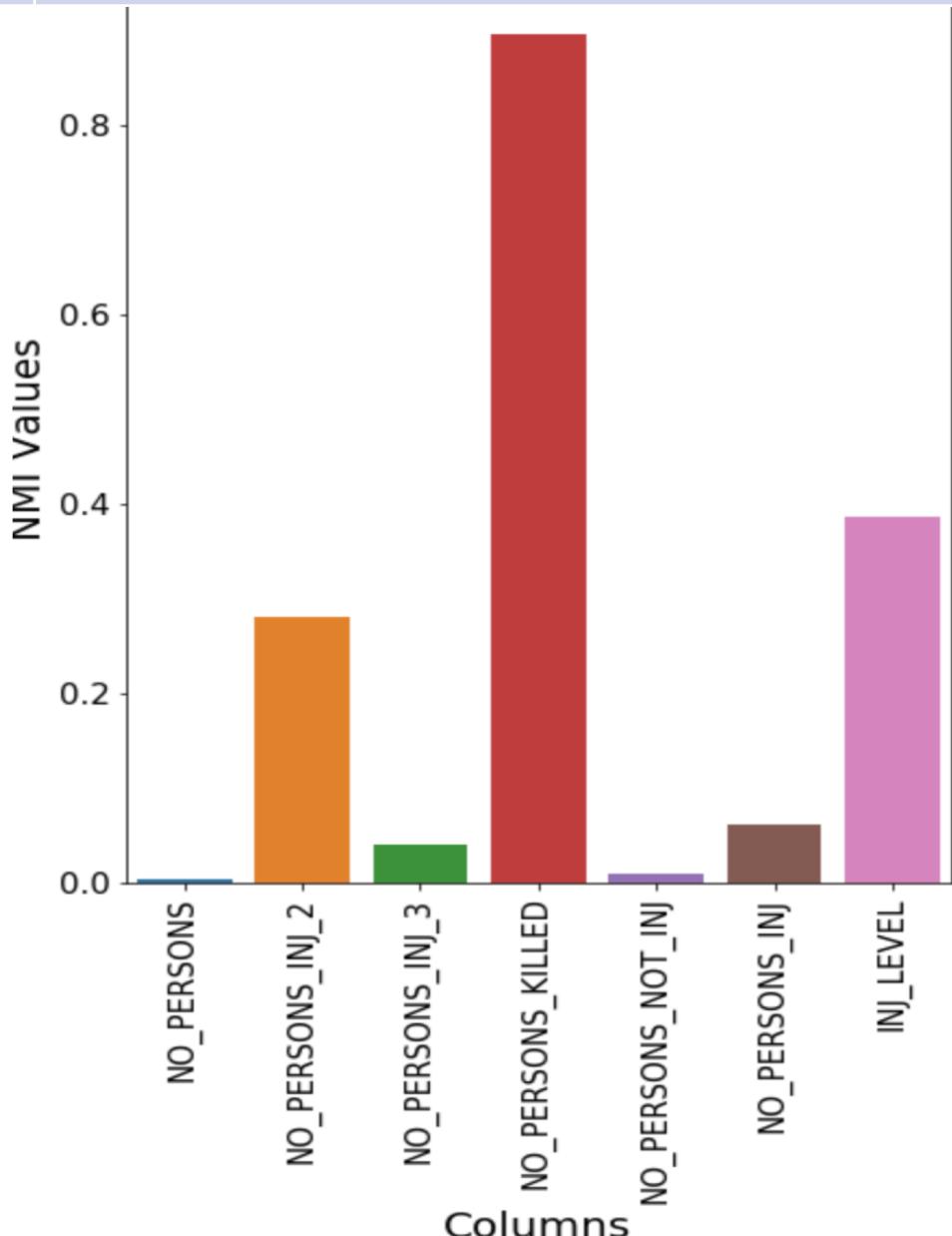


Actually, Are There Any Associations?

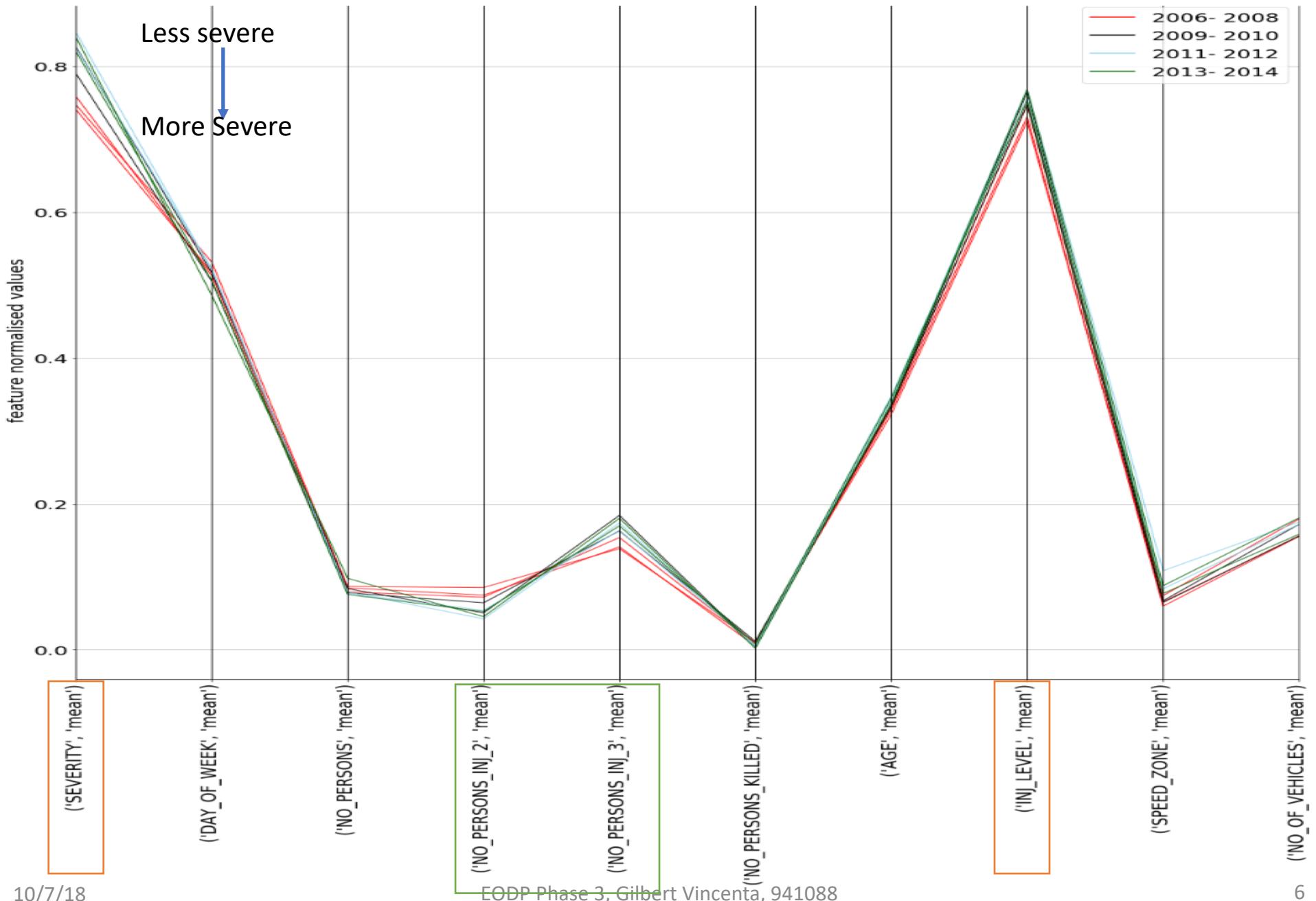
NMI for Possible Causes of Severity of Road Accidents



NMI for Impacts of Severity of Road Accidents

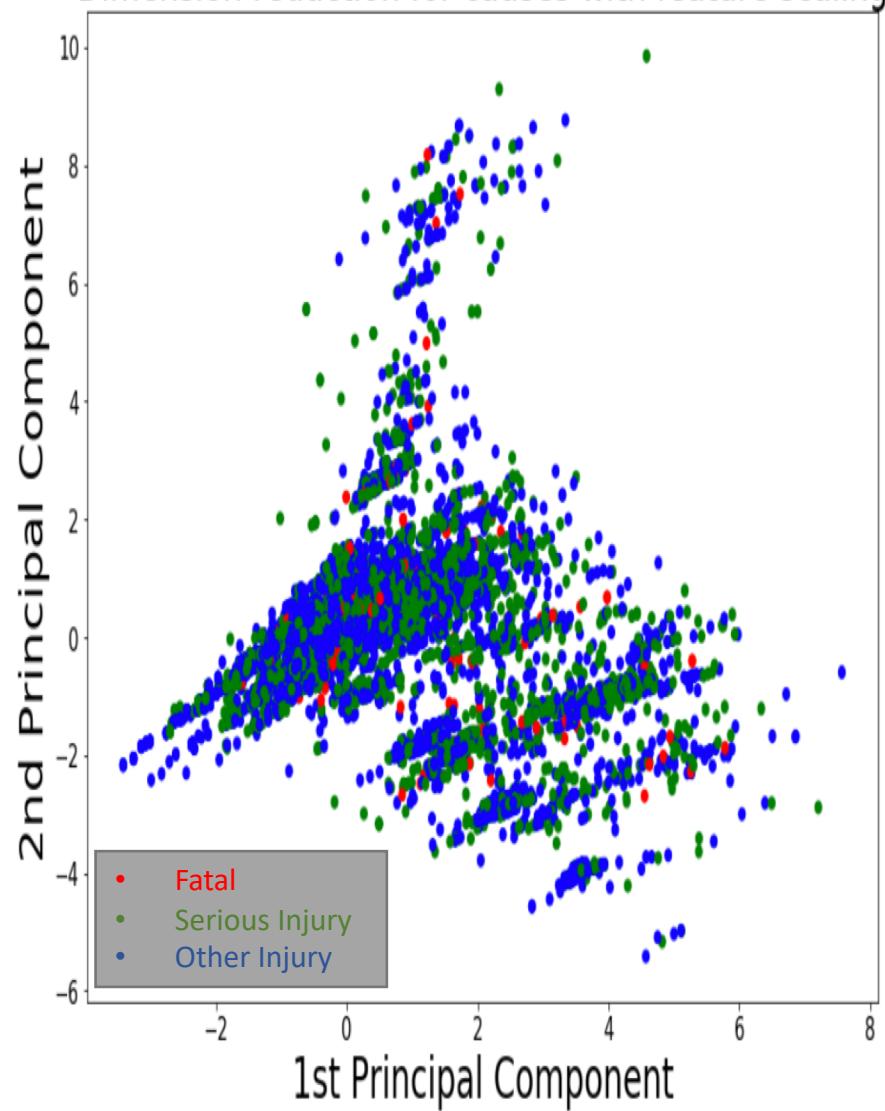


Year By Year Analysis: Parallel Coordinates of Road Accidents (2006 – 2014)



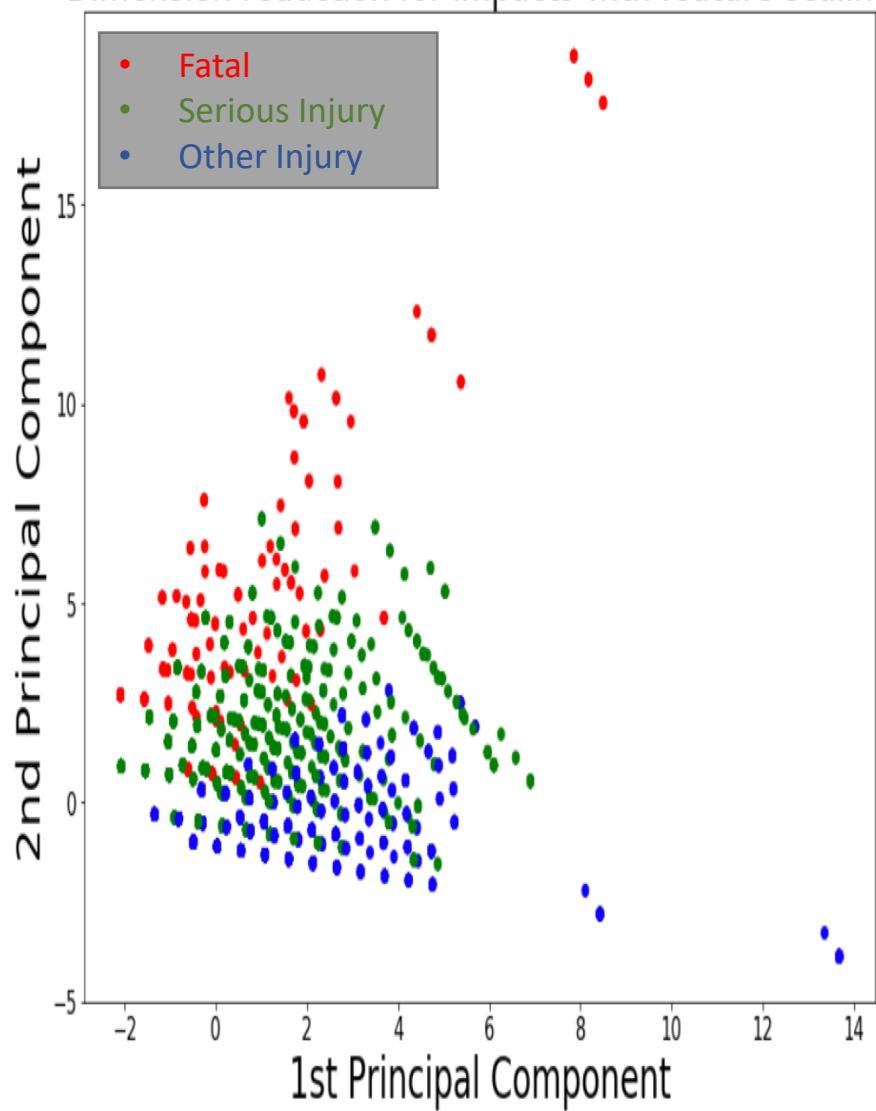
Transformations: PCA

Dimension reduction for causes with feature scaling



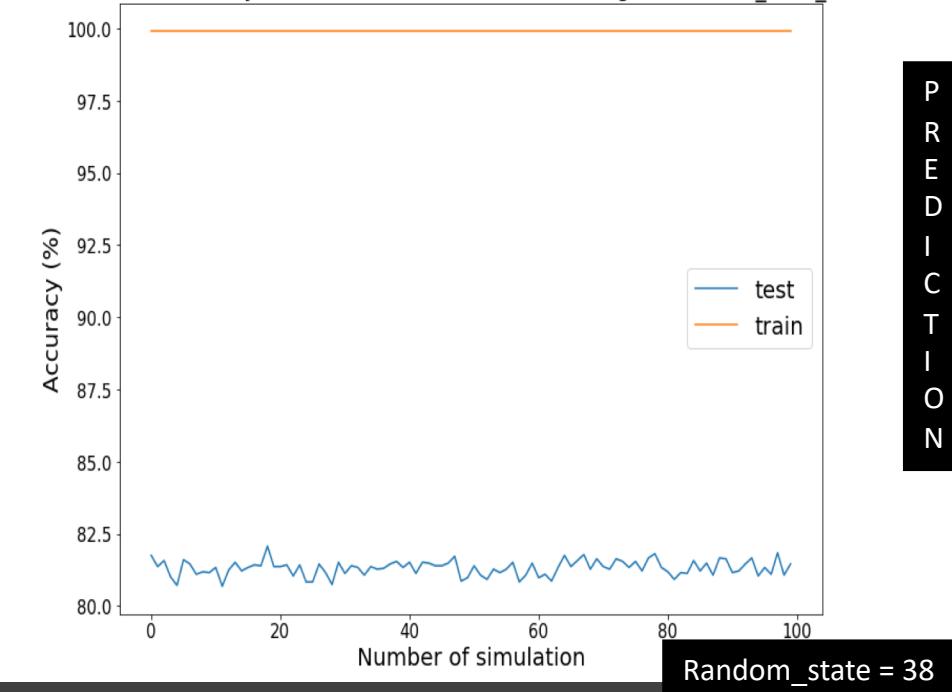
(Cluttered next to each other)

Dimension reduction for impacts with feature scaling

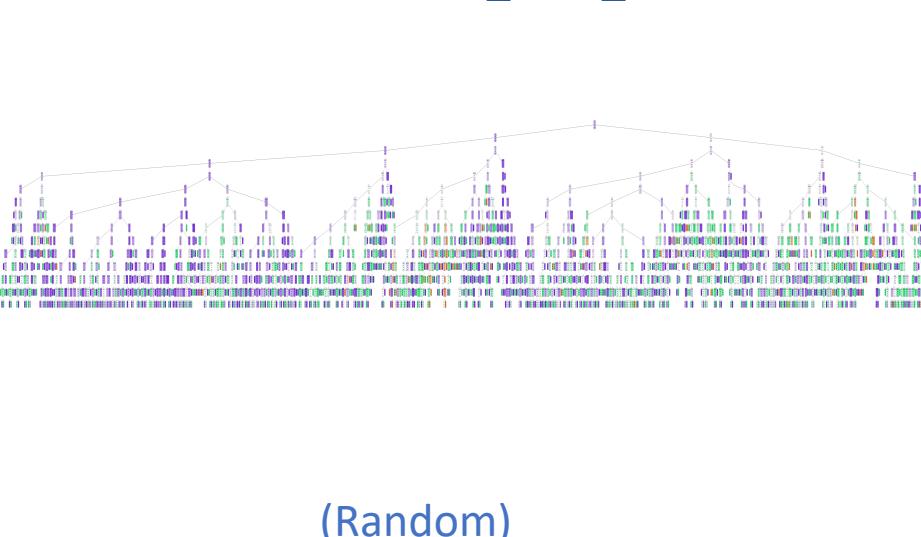


(Clear Cut)

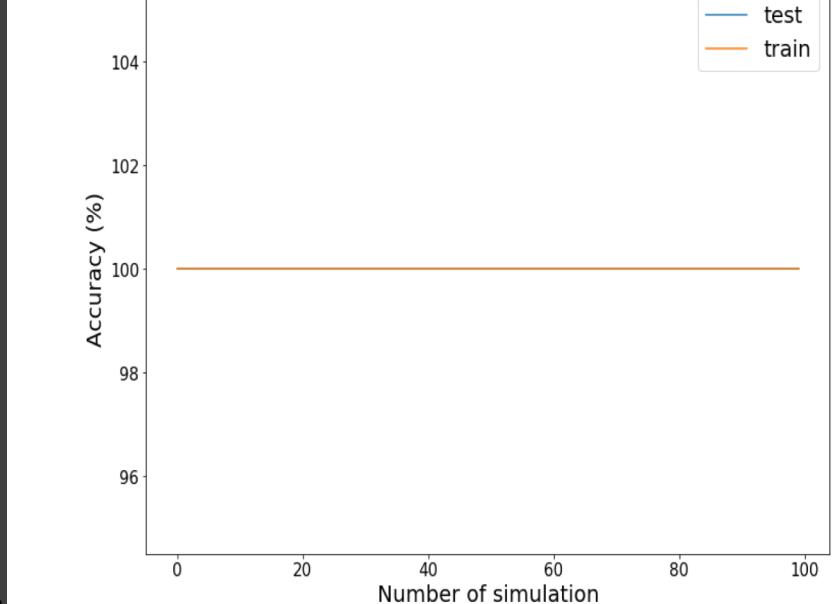
Train and Test Accuracy of Decision Tree Classifier with regard to the X_train_causes Set



Inside DT Classifier for X_train_causes



Train and Test Accuracy of Decision Tree Classifier with regard to the X_train_impact Set



Inside DT Classifier for X_train_impact

