1. **Econometrics**We train Hierarchal Linear Models (also called Mixed Models) on POS Scan data. We regress log of volume against log of price and other features like log of distribution ACV, log of promotions ACVs, etc.  
   We can think of such a model as an attribution model. The model attributes volume to the effect from each one of the independent features/ regressors.
   1. **Gross Price Elasticity**The coefficient of price in the trained HLM is considered the Gross Price Elasticity
   2. **Baseline volume**We arrive at the Baseline volume by removing the effect of promotion features from volume. Effect of a feature is calculated as the feature times the coefficient of the feature in the HLM.
2. **Promo Pattern Recognition**Once we have Baseline volume from Econometrics, we can find incremental volume as the difference of volume and Baseline and volume uplift as the ratio of incremental volume to Baseline.  
   We train and save a tree-based model to predict volume uplift given all the features in the POS Scan data.  
   We also enrich the data with customer tactics information, i.e., offer types ‘Buy One Get One’, ‘Save %’, ‘Save $’, etc. from the Promo Calendar.
3. **Purchase Structure**
   1. Based on the PPG-to-PPG cross-purchases or switching data called the aggregated panel data we generate a Purchase Structure tree such that the first few levels of the tree exhibit small to no switching between the nodes which increases as we go towards the leaf nodes.
   2. **Volume Transfer Matrix**  
      We map PPGs to Purchase Structure tree nodes and calculate switching indices for each PPG pair based on the cross-purchases data.  
      The indices are then normalized and reported as a fraction of the volume to arrive at Volume Transfer Matrix.
   3. **Net Elasticities**We can find the volume capture as one minus the volume transfer. Then, given Gross Price Elasticities from Econometrics, their product gives us the Net Elasticity.