Master Chef: Cuisine Classification and Recipe Generation
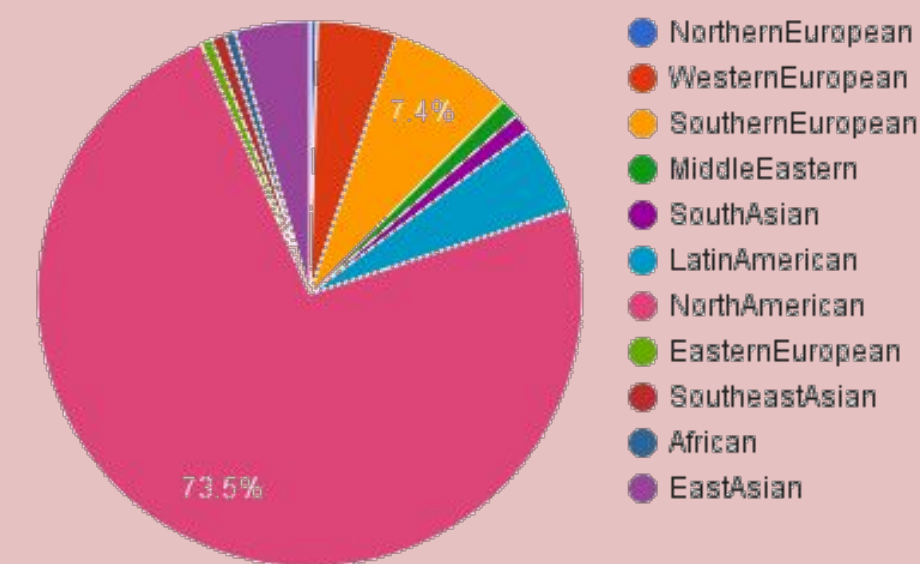
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Classification

Data

~56500 - Kaggle competition

Distribution of Data

- NorthernEuropean
- WesternEuropean
- SouthernEuropean
- MiddleEastern
- SouthAsian
- LatinAmerican
- NorthAmerican
- EasternEuropean
- SoutheastAsian
- African
- EastAsian

Datasets:
- Dataset 1: Full dataset divided 70:30
- Dataset 2: 70:30 after removing North American recipes
- Dataset 3: 2200 training examples and 550 test examples randomly sampled
- Dataset 4: 200 training examples and 50 test examples each taken from each of the 11 cuisines
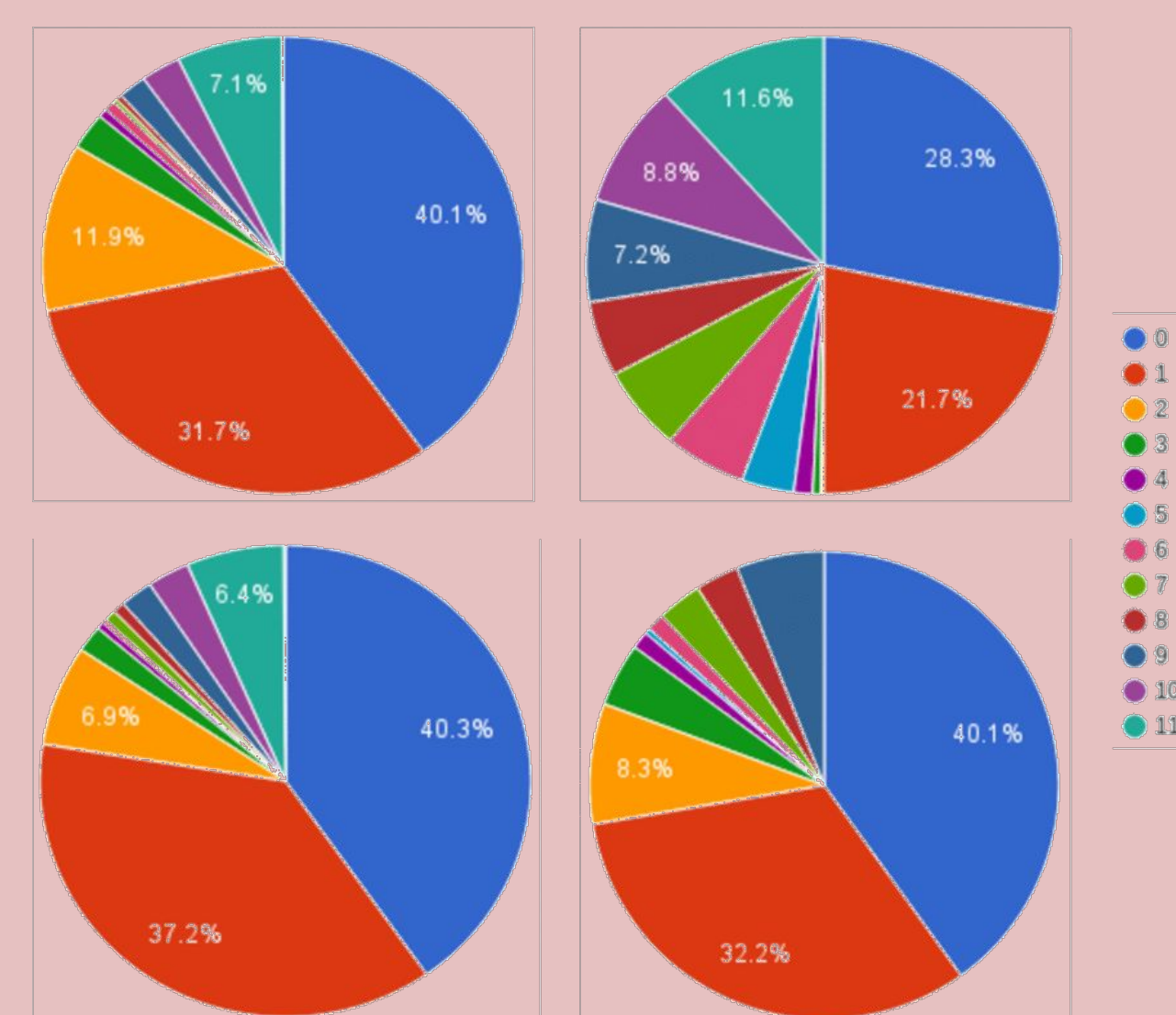
Results

Comparison of train errors based on datasets

Comparison of test errors based on datasets
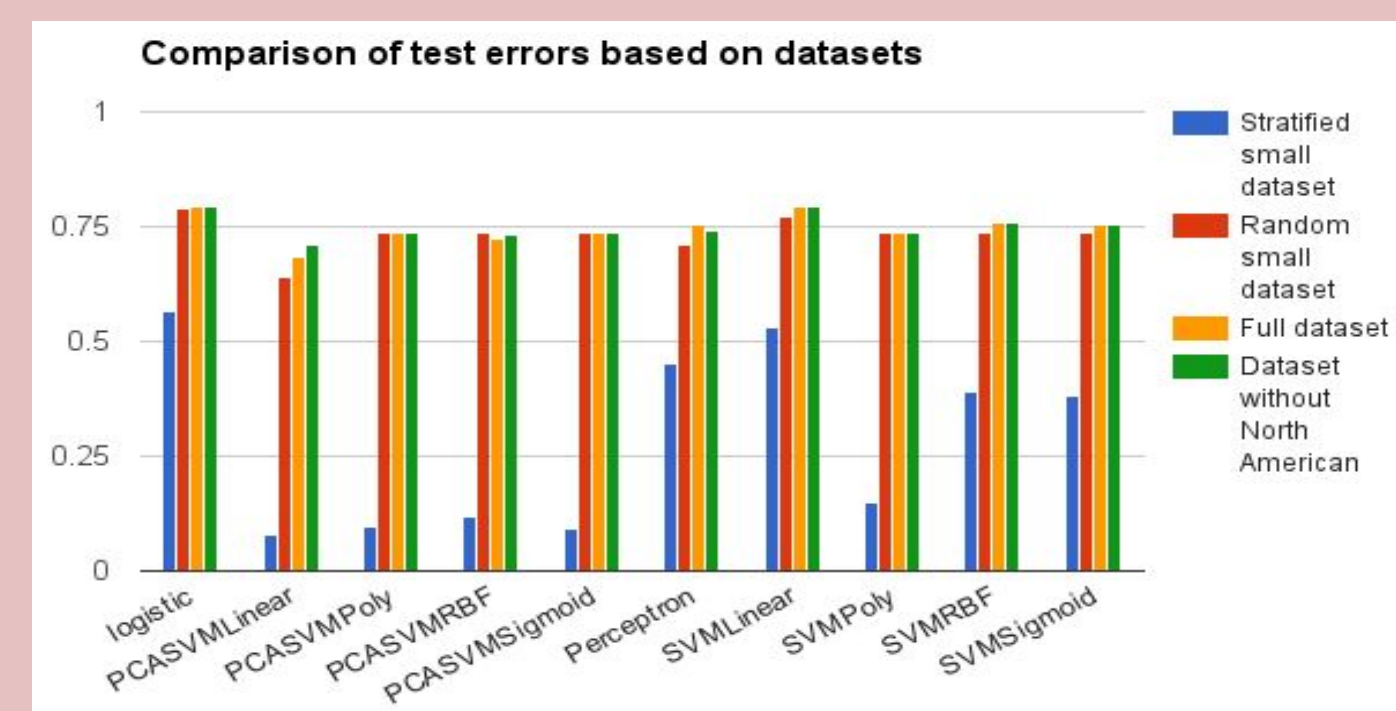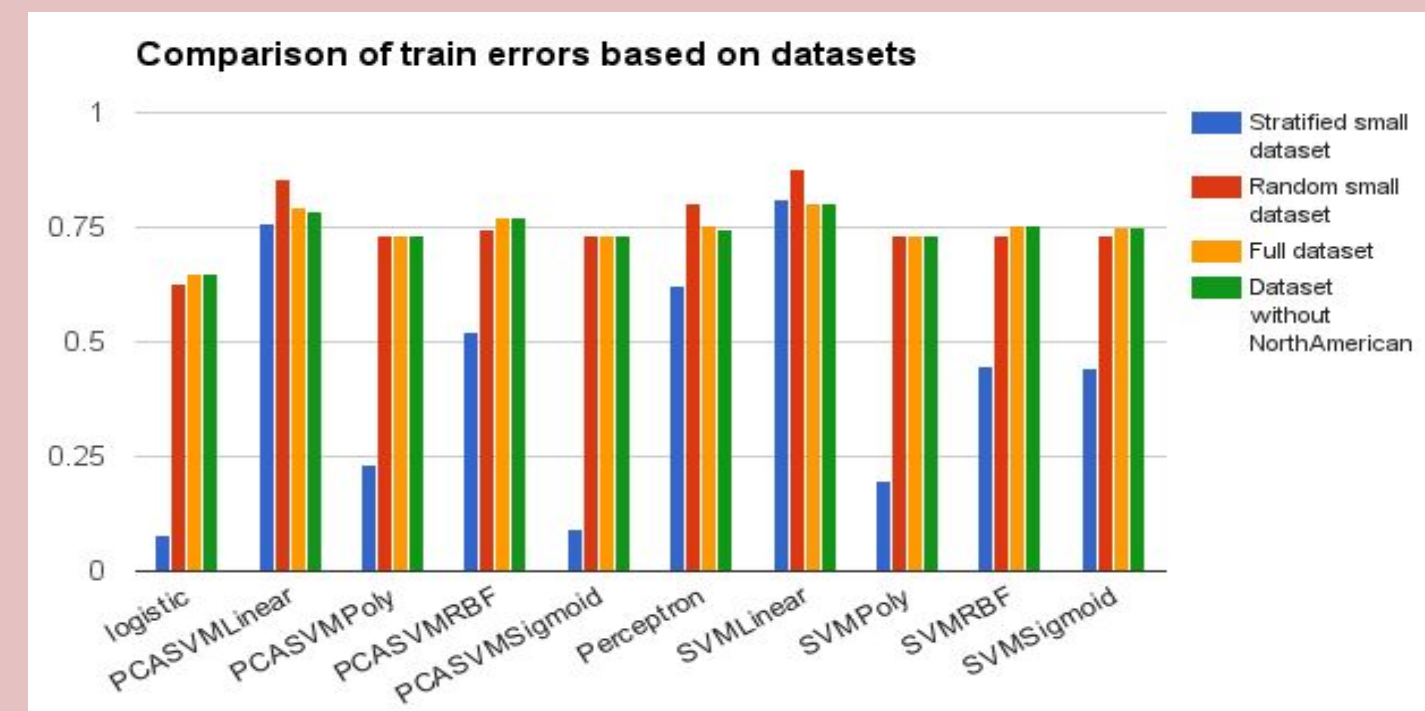
Accuracy by Cuisine
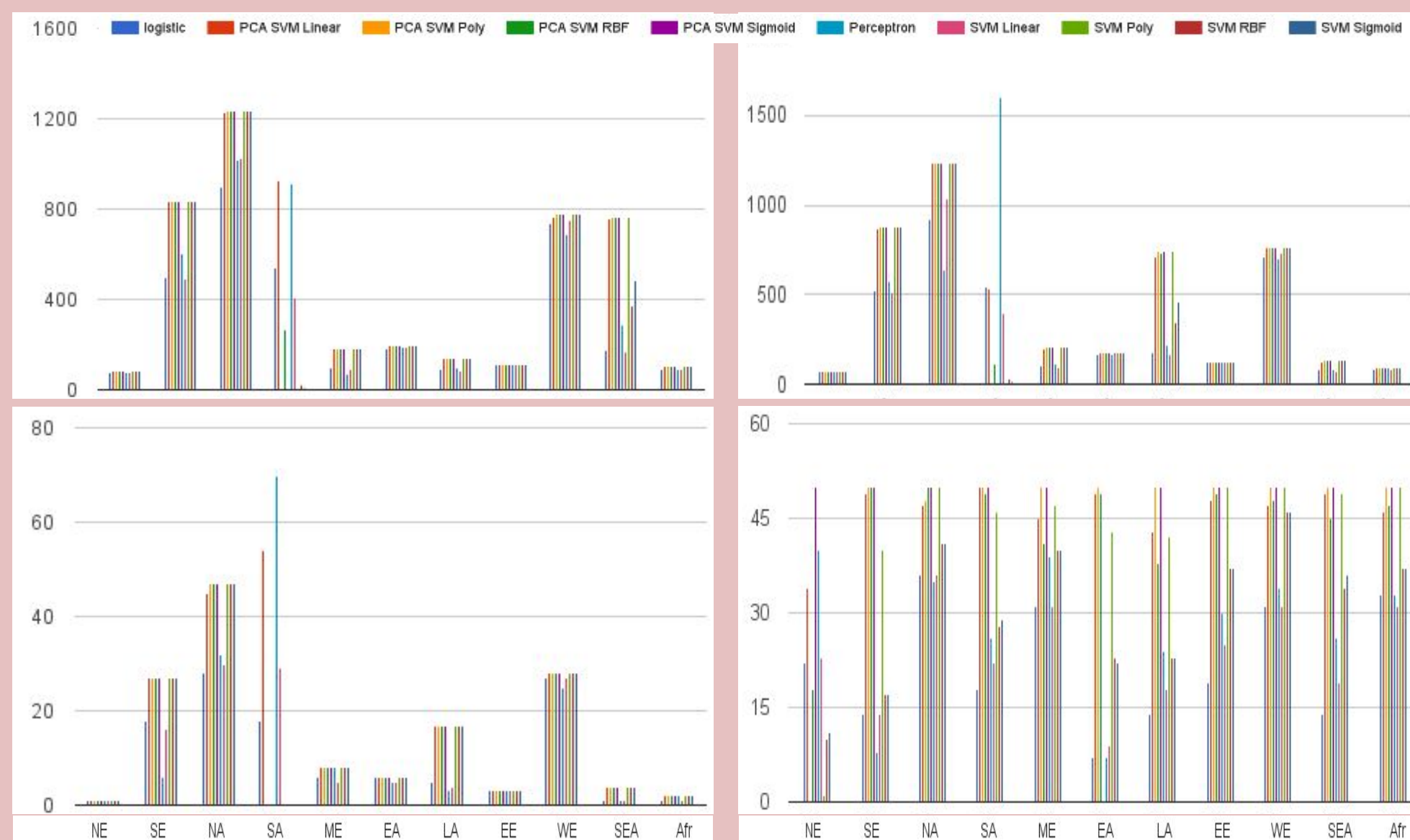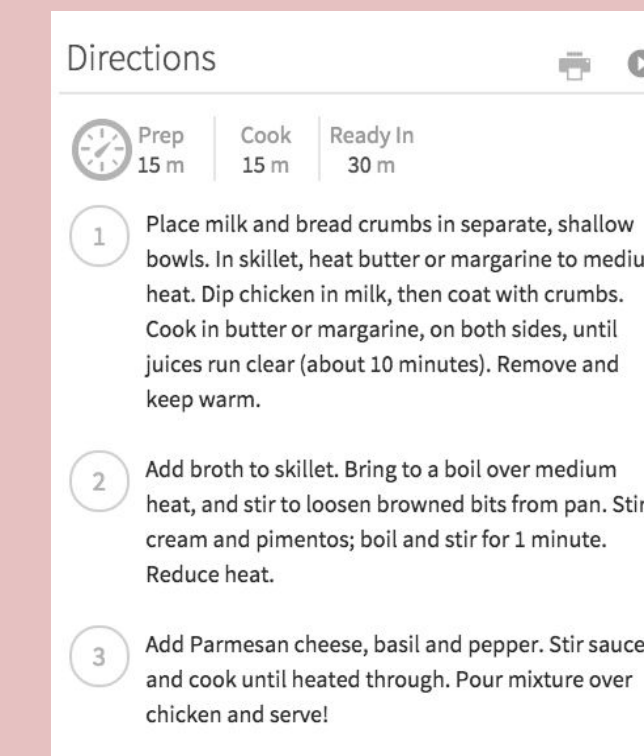

Similarity between predictions of models

Conclusion

- Most methods have similar performance on our data
- Stratifying the data to have an uniform data set decreased our performance the most
- Most methods were able to classify ~70% of our data correctly. ~7-11% of our data wasn't able to classified accurately by any our methods.

Generation

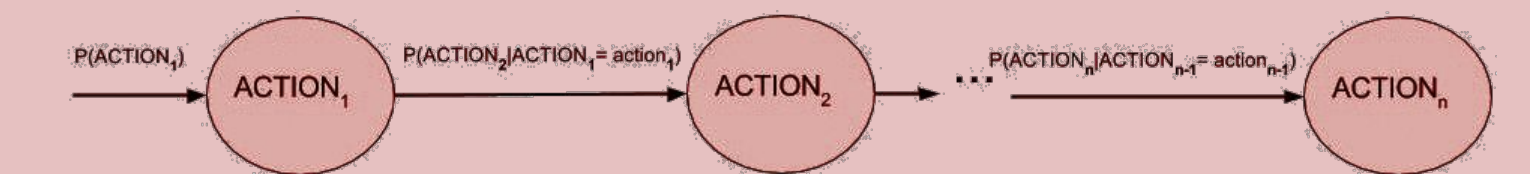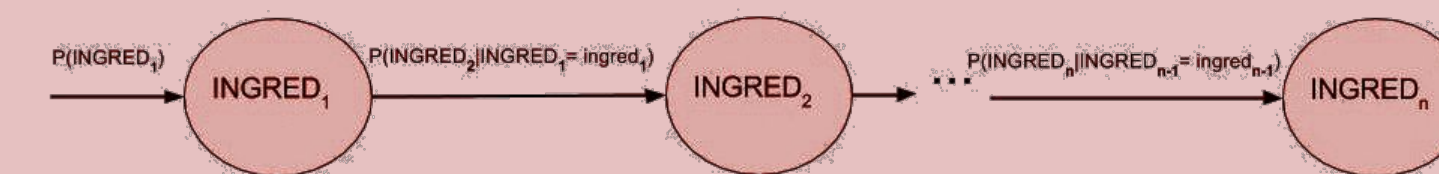### Data   ~63000 recipes : scraped from AllRecipes.com

- Each Recipe represented by a list of ingredients and instructions..
- Each Action represented as a (Verb, Ingred) pair.


Models for Generation

Generate a set of ingredients

Examples:
1. maple syrup
2. honey
3. cinnamon
4. banana
5. sugar
6. almond

1. sesame
2. ginger
3. egg yolk
4. butter
5. black pepper
6. potato
7. cream
8. confectioners' sugar

Generate a sequence of instructions given a set of ingredients.

Example:
- potato
- parsley
- butter
- corn syrup
- cornstarch
- cinnamon
- onion
- celery
- garlic
- tomato
- chicken
- corn
- turkey
- paprika
- sugar

Example:
1. preheat butter
2. mix cinnamon
3. mix salt
4. mix garlic
5. stir onion
6. stir potato
7. cook corn syrup
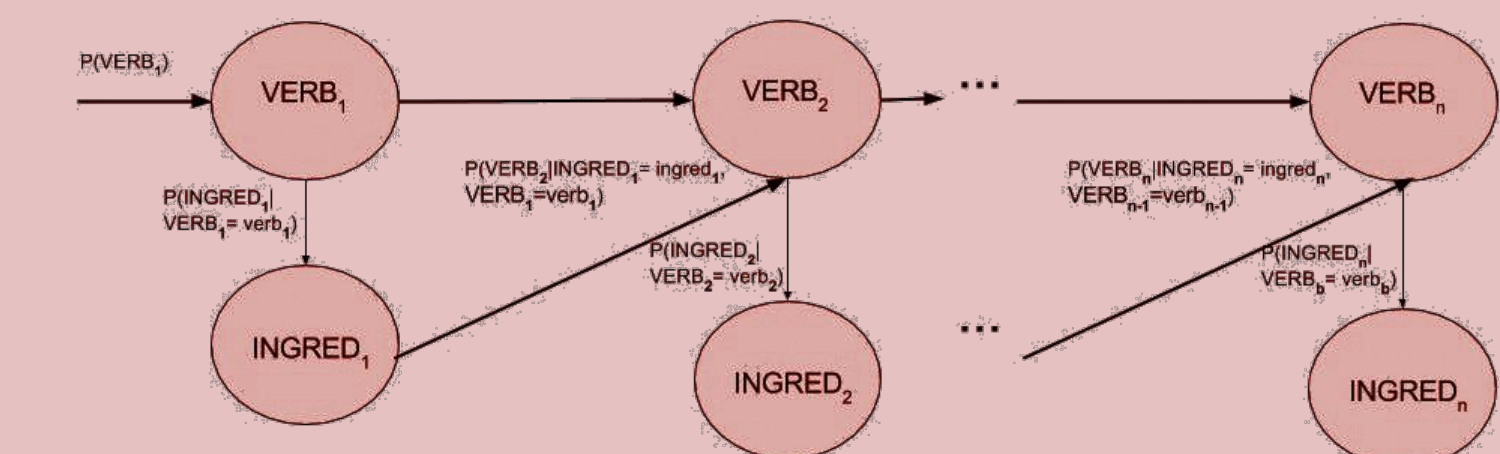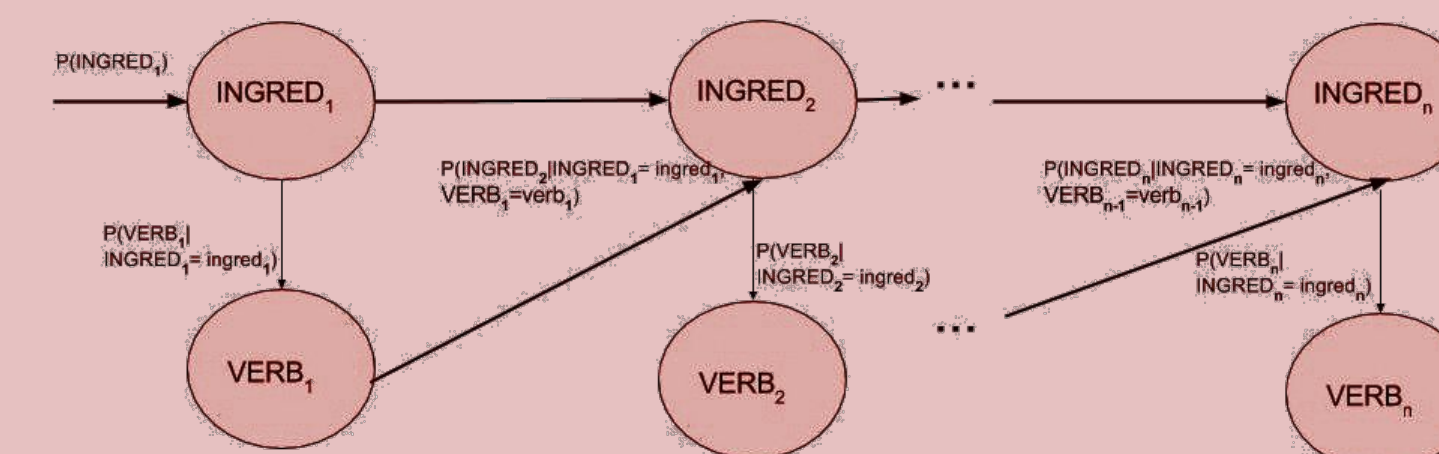
Generate a sequence of instructions by predicting a sequence of ingredients from the given most probable ingredients with corresponding most probable actions

Example:
1. whisk cornstarch
2. add onion
3. add parsley
4. bake potato
5. bake cinnamon

Generate a sequence of instructions by predicting a sequence of actions with corresponding most probable ingredients from the given set of ingredients.

Examples:
1. stir garlic
2. add onion
3. stir tomato
4. chop salt
5. heat butter
6. cook celery
7. cook potato