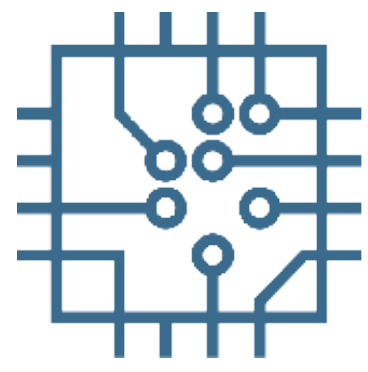




Grammar- and dictionary-based named entity linking for knowledge extraction of evidence-based

dietary recommendations



Computer
Systems

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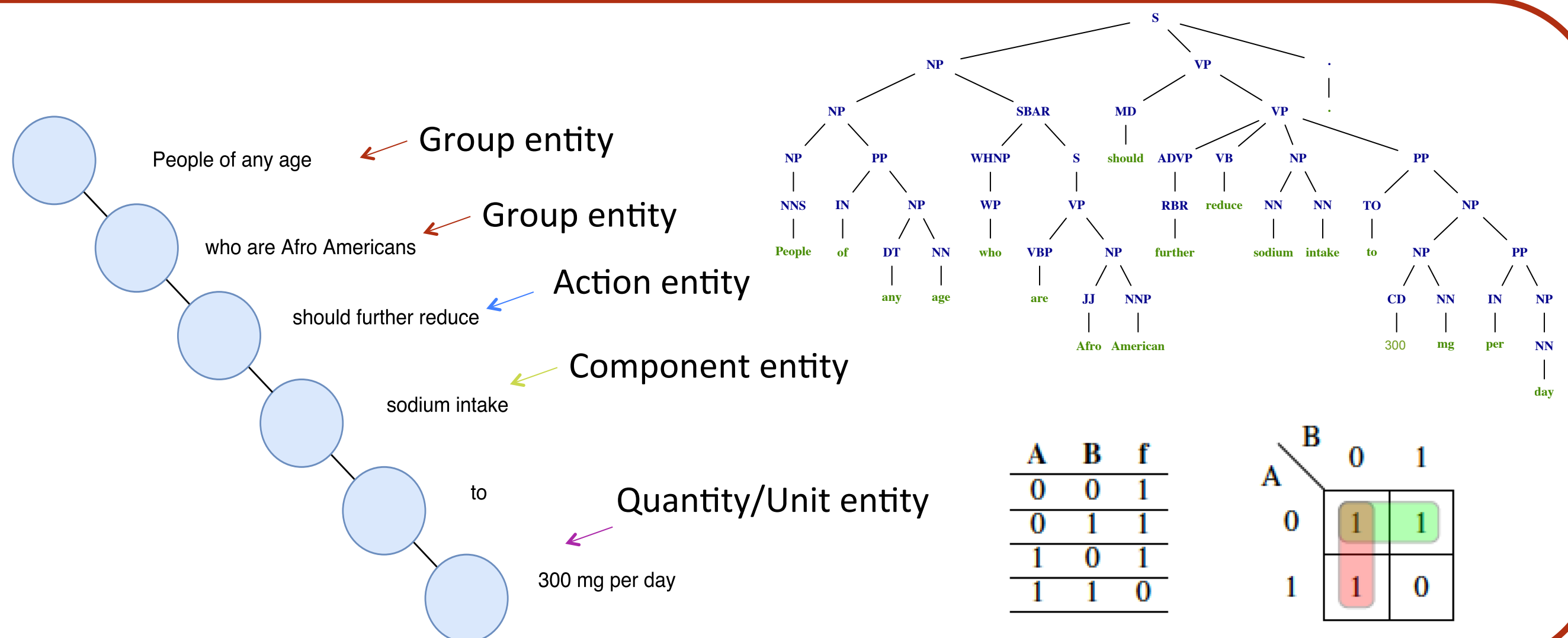
Safety
Quality
Traceability

Motivation

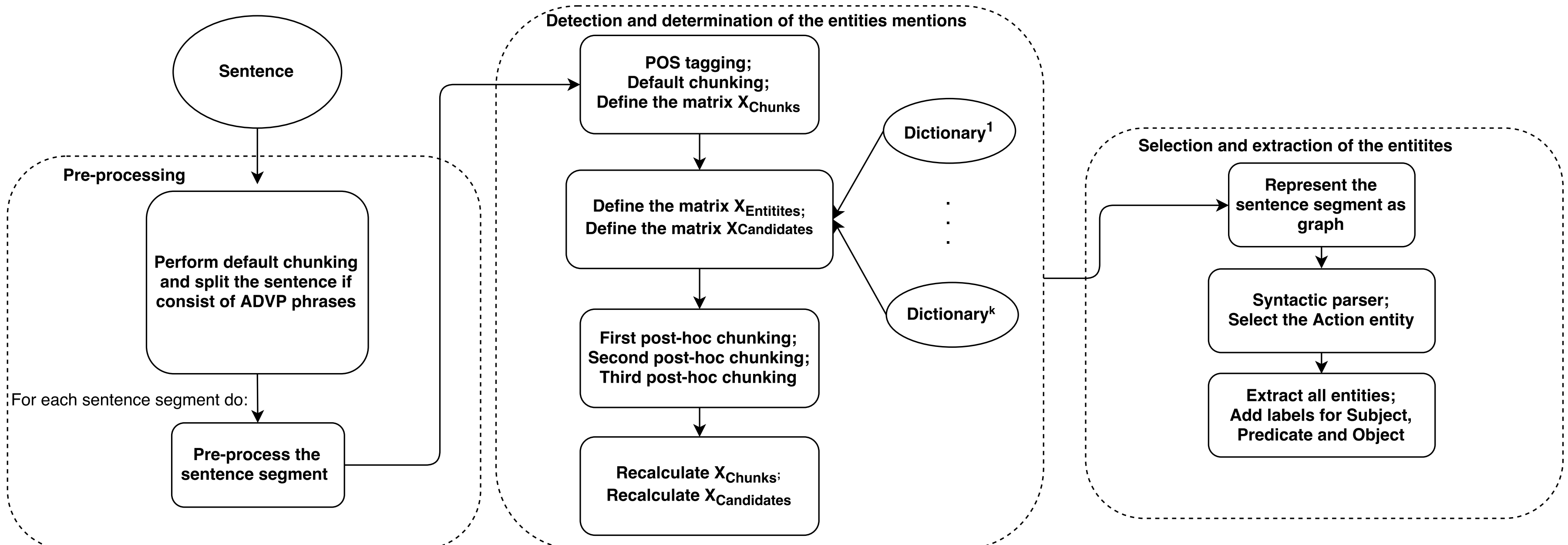
- **Food-based dietary guidelines** (FBDGs) are simple advices on healthy eating, aimed at the general public.
- **Dietary Reference Intakes** (DRIs) are values that are quantitative estimates of nutrient intakes used for planning and assessing the diets for healthy people.
- **Food-composition studies** are carried out to determine the chemical nature of components in food that affect human health.
- Complete mapping of the human-genome sequence has introduced a possibility of **personalized dietary recommendations** (PDRs) based on the individual's genetic profile.
- As today the amount of information presented as unstructured text is massive and quickly increasing, computer-based tools for systematic knowledge identification, extraction and exploration are required to support human experts in decision-making about appropriate nutritional care.

Problem definition

- Grammar and dictionary based named-Entity Linking is used to help people to follow new knowledge about healthy diet.
- "People of any age who are Afro Americans should further reduce sodium intake to 300 mg per day."
- Entities: Food, Component, Quantity/Unit, Action, Group



Named-Entity Linking



Results

Recommendation	Group	Action	Food	Component	Quantity/Unit
Good sources of magnesium are: fruits or vegetables, nuts, peas and beans, soy products, whole grains and milk.	-	are (P_1)	fruits or vegetables, nuts, peas and beans (O_1) soy products (O_1) whole grains and milk (O_1)	Good sources of magnesium (S_1)	-
The RDAs for Mg are 300 mg for young women and 350 mg for young men.	-	are (P_1)	-	The RDAs for Mg (S_1)	300 mg for young women (O_1) 350 mg for young men (O_1)
Increase potassium by ordering a salad, extra steamed or roasted vegetables, bean-based dishes fruit cups, and low-fat milk instead of soda.	-	-	salad (S_1) extra steamed or roasted vegetables (S_1) fruit cups (S_1) low-fat milk (S_1)	Increase potassium (S_1)	-
Babies need protein about 10 g a day.	Babies (S_1)	need (P_1)	-	protein (O_1)	10 g a day (O_1)
1 teaspoon of table salt contains 2300 mg of sodium.	-	contains (P_1)	-	table salt (S_1) sodium (O_1)	1 teaspoon (S_1) 2300 mg (O_1)