Milestone 2 - Project goal

Christodoulos Kechris, Rafael Medina Morillas, Dimitrios Samakovlis

The main goal of our project is to show conceptual similarities among widespread languages and their correlation to the geographical position of each language's origin place. We plan to convey this through a series of visualizations showcasing different language features.
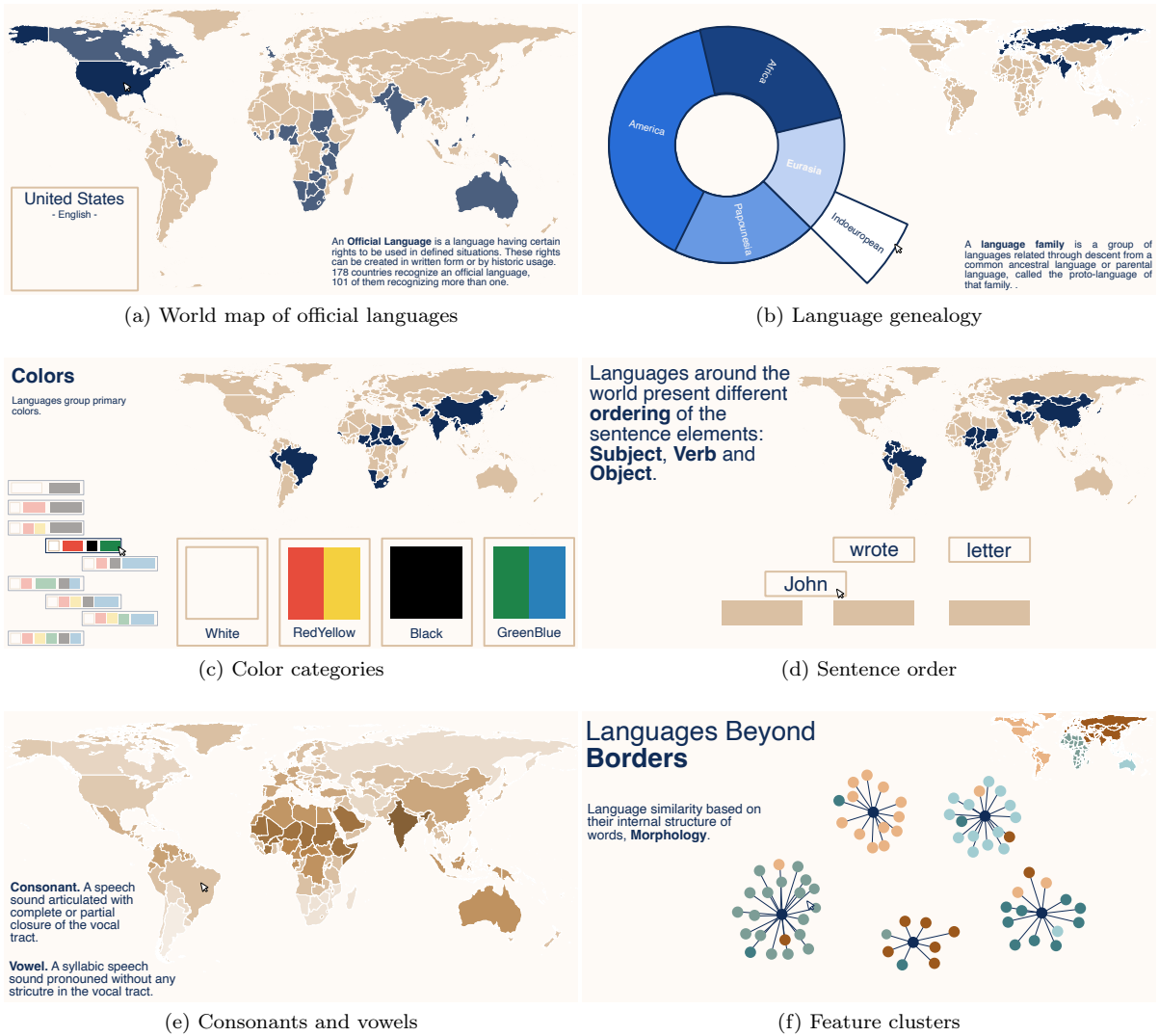

(a) World map of official languages

(b) Language genealogy

(c) Color categories

(d) Sentence order

(e) Consonants and vowels

(f) Feature clusters

Figure 1: Mockups of the different visualizations planned for the website

World map of official languages

The first visualization will show a world map conveying the official languages of each country via color code, using a choropleth. If the user clicks on one country, a side panel will expand with information about all of the spoken languages. This will be the only visualization displaying official languages, as the rest will focus on the native languages.

The side panel can be enhanced by changing simultaneously the coloring of the map to highlight the other world countries speaking the same languages. In a similar manner, a search feature can be added, where the map will highlight the countries that speak the selected language.

Tools	D3, Natural Earth
Lectures	4.1.Data, 4.2.D3, 5.1.Interaction, 6.1.Colors, 8.1.Maps, 8.2.Practical maps

Language genealogy

The next visualization will address the most general indicators of similarity among languages: family and genus. These features show whether the a group languages derived from the same parental language. A zoomable sunburst visualization will convey this information, by hierarchically relating geographical region, family, genus and language.

As an extra addition, the visualization can be accompanied by a world choropleth. In coordination with the sunburst, the map would depict the countries where the languages selected in the current hierarchical level are spoken.

Tools	D3
Lectures	4.1.Data, 4.2.D3, 5.1.Interaction, 6.1.Colors, 10.Graphs

Color categories

Despite the vast number of families, some features bridge the gap separating languages. This visualization will show the example of color categories, as the the number and classification of color terms is very similar across language borders. Indeed, the visualization will allow the user to select among the options of color categorizing, which will highlight the countries where the language using said classifications are spoken.

Tools	D3
Lectures	4.1.Data, 4.2.D3, 5.1.Interaction, 6.1.Colors, 10.Graphs

Sentence order

Languages around the world present different ordering of the sentence elements: Subject, Verb and Object. This visualization shows where the possible phrase organizations occur by highlighting the geographical areas where languages concur with the selected order. To choose the order, the user can drag around movable blocks representing subject, verb and object.

Tools	D3, Natural Earth
Lectures	4.1.Data, 4.2.D3, 5.1.Interaction, 6.1.Colors, 8.1.Maps, 8.2.Practical maps

Consonants and vowels

The next visualization focus in the sound of spoken languages and how they differ. In this regard, a world choropleth conveys via coloring the ratio between the number of consonants and vowels in a language.

To improve the visualization, clicking on a country displays more information about the consonant and vowel inventories of the languages spoken there.

Tools	D3, Natural Earth
Lectures	4.1.Data, 4.2.D3, 5.1.Interaction, 6.1.Colors, 8.1.Maps, 8.2.Practical maps

Feature clusters

To give a general measure of similarity among languages, the last visualization will show via a force-directed graph their clustering according to interrelated features. For example, languages will be organized by syllable structure, grammatical gender or verb conjugation. The color of the nodes will differentiate languages from different geographical regions.

As extra features, the user will be able to select the feature upon which the nodes are colored, e.g. family or genus. The visualization will also allow to filter the languages shown in the graph.

Tools	D3
Lectures	4.1.Data, 4.2.D3, 5.1.Interaction, 6.1.Colors, 10.Graphs