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Antoine Mazieres

► **To cite this version:**

Antoine Mazieres. Geographical projection of Google's suggestions diversity. 3rd GESIS Computational Social Science Winter Symposium, Nov 2016, Cologne, Germany. hal-01771637

**HAL Id: hal-01771637**

**<https://hal.science/hal-01771637>**

Submitted on 19 Apr 2018

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# Geographical projection of Google's suggestions diversity.

by **Antoine Mazières**

Centre Marc Bloch Berlin e.V., Digital Humanities & Computational Social Science team (Berlin, Germany)<sup>1</sup>

INRA, UMR-LISIS (Marne-la-Vallée, France)<sup>2</sup>

[mazieres@protonmail.ch](mailto:mazieres@protonmail.ch)

## ABSTRACT

This paper describes the current development of a platform that enables anyone to map which suggestions are performed by Google Search when the user is typing, depending on its language preferences which are projected on a world map. In the boundaries of several biases discussed here, this tool would enable social scientists to capture what people are looking for at a given point in time, in different cultural contexts taken into account by Google.

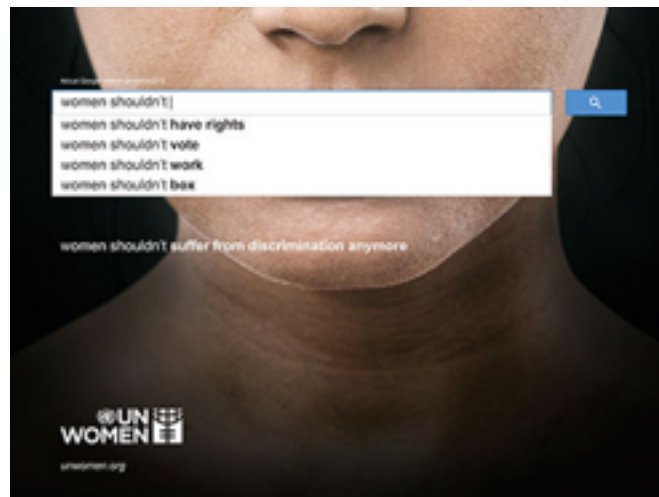
The tool presented here is accessible at : <https://zeitgeist-borders.antonomase.fr/>

Autocomplete technologies aim at several purposes, among which speeding up human-computer interactions by attempting to predict the word a user intends to enter after only a few characters have been typed into a text input field. A more social feature of these technologies is to *suggest* alternative queries based on some pre-determined criteria of similarities. The original announcement of the implementation of Autocomplete in *Google Search* pointed precisely at these two purposes :

"We've found that *Google Suggest* not only makes it easier to type in your favorite searches (let's face it -- we're all a little lazy), but also gives you a playground to explore what others are searching about, and learn about things you haven't dreamt of." (Gibbs, 2004)

While the name *Google Suggest* insists on the social aspect of this feature, it was rebranded to *Google Autocomplete* (GA) in 2010 (Wright, 2010) following many legal complaints shedding light on the fact that suggesting most common queries could sometimes lead to promote search queries morally unacceptable to more or less specific cultural contexts, for instance like shown in figure 1. Since then, controversial suggestions are regularly banned by Google, replaced with non-offensive ones, or turned off for specific queries, such as porn-related ones.

**Figure. 1:** Excerpt of *UN Women* advertisement campaign against gender-based discrimination toward women.



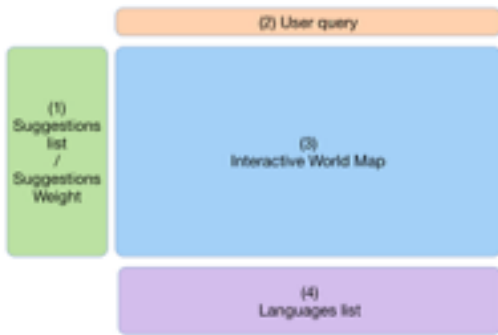
More broadly, these controversies highlight the fact that suggestions are a way for the user to explore what other people look for, within the boundaries of numerous biases, among which the previously mentioned censorship, but also the obfuscated ways google algorithms determine what makes a topic trendy. As of today, Google states that, aside for typed terms and relevant searches done in the past, GA's predictions still come from "what other people are searching for, [...] including popular topics *in your area* [...] which aren't related to your search history"<sup>3</sup>.

<sup>1</sup> <https://cmb.hu-berlin.de/en/research/digital-humanities>

<sup>2</sup> <http://umr-lisis.fr/>

<sup>3</sup> <https://support.google.com/websearch/answer/106230?hl=en> (last accessed: 23/09/2016)

While past searches, account preferences and browsing interests differ for every individual logged user, location-specific suggestions is the only universal discriminant for suggestion, whether the user is logged in or not. Several measures allowed us to establish which elements are used by Google to perform such content discrimination : the public IP that originated the request and the "hl" (which maybe stands for Human Language) parameter passed along with the query that express which language the user is commonly using (Browser, OS, Account).



**Figure 2:** Mock-up of the user interface

The tool proposed here tests a range of value for the "hl" parameter and binds the different results to countries where the concerned language is official and used by the majority of the population. The discovery process of all languages supported by Google and how it regroups those it doesn't support around a few it supports will be discussed. The resulting tool is an interactive world map allowing anyone to grasp all suggestions made by Google for any query. As shown in Figures 3 to 5, various interactive features enable the user to observe the cultural spread of a given suggestion, taking into account its global ranking (*weight*) (Fig. 3), to focus on a language and observe which country are binded to it and which suggestions they therefore receive (Fig. 5), and to focus on a specific country and be able to compare its suggestion ranking with the global one (Fig. 4).

observe which country are binded to it and which suggestions they therefore receive (Fig. 5), and to focus on a specific country and be able to compare its suggestion ranking with the global one (Fig. 4).



**Figure 2:** Mouse rollover a suggestion

Here, the user entered "How To " and mouse over the suggestions "How to draw".

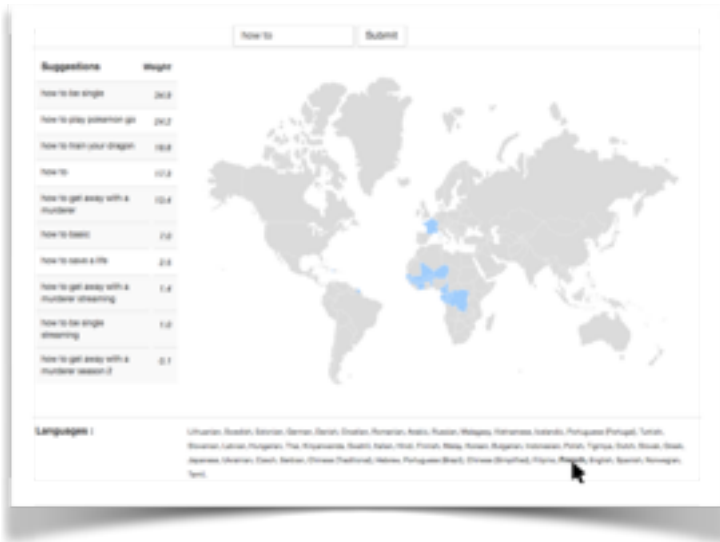
- It highlights the countries with different shades to indicate the ranking of the given suggestion for the given country.
- It highlights the languages concerned by such suggestion.



**Figure 3:** Mouse rollover a country

For the same query, the user rollover a country (Germany).

- It highlights the concerned language (German).
- It hide all suggestions not made for german and display them in the german-specific order along with their global weight.



**Figure 4:**  
**Mouse rollover a language**

For the same query, the user hovers a language name (French).

- It highlights every countries where French is an official language and is commonly spoken.
- It highlights all french-specific suggestions in the french-specific order along with their global weights.

The tool described here is based on a previously published work (Mazieres et al., 2013a, 2013b) that was never put online due to various limitations imposed by Google. The present tool manage to bypass these limitations and propose a different interpretation of the results.

### Acknowledgments

This paper has been partially supported by the "Algodiv" grant (ANR-15-CE38-0001) funded by the ANR (French National Agency of Research)

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