

Location Classifier Improvements

The location classifier in Consumer Research improves on Analytics in a number of ways. Firstly, mentions with no discernible location are no longer assigned to the United States by default. Instead, the location field for these mentions is left empty. Secondly, the location classifier uses machine learning to infer clues about author location from profile biographies to assign locations to more content. For example, the classifier might learn that an author with "Red Sox" in their bio is likely to be located near Boston. Thirdly, the location classifier does not enforce strict hierarchical relationships between cities, provinces and countries. For example, a search for mentions from New York City will return mentions from that metro area, even when that area extends into a neighboring state, like New Jersey.

There are many ways to obtain geographic information from different social media platforms. We use two different methods to assign location to posts depending on the metadata available: posts that are geotagged (1% of posts) and posts that are not (99% of posts).

Geotagged posts

Some posts are tagged with exact geographic coordinates when they are posted. This is possible only if users have posted from a mobile phone and have chosen to share their

locations. As a result, about 1% of all posts can be located with this level of precision. We call these "Geotagged posts." You can find these posts when you click on "Geotagged" in the geography visualization, where you can zoom all the way into the street level!

Non-Geotagged posts

For the remaining 99% of posts that don't have the exact latitude-longitude coordinates, we estimate their locations based on various pieces of contextual information, for example, their profile information (and other attributes listed in the next paragraph). The estimation uses the large amounts of data at our disposal to identify the attributes of users whose locations are known. These attributes are then used to infer the location of users whose locations are not directly available but display similar attributes of geotagged posts.

Using Geotagged posts to infer the location of non-Geotagged posts

Based on the 1% of all posts that are geotagged, which is hundreds of millions of posts from every place on earth, we were able to build a statistical guesser. The most useful piece of information is the "location" field in user profiles, which is a free-form input space where users can describe their locations in their own words. In addition, other attributes such as users' time zones and languages can be used to determine the countries, regions and cities from where they have tweeted.

If a match to a location is found based on user data such as profile location, time zones and post language, our statistical guesser is able to estimate and assign the location of the post based on this similarity. When no match is found, our guesser does not make a prediction; the locations of such posts are labeled as 'unknown' and excluded from the geographic data.

User-provided location names are tagged on locations going by a majority rule (only when we previously observed that a majority of users who used denomination X are located in Y will we map name X to location Y). This "majority rule" approach allows us to leverage informal or generic names such as "bay area", "US of A" or "Go Red Sox", leading to higher recall than would otherwise be possible.

Accuracy

For posts without geotags, in general we are able to match:

- Up to 90% of all posts to a country of origin
- Up to 70% of all posts to a specific state or province within that country
- Up to 50% of all posts to a city or urban area* within that state

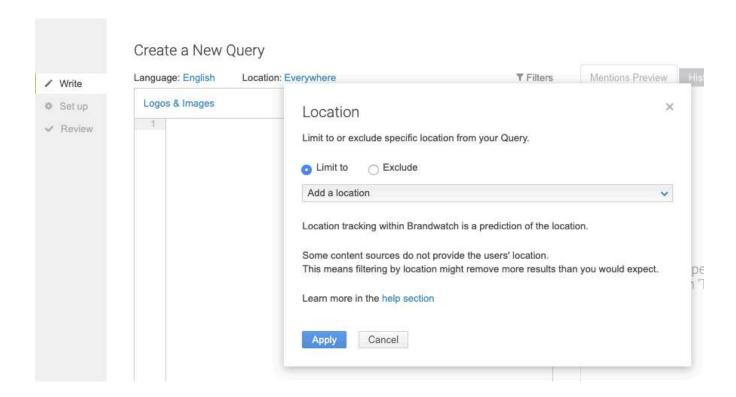
*Cities and urban areas

People living in the same urban area generally share the same characteristics, even when those areas may be divided into different "cities". In our maps, we always aggregate urban areas when we talk of cities. So for example:

- The area of Washington blends all the urban area that includes: Washington DC, as well as part of Virginia and Maryland
- The area of New York includes: New York City Jersey City Newark (USA);
- The area of Taipei includes: Taipei New Taipei Zhongli Zhubei ... (Taiwan);
- The area of Tokyo includes: Tokyo Yokohama Kawasaki (Japan)

Location filters

Available now in the query builder. Because of the higher precision and recall, using location filters yields a relatively high volume of posts with a low number of location errors.



Location data per content source

We do not have location data available for all of our content sources. Below is a list of the current content sources with the date location data became available:

Twitter: September 2009
 (Updated location methodology available September 2014)

• Blogs: May 2015

• Forums: September 2011

News: May 2015

• Tumblr: August 2017

Instagram: September 2014
 (We no longer receive location metadata on Instagram posts after Dec 11th 2018)

• VK Keywords: March 2016

• QQ: not available

Reviews: not available
Facebook: not available
YouTube: not available
Reddit: not available

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