A temporal-spatial correlation between languages and public safety in multiracial societies

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Abstract:
European countries are faced with pressing immigration issues.
Recently, conflicts particularly between Arab immigrants and local residents have become more pronounced, causing the creation of exclusive communities to avoid the danger of nonconformance to mainstream social norms and leading to the emergence of large-scale anti-immigration movements. Crime is occurring frequently in the exclusive communities [Tissot (2007), Deacon (2016)]. In order to prevent crimes based on ethnic conflict, we need to propose a method to measure the strength of regional segregation. It is important to find areas where multicultural symbiosis is established and to understand their background. In this study, using 8.2 million geo-tagged tweets containing latitude and longitude data from November
2014 to February 2015, we demonstrate the weakening relationships between Arabic and French people in Île-de-France after the rise of ISIS. It was within this period that the Charlie Hebdo shooting occurred in Paris. To exclude tourists from the analysis, we focused on twitter accounts used for more than two weeks. First, we used correlation coefficients to measure the similarity of spatial distribution of the number of tweets between those in French and in other languages (English, Spanish, Indonesian, Portuguese, Italian, Polish, Turkish, German, Dutch, and Arabic). In November 2014, the strong correlation was observed independent of the languages. From November 2014 onwards, except for Arabic, spatial correlation of the French language with all the languages remained the same. However, the correlation with Arabic continued to steadily decrease by the end of February 2015. These results indicate that Arabs tended to remain within the "Arabian town," and that French people tended less to enter the areas associated with Arabs. The security of the Arabian town has deteriorated during this period. These results suggest the emergence of exclusive and conservative behaviors between French and Arabs. For this study, we also analyzed all the geo-tagged tweets (ca. 50 million tweets in late June 2016) around the world to estimate the strength of segregation in major cities by measuring the spatial correlation between languages. We can find cities where multicultural symbiosis is established and show normative multicultural coexistence policies adopted by those cities. These results will help to prevent crimes based on ethnic conflict in cities.