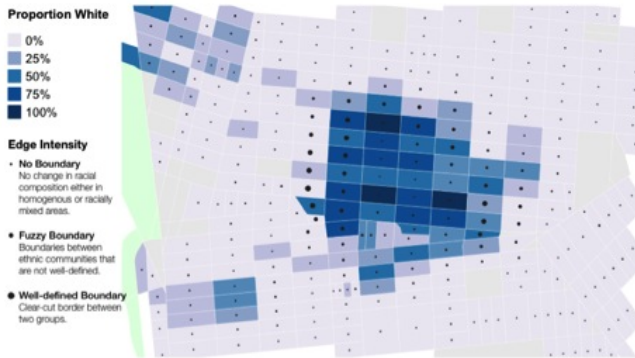


# Study uses 311 complaints to track where and when neighborhood conflict emerges

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This map illustrates how edge-detection algorithms were used to determine the intensity of boundaries between areas in Crown Heights South, Brooklyn, where white residents occupy an area of 24 city blocks, surrounded largely by African-American residents. The boundaries are well defined on the west side of the primarily white area, but the edges are "fuzzy" on the northeast side, where boundaries between the white and African-American communities are not well defined. Credit: Joscha Legewie

Each year, 311—New York City's main hub for government information and non-emergency services—receives millions of requests and complaints, including New Yorkers' gripes about their neighbors.

In a new study from New York University (NYU) using 311 complaint data, researchers tracked when and where New Yorkers complain about their neighbors making noise, blocking driveways, or drinking in public. They found that these complaints—a defining aspect of urban life—are more likely to occur in areas sandwiched between two homogenous communities, where the boundaries between different ethnic and racial groups aren't clearly defined.

"Neighborhood conflict arises not from mere

separation or mixing of diverse populations, but as a result of these 'fuzzy' boundaries between homogenous [neighborhoods](#)," said Joscha Legewie, an assistant professor of education and sociology at NYU's Steinhardt School of Culture, Education, and Human Development. "These areas may be particularly prone to conflict because they may threaten surrounding homogenous community life and foster ambiguities about group turf."

Legewie will present his research—co-authored by Merlin Schaeffer of the WZB - Berlin Social Science Center and University of Cologne—at the 110th Annual Meeting of the American Sociological Association (ASA).

"Previous research has focused on diversity as an explanation for neighborhood conflict. Our findings are much more specific, and move away from the idea that diversity has negative consequences," Legewie said. "In fact, it's not diversity in general that has this effect on neighborhood conflict; it's only these particular areas between homogenous communities."

To define neighborhood boundaries, the researchers adopted edge-detection algorithms used in science and engineering, including computer vision and image processing. For instance, engineers developing driverless cars rely on these algorithms to detect the boundaries of objects in order to navigate. They applied these edge-detection algorithms to census data on the makeup of New York City's neighborhoods, which allowed them to identify boundaries between ethnically and racially homogeneous areas and determine how sharp the boundaries are.

Then, using data from 7.7 million time stamped and geocoded 311 service requests made between 2009 and 2013, the researchers tracked complaint calls to measure neighborhood conflict. Indicators of neighborhood conflict include complaints of a blocked driveway, drinking in public, illegal

conversion of residential space (such as short-term renting of living space), and certain noise complaints, including loud music or parties. They did not include complaints targeted at businesses, such as noise from construction sites, bars, and helicopters.

"The 311 service requests give us a unique perspective on everyday forms of conflict, and indicate that tensions are not being resolved in a neighborly way, such as knocking on someone's door," Legewie continued.

The researchers found that conflict was most likely to occur in areas where the boundaries between different homogenous communities are not clear. Less conflict was found in areas without boundaries (those surrounded by neighborhoods of similar ethnic and racial composition) and areas where boundaries between homogenous communities are clearly defined. The number of complaints jumped 26 percent from areas without boundaries to those with "fuzzy" boundaries.

Aside from the research contributing to our understanding of intergroup relations, the findings also introduce edge detection algorithms as a tool for defining neighborhood [boundaries](#), and illustrate how using data from 311 and other sources enables us to work with information on an entirely new scale.

"Scholars have recently become more and more enthusiastic about the potentials of 'big data,'" Legewie said. "With millions of analyzed 311 calls, our research is an example of how sociologists can study socially relevant, real-life actions of citizens using such data."

**More information:** The paper, "Contested Boundaries: Explaining Where Ethno-Racial Diversity Provokes Neighborhood Conflict," will be presented on Saturday, Aug. 22, at 10:30 a.m. CDT in Chicago at the American Sociological Association's 110th Annual Meeting.

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