The time-dynamics of emotional energy

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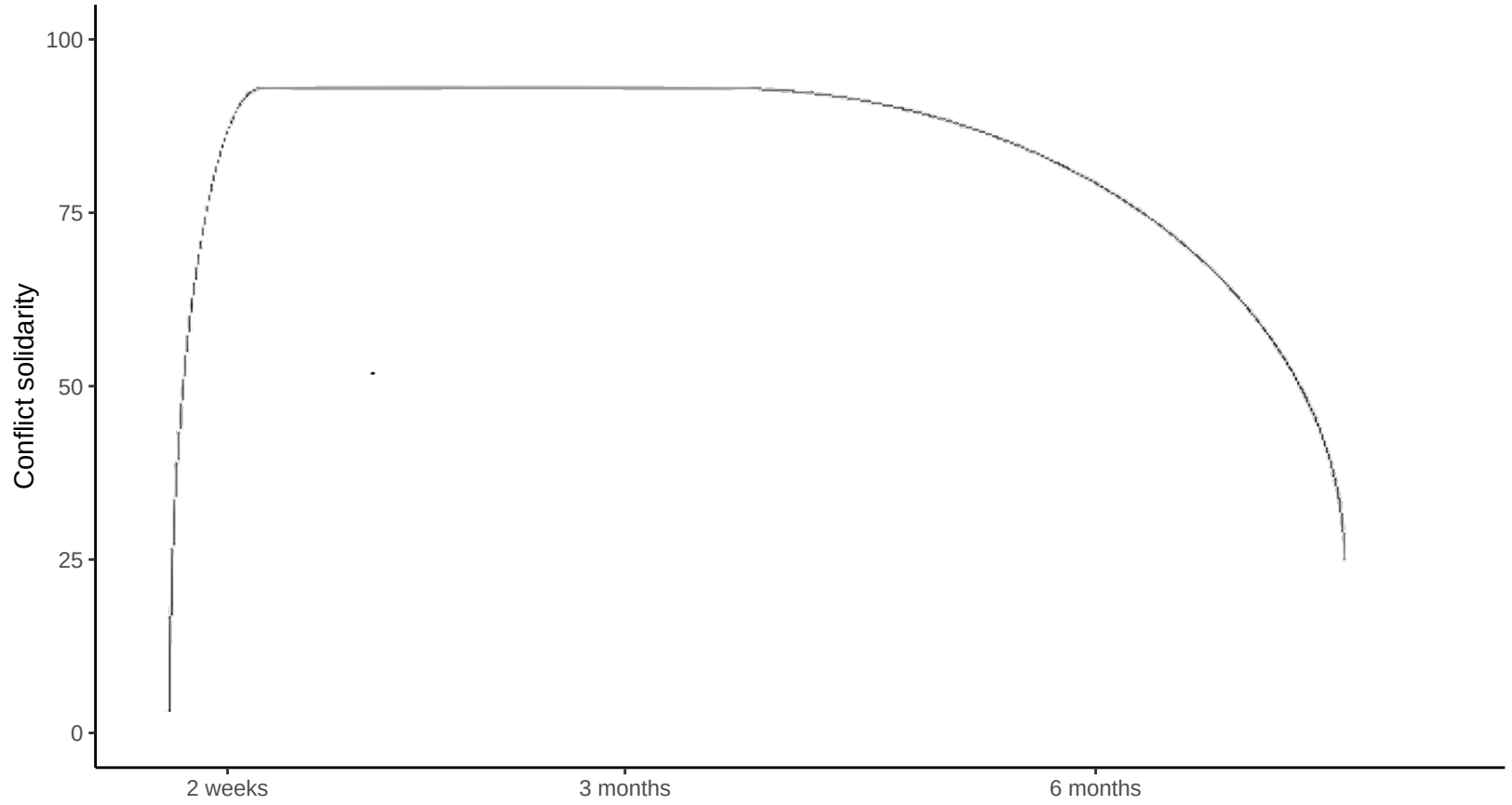
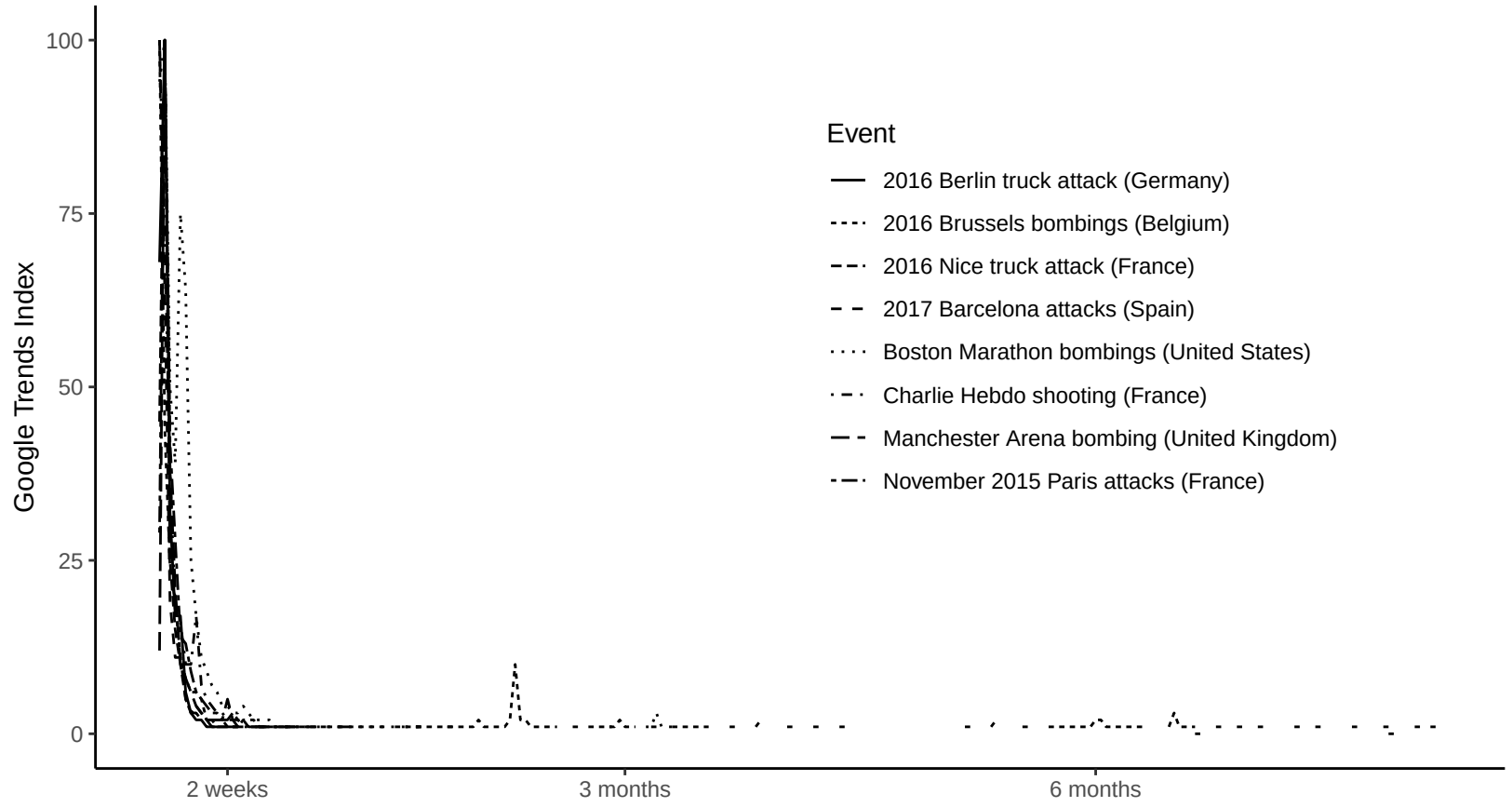
For many of the earliest sociologists, the emotional dynamics provoked by crowds and group interaction were the heart of the new discipline. Today, the most famous of these theories is Durkheim's foundational work on *effervescence collective* – a force or energy generated by ritual interactions, which helps to unify the group and becomes invested in particular 'sacred' objects. These ideas have left a lasting impression on the modern sociology of emotions and, in particular, on the enormously influential work of Randall Collins (especially Collins 2004a, 2008). In Collins's (2012) recent research on violence, he not only makes emotional energy (visceral feelings of collective identity and shared focus of attention) a central concept, but also argues that the temporal profile of emotional energy is characterised by a particular shape: explosion, plateau and slow dissipation (reproduced in Figure 1a below). His primary evidence for this is an ingenious attempt to measure the solidarity produced by conflict by counting public displays of U.S. flags in the aftermath of the September 11th attacks (Collins 2004b). This is a relatively passive form of group identification in the sense that, once the flag is up, you have to make an effort to take it down. But Collins is clear that he suspects that other forms of emotional energy will also follow this pattern of explosion, plateau and dissipation (Collins 2012: 14).

Unfortunately, there has been very little work following up on these ideas and attempting to provide other measures of emotional energy over time. The supposition that passive forms of identity display are a good proxy for emotional energy in general, or for conflict solidarity in particular, therefore remains unproven. In order to test this supposition, I compare Collins's results to the temporal pattern of a more form of active behaviour: online searches, which can be thought of as a proxy for attention towards and emotional investment in a topic. In order to remain close to Collins's original example and so to maximise the chances of a confirmatory finding, I use Google Trends data to measure search activity in the aftermath of the eight deadliest recent terror attacks in the United States and western Europe. In each case, the data is a standardised measure of search interest in the particular event in the country which was directly affected by the attack.

Rather than following Collins's explosion-plateau-dissipation model, these examples reveal a very different pattern: dramatic spikes followed by immediate declines (Figure 1b). Interestingly, this explosive pattern is also much closer to the erratic and jagged patterns we see in counts of protests, riots and strikes over time (Biggs 2005). The stark differences between these two patterns (explosion-plateau-dissipation vs. spike-decline) suggests that Collins's findings may not be as universal as he assumed. Moreover, these results point to (i) the need for further attempts to measure emotional energy and its dynamics over time, (ii) the value of paying attention to the different forms of emotional energy, and (iii) the need for more attempts to bridge the gap between theoretical accounts of emotional dynamics and empirical measurement. Inspiration could be found in pharmacokinetics, which studies the biological half-life of drugs and models it according to four variables: absorption, distribution, metabolism and excretion (ADME).



Panel A: Public display of U.S. flags after the September 11th attacks. Graph reproduced from Collins (2012), figure 13. Data from Collins (2004).



Panel B: Google Trends Index of searches for each of the events listed, in the country where the event took place.

Appendix

In order to stay close to Collins's original example and so to maximise the chances of a confirmatory finding, I focussed on Islamic terror attacks in the United States and western Europe. Using Wikipedia data on Islamic terrorism in Europe (https://en.wikipedia.org/wiki/Islamic_terrorism_in_Europe), I compiled a list of the eight most deadly recent attacks and added the Boston Marathon Bombing as the most recent and most deadly U.S. example. I then used the R package *gtrendsR* (Massicotte and Eddelbuettel 2020) to extract Google Trends data on the level of search interest in each event in the country which was directly affected over the next eight months. Because people may have searched for various different terms in response to the attacks, I took advantage of Google Topics, which collate a variety of search terms related to a particular theme. As these Topics cannot be directly accessed through *gtrendsR*, I manually extracted the topic codes from the Google Trends website and then inserted them into the R code. The relative interest in each topic was then plotted against the number of days which had elapsed since the attack.

These were compared to Collins's graphical depiction of the explosion-plateau-dissipation model (Collins 2012, Figure 13). Two things are of note. First, the original data from Collins (2004b) are not accessible. The graph was therefore reproduced through image manipulation, by extracting the curve from the image of the original graph which can be downloaded from the journal website. Second, in the original publication, the graph is reproduced without a y-axis. Given that we are comparing it to an index, this should not matter and indeed it doesn't affect the comparison of the two patterns over time. However, this does mean that the reproduction is a schematic representation of Collins's findings, rather than a replotting of original data.

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