

Using Event Data to Monitor Contemporary Conflict in the Israel-Palestine Dyad

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The data sets, and software discussed in this paper, as well as a pdf version of the paper, can be downloaded from the KEDS project web site: <http://www.ku.edu/~keds>.

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Abstract

For the past eighteen months, the Kansas Event Data System (KEDS) project has been using event data and other web-based sources to produce quarterly reports on the Israel-Palestine conflict for the swisspeace (Swiss Peace Foundation) FAST Project, which is sponsored by Swiss Agency for Development and Cooperation and a number of non-governmental organizations. This paper describes the indicators that we are monitoring, the process we have developed to generate the reports, and the supplemental sources we are using. We address the issue of the differences between newspaper and news wire reports with respect to “media fatigue” effects and also analyze some of the strengths and weaknesses of this approach to conflict monitoring.

Introduction

The broad phenomena of “globalization” has had a wide variety of impacts on the international system. While much of the popular political focus on globalization has been on the negative impacts, there have been some positive elements as well. This paper will describe how contemporary web-based communication technology and advances in inexpensive computer processing have been used to seamlessly implement a conflict monitoring system using resources in Bern, Switzerland, Lawrence, Kansas, and non-governmental organization (NGO) groups in Israel and Palestine.

For the past fifteen years, the Kansas Event Data System (KEDS) project (Gerner et al. 1994; Schrodt and Gerner 1994) has developed technologies for the automated coding of international event data (see Merritt, Muncaster and Zinnes 1993; Schrodt 1994; Schrodt, Gerner and Simpson 2001) and the application of those data to the monitoring and forecasting of political conflict. Most of this work has been funded by the U.S. National Science Foundation, and much of it has been academic in orientation. We were also interested, however, in trying to adapt the system to do near-real-time forecasting similar to the work on the Kosovo conflict using KEDS-based data by Pevehouse and Goldstein (1999).

In 2002, we were contacted by the Bern-based swisspeace (Swiss Peace Foundation) FAST project concerning the possibility of incorporating our data-generation capabilities, along with the extensive area expertise and field experience that one of us had in the region, for the monitoring of the conflict in Israel-Palestine. Because the Levant has always been the highest priority in data collection for our project—in fact the entire initial motivation for the KEDS effort was to get contemporary data on the Levant—this was a natural match.

Swisspeace describes itself as:

an action-oriented peace-research institute [working] in the area of conflict analysis and peacebuilding. We research the causes of wars and violent conflicts, develop tools for early recognition of tensions, and formulate conflict mitigation and peacebuilding strategies. swisspeace contributes to information exchange and networking on current issues of peace and security policy through its analyses and reports as well as meetings and conferences.

FAST is a project sponsored by the Swiss Federal Department of Foreign Affairs (DFA) and numerous non-governmental organizations (NGOs) that support peacebuilding activities by Swiss authorities, aid agencies, and other NGOs and promote their cooperation at the conceptual and operational levels.

swisspeace was founded in 1988 as the "Swiss Peace Foundation" with the goal of promoting independent peace research in Switzerland. During recent years it developed into an internationally renowned institution in peace and conflict research. Today swisspeace engages about 25 staff members. Its most important clients include the Swiss Federal Department of Foreign Affairs (DFA) and the Swiss National Science Foundation.

<http://www.swisspeace.org/about/default.htm> (accessed 26 February 2004)

The swisspeace FAST project is specifically focused on conflict monitoring and early warning:

FAST's objective is the early recognition of impending or potential crisis situations for the purpose of early action and prevention of violent conflict. FAST aims at enhancing the political decision makers' ability to identify critical developments in a timely manner in order to formulate coherent political strategies to either a) prevent or limit destructive effects of violent conflict, or b) recognize windows of opportunities for peace building.

<http://www.swisspeace.org/fast/default.htm> (accessed 26 February 2004)

While there are hundreds if not thousands of NGOs with similar concerns about conflict, the FAST project is virtually unique in combining systematic quantitative analysis with traditional qualitative analysis and field reports; most NGOs use only qualitative methods. Swisspeace in general, and FAST in particular, is also actively engaged with the policy community at both the national and intergovernmental organization (IGO) levels: This is facilitated by Switzerland's traditional position of neutrality and the proximity of Bern to Geneva, the headquarters for a large number of humanitarian IGOs and NGOs.

The director of swisspeace, Heinz Krummenacher, makes an interesting distinction between the "early warning" function of swisspeace and related NGOs, and the traditional "intelligence" function of national governments. This is summarized in Table 1.

Table 1: Early Warning vs. Intelligence

<u>Early Warning by NGOs</u>	<u>Intelligence Analysis by Governments</u>
Transparent sources and methods	Secret sources and methods
Decentralized	Centralized
International	National
Information sharing	Information hoarding
Human security (welfare of others)	National security (welfare of the state)

Source: Heinz Kruppenacher, FAST project, swisspeace Conference on Global Conflict Monitoring, Bern, 6 March 2003

The KEDS/FAST collaboration is illustrative of all of these characteristics. The KEDS project uses open-source information—currently news sources readily available at most academic institutions—and all of its specialized software is available as “open-source” computer code that can be freely downloaded and modified by other researchers. Our coded event data are posted to our web site more or less concurrently with the publication of the FAST reports or any other analysis by the project and these data are never “embargoed” to prevent other researchers from analyzing them in a timely manner.¹ In fact, due to our quarterly updating of the data sets, the KEDS Middle East data sets are probably the most up-to-date data regularly available in the field of quantitative international relations. An analysis shared between KEDS in Lawrence, Kansas, USA² and FAST in Bern, Switzerland,³ is clearly both decentralized and international. Finally,

¹ Unfortunately, due to licensing and other intellectual property constraints, we are not able to post or share the source texts used to code the data. This is not a major problem with North American universities, since the NEXIS service is almost universally accessible and one could readily—if tediously—reconstruct the set of source texts locally by simply duplicating our procedures. It is a greater problem for European institutions, where NEXIS is not as easily available.

² view from project office windows: tallgrass prairie and in the distance, the decommissioned De Soto Army Ammunition depot, a 1,200 hectare toxic-waste site.

³ view from project office windows: medieval Bern, and in the distance, the Alps.

the overall focus of our analysis is the general security situation in Israel-Palestine, not the interests of any particular state or proto-state.

The FAST project is currently monitoring 20 conflict regions: eight in Africa, nine in Central Asia, Albania and the former Yugoslavia, and Israel-Palestine. The choice of areas is determined by a combination of donor interests and the ability of FAST to set up monitoring networks. FAST reports are brief, typically four pages of charts and analysis, in bullet-point format, plus additional text describing the data. FAST's general methodological approach is to use:

...both quantitative and qualitative methods for its analysis. The centerpiece in the quantitative analysis is based on event data analysis and the respective tools developed in the framework of the Program on Nonviolent Sanctions and Cultural Survival (PONSACS) at Harvard University. The logic of event data analysis is fairly simple: all events considered relevant to conflict escalation and de-escalation are assigned certain numeric values according to a distinct conflict scale. These values can then be added up for specific time interval and graphically displayed in a curve over time. The quality and quantity of data is crucial for the success of such a method. In order to gather the quality and quantity of data required to suit early warning purposes, FAST sets up its own local information networks (LINS) and thus overcomes shortcomings of existing information sources (e.g. international news wires). A unique set of data is collected for each country completely independently from Western news-media coverage. For qualitative data analysis, FAST contracts with internationally renowned country experts.
(swisspeace 2003:8)

Because of the unique characteristics of the Israel-Palestine conflict, and the fact that FAST contracted with the KEDS project to extend an existing data collection project, the KEDS analysis differs from this approach in several ways. First, because the Israel-Palestine conflict is intensely and consistently covered by the international media—international wire services typically provide about 50 to 100 reports per day on an area covering only about 26,000 square kilometers with a population of less than 10-million people—we can rely on news wires as our primary event data source, although we also supplement this information with specialized publications and NGO reports from Israel and Palestine. Second, we are using the Goldstein-scaled data (Goldstein 1992) developed by the KEDS project rather than the PONSACS system, which is somewhat different. FAST has not set up an LIN in the region, but the KEDS project's Middle East expert (Gerner) maintains extensive telephone and email correspondence with her own sources in the region, as well as making periodic field research trips.

Transmission of information between the Bern and Lawrence components of the project uses the now-routine medium of email attachments. The monthly data, graphs, and text are prepared in Kansas, then sent to Bern for editing and reformatting, then Bern produces the final reports in PDF format, sending these immediately to subscribers and also making them available on the Web (<http://www.swisspace.org/fast/>). While this process appears unexceptional in 2004, it is worth noting that this exchange of information that is done in near real time at zero marginal cost would, as recently as ten years ago, have required either expensive international courier services or slow international mail. More tellingly, we use the same approach to exchange documents with Bern that we use to exchange documents within our project: it is irrelevant whether one is moving information between offices separated by 76 meters or 7,600 kilometers.

Conflict Monitoring and the Problem of Media Fatigue

The first question that one might ask about this exercise is whether it is necessary at all. The Israel-Palestine issue seems to be a very frequent topic in newspaper articles—too frequent, in the assessment of many readers—so what can be added by yet another analysis, particularly one that relies on the same news wire articles upon which most newspapers depend?

The answer lies in the phenomenon of “media fatigue,” which we systematically analyzed in Gerner and Schrodt (1998). “Media fatigue” refers to the tendency of news sources to provide a high level of coverage when a conflict first breaks out and then to reduce and simplify that level of coverage as the conflict continues. As the erudite political analyst Davr Barry has observed:

My employer, the *Miami Herald*, has had to cut costs. One way we’re doing this is by recycling stories. Rather than go to the expense of writing a whole new story, we’re rerunning earlier ones. For example, every day we’ve run the same story on fighting in the Middle East (“Middle East Fighting Again”).

To further cut costs, many newspapers around the country are now using fewer words. Not need adjectives, adverbs. Nouns, verbs can communicate story gist. (Barry 2003)⁴

More seriously, an article in *The New York Times* in August 2003 titled “Suffering News Burnout? Rest of America Is, Too” discussed the precipitous decline in U.S. audiences watching

⁴ For the benefit of non-North American readers: Barry is a nationally-syndicated humor columnist; this story is a joke. That said, “Middle East Fighting” is a close approximation to how TABARI—our automated coding program—“reads” a news story.

news stories compared to the number watching during the 2003 Iraq war (CNN went from 2.5 million viewers during the war to 413,000 during the summer, Fox from 3.2-million to 753,000, and MSNBC from 1.3-million to 197,000)

“People have been through two years of very heavy-duty, stressful news, from Sept. 11 through the war with Iraq,” said Jim Murphy, executive producer of the “CBS Evening News with Dan Rather.” “I think there’s probably just a little bit of a break-taking going on across the spectrum.”

Steve Sternberg, senior vice president for audience research at Magna Global USA in New York, an advertising buying agency, takes a similar view. “Considering how much news there was with the Iraq war,” he said, “people are probably just taking a breath and saying, ‘O.K., that’s enough news for a while.’ ” (Rutenberg 2003)

As we demonstrated in our 1998 analysis, one of the best ways to detect “media fatigue” is to compare the newspaper coverage of a distinct, newsworthy event—for instance, the occurrence of deaths due to violence—with an independently created time series of the same event. Since we have access to independently-compiled Israeli and Palestinian death totals from the Israeli human rights organization B’Tselem and the well-respected Palestine Red Crescent Society (PRCS), we can compare these with the coverage in U.S. newspapers, and also examine the differences between newspaper and news wire service coverage.⁵

The differences over time have been quite dramatic. During the most intense period of the second Palestinian *intifada* (uprising)—the spring of 2002, which saw both an upsurge in Palestinian suicide bombings and Israel’s military reoccupation of the West Bank—there was very substantial U.S. media coverage of the conflict. This continued, although with less detail, through the remainder of 2002, but was largely displaced beginning in 2003 by coverage of the U.S. invasion and subsequent occupation of Iraq. There was a brief resurgence of interest in the region in the summer of 2003 during the short-lived Bush administration “road map” peace initiative, but this ended quickly. At the present time, the only acts of violence that are consistently covered in *The New York Times* and *Washington Post* are Palestinian suicide bombings and, less consistently, Israeli military operations that result in large number of

⁵ PRCS compiles its death totals from hospital and ambulance reports, which it has access to because of its position as a provider of medical services. B’Tselem uses a variety of sources, including some media reports, but those reports of independent of those provided by the U.S.-based press.

Palestinian casualties. Routine day-to-day violence—which has continued at the almost constant level of a couple of Palestinian deaths per day since May 2002—receives virtually no coverage: it has faded into the background.

Fortunately, this media fatigue does not affect—or at least does not affect as severely—the news wire reports from sources such as *Agence France Presse* (AFP). For example, when preparing our most recent report for FAST covering November and December 2003, Schrodt was surprised to see PRCS figures showing a total of 90 Palestinian deaths in the period, while the file he was keeping of stories from *The New York Times* had virtually no reports of Palestinian deaths.⁶ Nonetheless, cross-checking the AFP reports showed that the deaths were in fact reported in the wire services, typically occurring in small numbers, at checkpoints, near settlements, in small-scale raids, and so forth.

Table 2 and Figure 1 show the dramatic difference between the level of coverage of newspaper and news-wire sources. Various sources in the NEXIS electronic data service were searched using the phrase “Palestinian killed” and the “headline, lead paragraph or terms” option for the two month period 1 November 2003 to 31 December 2003.⁷ We then eliminated multiple stories on a single day and stories on multiple days that clearly referred to the same incident. For the newspapers this had little effect but it substantially changed the wire service figures. For example, the AFP search initially returns 64 stories, but this is reduced to 18 stories after duplicates are removed.

⁶ The Israeli human rights group B’Tselem reports 79 deaths for the same period: as noted below, B’Tselem’s figures for Palestinian deaths are usually about 10% below those of the PRCS, possibly because PRCS has direct access to hospitals and is more likely to identify deaths that occur in the days following an initial wound.

⁷ Caveats: The NEXIS search engine automatically includes the plural “Palestinians” in the search. Based on extensive work on related projects searching for stories dealing with civilian casualties, we have found that the simple search phrase “killed” is very reliable for locating incidents of violent death, although it is possible that the addition of synonymous phrases such as “shot dead” might alter the results slightly. “*New York Times*, full text” used the “full text” search option in NEXIS. We experimented with “*Hamas*” and “*militants*” as alternatives to “*Palestinian*” in *The New York Times* headline search and this made no difference. We searched the BBC using the Factiva data service; for reasons that are unclear the NEXIS search on BBC returned no stories. We also attempted to assess coverage in the English-language version of the Israeli newspaper *Ha’aretz* but it is currently unavailable on NEXIS due to a contract dispute and its own archival search engine did not appear to be retrieving basic news reports, only commentaries. The AP search covers all AP files in NEXIS. We attempted to get Reuters totals in Factiva but a search returned only one story, which indicates either problems in the Factiva search engine, problems in how we were using Factiva, or that Reuters is in even bigger trouble than we thought. Searches were done 6 Mar 2004.

As shown in Table 2, the lowest level of coverage (*Los Angeles Times*) and the highest (AFP) differ by a factor of six. While this can be improved somewhat by going to a full-text search, even that strategy generates only eight stories in *The New York Times* and in most instances the report of Palestinian deaths was buried near the end of a story that dealt with other news about the region (for example analyses of U.S. policy, internal Israeli politics, or the building of the Separation Wall).

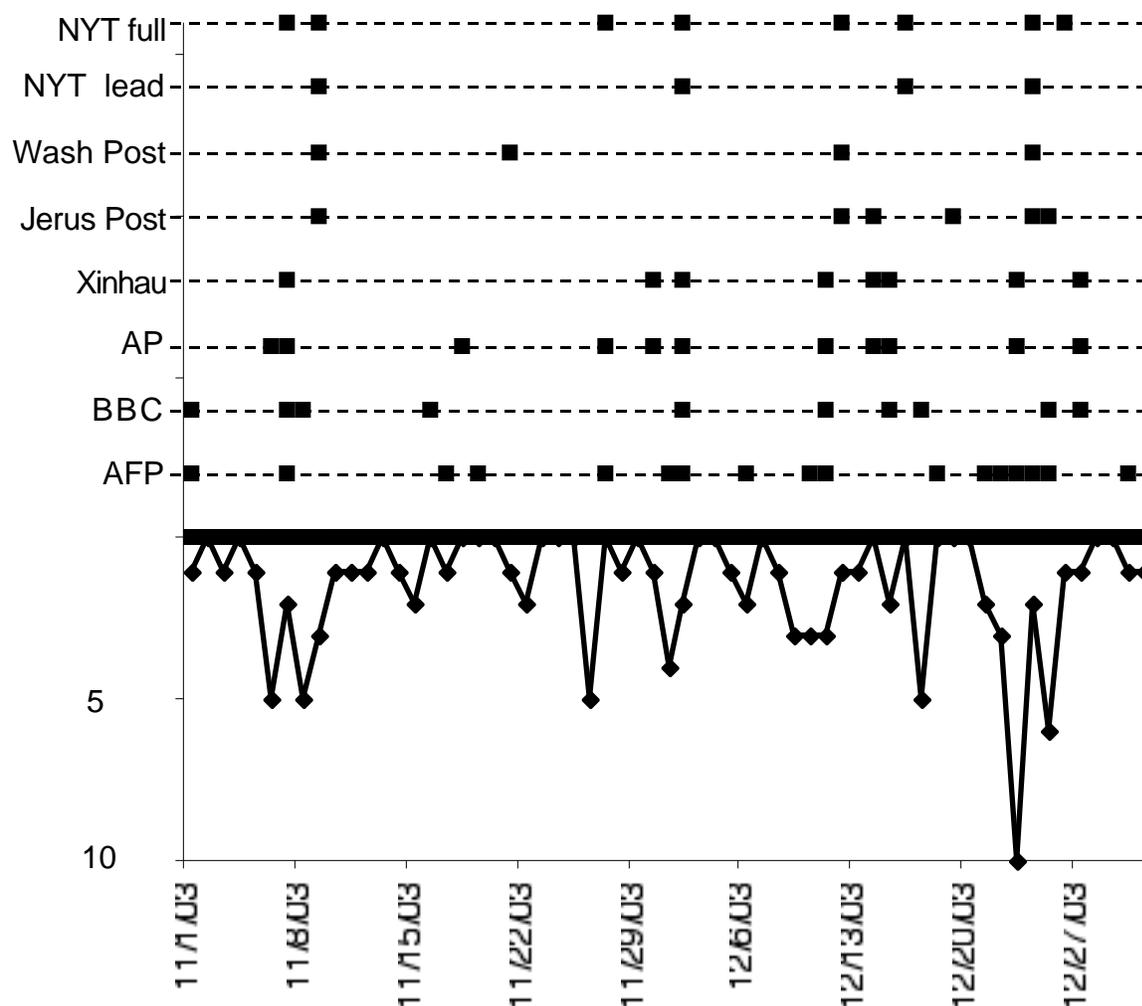
Table 2. Number of stories found with “Palestinian killed” NEXIS search string

<u>Newspaper</u>		<u>Wire Service</u>	
<i>Los Angeles Times</i>	3	Xinhau	8
<i>New York Times</i>	4	BBC (Factiva)	10
<i>Washington Post</i>	4	Associated Press	11
<i>Jerusalem Post</i>	6	Agence France Presse	18
<i>New York Times</i> , full text	8		

Figure 1 juxtaposes information on the dates of the stories for each of the sources with the daily death totals reported on the PRCS web site, which are shown in an inverted scale below the X-axis. Two things are evident from this figure. First, the wire services usually—but not always—report on situations where there are more than two Palestinian deaths. The exception to this occurs in the period 8 to 12 November, where there is no follow-up on the 11 deaths that occurred after the seven deaths on 6-7 November. Situations where there are only one or two deaths, in contrast, generate stories in only about 50% of the cases. Second, the news wire stories are generally—but not perfectly—aligned with each other; this is less true of the newspaper stories (for example, only 50% of *The New York Times* and *Washington Post* stories occur on the same days.⁸ There are *no* cases where the newspaper reports provide stories that do not already exist in the wire service reports.

⁸ Due to time zone and publication time differences, all of these story dates should be considered accurate to only within a day or two. Also note that the PRCS data records the date of *death*—in the case of fatal wounds this can occur well after the date of an incident that might generate a news report.

Figure 1: Comparison of newspaper and wire service coverage of Palestinian deaths



Event Data Sets

For the FAST Israel-Palestine monitoring, we are using English-language reports from the *Agence France Presse* (AFP) wire service. AFP is the world's second largest wire service after Reuters and, unlike Reuters, is available on NEXIS data service. The University of Kansas, like most North American research universities, has a general subscription to the NEXIS service through its library; consequently these reports are available to us at no cost.

Because we are maintaining a general Levant data set, we locate stories using the search string for the headline and first paragraph:

Israel or Palestine or Jordan or Syria or Egypt or
Lebanon or PLO

This search will typically yield about 1,500 AFP stories per month, though a number of these will be duplicates from developing stories. The number of stories can be substantially greater during periods of high conflict; it would presumably decrease in periods of low conflict (for example the mid-1980s after the invasion of Lebanon and before the first Palestinian *intifada*) but we haven't seen such periods since beginning the monitoring for FAST. Stories are downloaded and reformatted for coding using a specialized computer program, *nexispider.pl*, written in the perl text processing computer language (see Appendix).

The downloaded stories are coded by using the open-source automated event data coding program TABARI that has been developed by the KEDS project (Schrodt 2000, 2001; also see <http://www.ukans.edu/~keds/tabari.html>) and the WEIS (World Events Interaction Survey; McClelland 1976) event coding scheme.⁹ Following standard KEDS project procedures, we are only coding the lead (first) sentence of the story. For AFP *news* stories—as distinct from *feature* stories dealing with historical background material or human interest stories—the leads are generally relatively straightforward to code. We are using dictionaries developed over the past 15 years at the KEDS project; the dictionaries for the Levant coding now contain about 5,500 verb phrases and 1,800 phrases identifying political actors.

The final step in the event data acquisition is “one-a-day” filtering that allows only one instance of each dyad-event per day. This step is necessitated by the fact that AFP provides near-real-time coverage of breaking stories. Thus, an incident such as a missile attack or a suicide bombing may generate a dozen or more individual stories as the circumstances and casualty figures are updated while the story develops. One-a-day filtering has the undesirable side-effect of eliminating situations where there are, in fact, separate incidents (for example missile attacks in

⁹ In the near future, we anticipate switching from WEIS to the new CAMEO coding scheme that we have developed over the past three years under U.S. National Science Foundation funding (see Gerner et al. 2002). Although specifically designed for the study of international mediation, CAMEO is a general-purpose event coding scheme that has been optimized for automated coding by eliminating distinctions between categories in WEIS that cannot be easily distinguished using automated methods. In many cases, those distinctions could not consistently be made by human coders either, so the result should be more reliable event coding. CAMEO also provides far more detail on violent events and provides a systematic method of coding sub-state actors. See <http://www.ukans.edu/~keds/cameo.html> for more detail.

both Gaza and Nablus, or near simultaneous suicide attacks in Tel Aviv and Jerusalem), but these are relatively rare compared to the problem of multiple stories. At some future point, we may be able to deal with this problem by extracting greater levels of geographical information from the news report, but the existing system is still working reasonably well, particularly since the events are aggregated over an extended period of time.

Goldstein Totals and Averages

The first two pages of the swisspeace FAST update use two measures of activity between Israel and the Palestinians, aggregated by month. We employ Goldstein's widely-used scale for converting WEIS events to numerical values. In the Goldstein scale, the most cooperative events are assigned +10, the most conflictual events (notably the WEIS 223 code for acts of violence) are assigned -10, neutral comments are assigned 0, and the remaining WEIS categories have intermediate values. The Goldstein scale generates data on a cooperation-conflict continuum, with higher negative values reflecting greater levels of conflict. Two series are reported, one for Israel actions towards Palestinians, the other for Palestinian actions toward Israel. While it is possible to distinguish sub-state actors using event data, we have aggregated to the national level so, for example, violent acts by "Israel" include those of Israeli settlers as well as the Israeli military; similarly criticisms of Israel by "Palestinians" include those by Palestinian militant groups such as Hamas and Islamic Jihad as well as those of the Palestine Authority and the PLO.

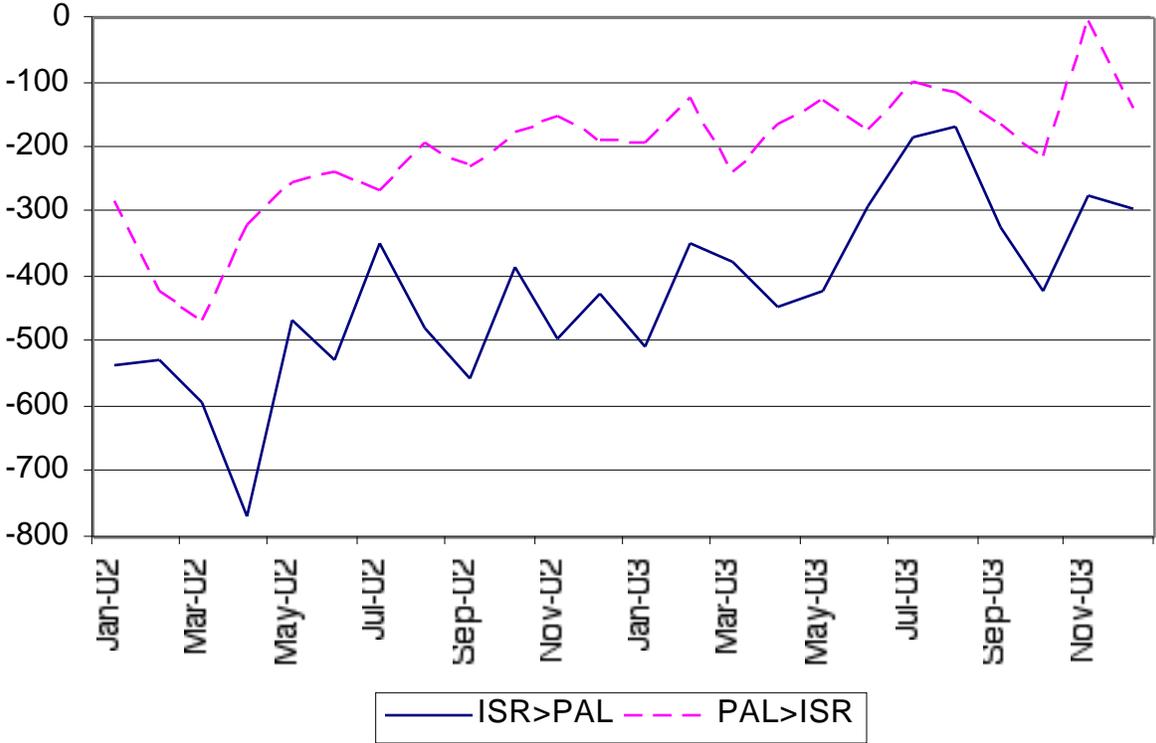
While most of the work we have done on the KEDS project uses monthly Goldstein totals (e.g., Schrodt and Gerner 1997, 2000), for the FAST work we are also using Goldstein averages. The advantage of the Goldstein total is that it reflects the overall level of activity in the region; the disadvantage is that it is sensitive to the number of reported events. The Goldstein average does not have this sensitivity to event frequency and therefore shows whether the level of conflictual interaction is increasing or decreasing in intensity. The disadvantage of the average is that two events per week could generate the same values as two hundred events per week, and the second situation clearly involves a greater level of activity.

Two general criticisms of event data scales are that the "conflict-cooperation" continuum is inappropriate in situations where increased levels of interaction can lead to a rise in both cooperation and conflict (think "newlyweds") and that equal numbers of conflict and cooperation

events could cancel each other out and give the appearance that nothing was happening. The first criticism is not really relevant to the Israel-Palestine conflict, since almost all issues are defined in terms of “security” and most cooperation is oriented towards reducing conflict. The second criticism is *usually* not relevant because the level of conflict is so much greater than the level of cooperation, although we have found one case where this problem occurred.

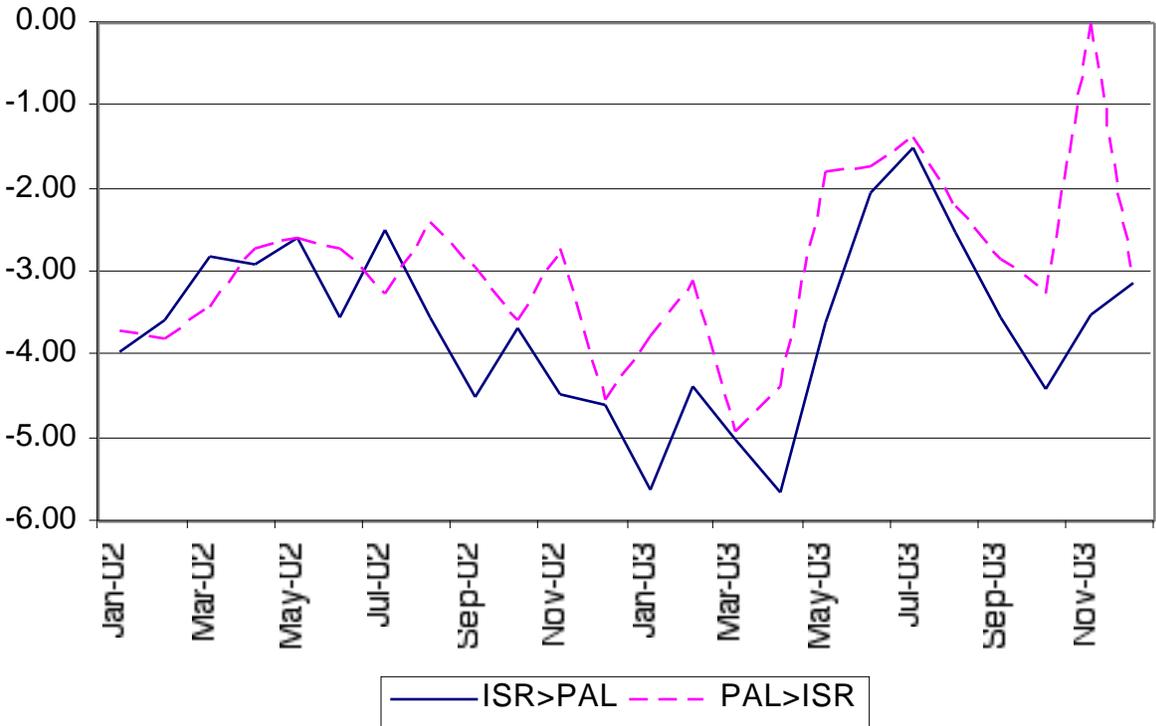
We are currently experimenting with alternative measures in our statistical work—typically event counts of broad categories of events such as verbal cooperation or physical conflict—and at some point we may incorporate these into the FAST updates. However, the levels produced by the Goldstein scaling is generally consistent with our qualitative analysis of the conflict and has the advantage of simplicity as well as greater comparability with reports produced by FAST for other regions.

Figure 2. Goldstein Totals



Figures 2 and 3 show the Goldstein totals and averages for January 2002 through December 2003. The two most conspicuous events of the past two years show up clearly: The downward spike in the spring of 2002 corresponds to the upsurge in Palestinian suicide bombings and subsequent Israeli military reoccupation of West Bank cities in that period. The positive “hump” that peaks in July 2003 corresponds to the short-lived U.S.-sponsored “road map” peace initiative.

Figure 3. Goldstein averages



The difference between the two charts illustrates the advantage of considering both the total and average scores. The Goldstein totals show an overall upward trend, indicating a decline in conflict. However, a comparison with the Goldstein average chart (and with the qualitative analysis) shows that this decline in conflict (that is, increasing slope of the line) is due to a decrease in the *number* of incidents, not the *type* of incidents. As shown by the Goldstein average, over the period from May 2002 to April 2003, there was a steady decline in the average, corresponding to the combination of the effects of the re-occupation and the virtual end of cooperative interactions as the Israeli government of Ariel Sharon tried to physically and

diplomatically isolate Yasir Arafat. The U.S.-mediated peace process in the summer of 2003 dramatically reversed this decline in cooperation for a short period of time, after which average interactions returned to a relatively low level (but not quite as low as before May 2003).

November 2003 shows an interesting anomaly where the score for Palestinian actions directed to Israel score is almost zero. This is, in fact, a situation where conflict and cooperation events have in fact cancelled out, one of the first times we have observed this problem in aggregated event data. During this month, the Goldstein total of Palestinian actions towards Israelis came very close to the neutral point where reports of conflictual acts are cancelled out by reports of cooperative acts. This was due both to the low level of Palestinian violence towards Israelis and extensive citizen negotiations between Palestinians and Israeli elites. These negotiations culminated in the announcement of the “Geneva Accord” on 1 December 2003.

Mediation

From the perspective of general event data research strategies, the mediation measure is the most interesting of the four we are using because it involves the use of a composite pattern of events to generate a secondary measure that, nonetheless, appears to be quite accurate. In other words, even though the WEIS system does not explicitly have a category for “mediation”, we can *derive* a measure of mediation using patterns.

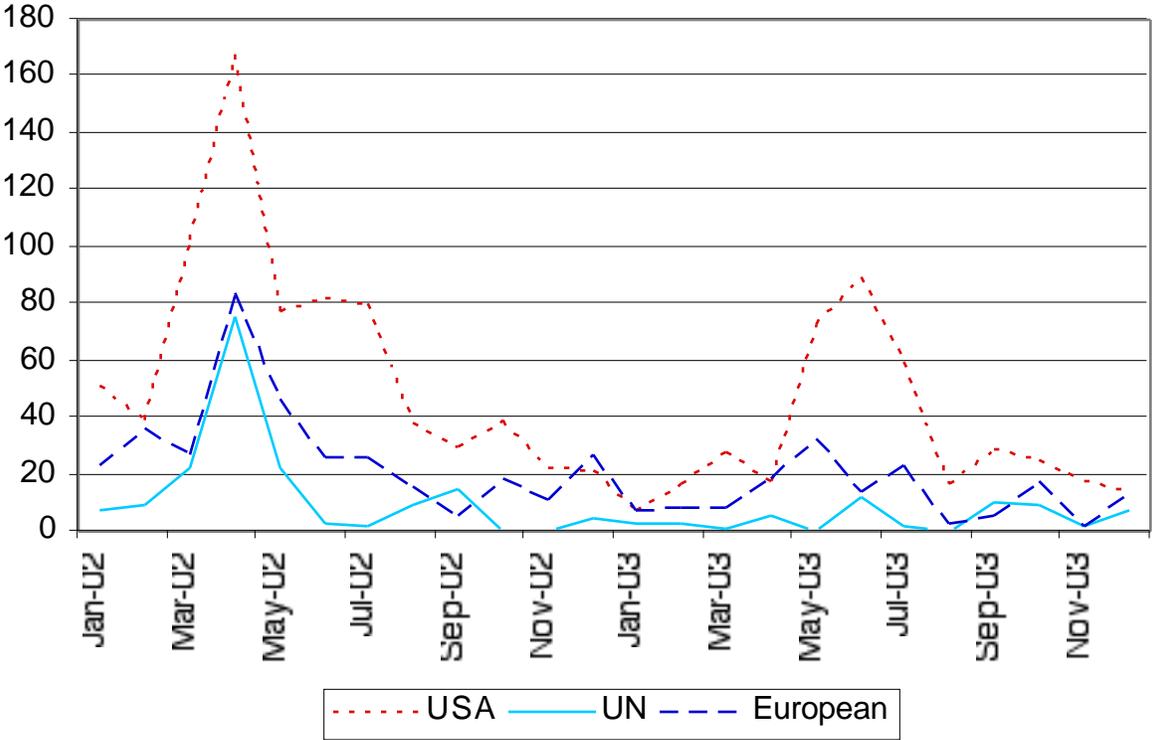
Specifically, following the approach we used in Schrodt and Gerner (forthcoming), a mediation event occurs when there are cooperative WEIS events (WEIS codes ≤ 100 except 02x comments) involving the mediator (see below) and each of the parties in the conflict (Israel and Palestinians) within a 7-day period. While this pattern is not a sufficient condition for mediation—a representative of a state might visit multiple parties to a conflict without trying to mediate—it is probably a necessary condition in the sense that any mediation will involve such cooperation, at least within the limitation of the news reports. This definition has been implemented as a relatively simple 100-line computer program written in the C programming language that operates on the original stream of event data, detects occurrences of the pattern, and then produces a tab-delimited file that can be copied in a Microsoft *Excel* spreadsheet.

We are monitoring the activities of three mediators: the USA, UN, and the Europeans, with the latter defined as the EU, UK, France, Germany, Italy and Netherlands. Figure 4 shows these

statistics for the period 1 Jan 2002 to 31 December 2003. There are two conspicuous spikes of mediation activity. The first coincides with the outbreak of violence in spring 2002 and deals with the diplomatic efforts responding to Israel’s re-occupation of areas that it had evacuated earlier under the Oslo Accords, and particularly over Israel’s siege of Yasir Arafat’s Ramallah headquarters and the Church of the Nativity in Bethlehem. These events caused an increase in activity in all three of the mediating groups.

The second spike corresponds with the U.S.-led “road map” negotiations during the summer of 2003. There is a slight increase in European involvement at this point but the level is nowhere near that seen a year earlier, and there is essentially no UN involvement. The mediation efforts show an almost perfectly symmetric rise-and-fall pattern consistent with the very limited effort that the U.S. put into this initiative; the rise-and-fall is also mirrored in the increase in the Goldstein averages (Figure 2) and, over a shorter period, the decline in fatalities (Figure 5).

Figure 4. Mediation efforts



Deaths

Unlike many of the conflict areas being monitored by FAST, which are currently quiescent, there has been almost non-stop violence in Israel-Palestine since the outbreak of the second *intifada* in September 2000. While these casualties have been quite low compared to areas where there has been a total breakdown of control such as the former Yugoslavia, Rwanda, Liberia, or the former Zaire, death totals in this region are of considerable interest to Western governments.

In principle, we could extract approximate death totals from the AFP news reports. However, it would be nearly impossible to do this accurately using fully automated methods, AFP's coverage is not completely comprehensive, and based on our prior experience (Gerner and Schrodt) working in the field with the Palestine Human Rights Information Center during the first *intifada*, we knew that getting reliable casualty totals required full-time specialized efforts. Consequently we have used two NGO sources for these numbers. For Israeli deaths, we use the statistics compiled by B'Tselem posted at

http://www.btselem.org/English/Statistics/Al_Aqsa_Fatalities_Tables.asp

For Palestinian deaths, we use the figures compiled by the Palestine Red Crescent Society posted at

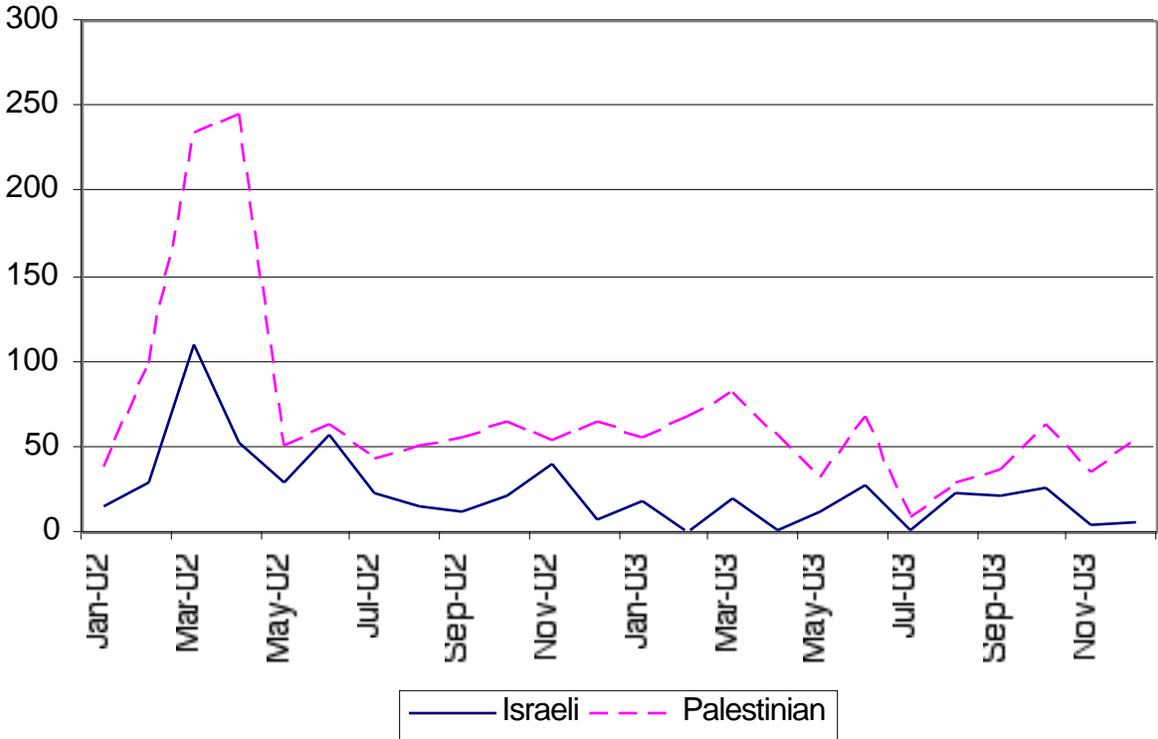
http://www.palestinercs.org/crisistables/table_of_figures.htm

Neither of these two data sources include deaths of foreign nationals; B'Tselem has totals for these but does not report them by month. The standard PRCS web site provides daily data for the current month, then totals for past months and is usually updated daily. The PRCS web site also contains links to a database that can generate more detailed reports by date or location. B'Tselem provides only monthly data and tends to update these figures once a month, usually two or three weeks after the end of a month. B'Tselem's historical data on the web are less detailed than those of PRCS, although they helpfully provided us with an *Excel* file giving monthly figures for some data which were only available in yearly aggregations on the web sites.

B'Tselem reports figures for Palestinian deaths as well as Israeli deaths. B'Tselem's numbers are generally about 10% lower than the PRCS figures. B'Tselem makes it clear that they are not able to investigate all cases in depth (see [http://www.btselem.org/ Main > Statistics > Clarification on the Data on Persons](http://www.btselem.org/Main/Statistics/Clarification_on_the_Data_on_Persons) accessed 8 March 2004), whereas

PRCS’s data is, to the best of our knowledge, derived from their operational databases.¹⁰ The 10% discrepancy is consistent with PRCS having more complete information on individuals who were wounded in incidents and subsequently died, and to incidents that never were reported in sources available to B’Tselem. The patterns of deaths in the two series are quite similar so we do not regard these differences as significant.

Figure 5. Deaths



Supplementary Information and Qualitative Analysis

In the FAST updates, the graphs of the various quantitative indicators are accompanied by qualitative interpretations. Schrodt usually drafts the qualitative analysis based on the event data and newspaper reports, then Gerner modifies it—invariably in the direction of making it more

¹⁰ We made a site visit to the main PRCS office in Ramallah in May 2002; Gerner has visited B’Tselem on several occasions.

pessimistic, and, unfortunately, making the analysis more accurate—on the basis of the specialized sources she is monitoring.

When preparing these qualitative assessments, we use a variety of different sources of information to supplement the statistical indicators. First, despite the problem of media fatigue, we keep an on-going chronology of newspaper stories about major events in the region. Our primary U.S.-based sources are from *The New York Times* (<http://www.nytimes.com>), *Washington Post* (<http://www.washingtonpost.com>) and *Christian Science Monitor* (<http://www.csmonitor.com>); we also monitor the English-language web site of *Ha'aretz* (<http://www.haaretzdaily.com>). We supplement these sources with a variety of IGO and NGO sources;¹¹ these are particularly useful in providing information on overall living conditions. As part of her on-going work on the Middle East, Gerner subscribes to a number of specialized publications covering the region, both in print form¹² and electronic form.¹³ There are also a number of individuals living in the region with whom Gerner is in regular contact by phone or email.

Because the FAST updates are targeted at policy-makers who are looking for a condensed summary of the most important trends in a conflict, these qualitative assessments are relatively brief—FAST aims for only four or five bullet points per page. In this respect the updates differ substantially from most of the source material we are using, and the challenge is reducing a great deal of information to a small number of salient observations. One issue that has become very apparent with this process—albeit it is something that we've always known to be a problem

¹¹ Examples include the ReliefWeb site <http://www.reliefweb.int/hic-opt/>, the NGO health monitoring site <http://www.healthinforum.org/> and the Israeli branch of Physicians for Human Rights <http://www.phr.org.il/phr/Pages/PhrHomepage.asp>

¹² Print sources include *The Journal of Palestine Studies*, *The Jerusalem Report*, *al-Majdal*, *Washington Report on Middle East Affairs*, and *Middle East Report*.

with event data analysis—is the cumulative effect of slow, on-going actions that either do not, in themselves, constitute events, or else are continuous and therefore are not reported as discrete events.

Two cases can illustrate this. The problem of cumulative change is illustrated in the effects of closures and other economic dislocations on the region. This is most dramatic for the Palestinians: a recent report (*The Economist*, 31 January 2004) indicates that “Inside the occupied territories, life has grown increasingly desperate. Food consumption has fallen by one-third since the start of the *intifada* in late 2000. Nearly a quarter of young children are acutely malnourished. Two-thirds of Palestinians have no job.” Because this situation has continued for so long, any savings of the typical Palestinian family have been long depleted. The economic problems are also affecting Israel, which has experienced unusually high levels of unemployment and limited economic growth since the outbreak of the second *intifada*. Because event data looks for actions in the form of who-does-what-to-whom (subject-verb-object), an evolution in economic circumstances is not, by itself, an “event.” To a large extent, these economic changes are clearly *caused* by discrete events—notably closures, checkpoints, house demolitions, and other disruptions of normal life—but due to media fatigue this information is not systematically reported, even in the news wires.

A more dramatic example of an on-going event that is not reflected well in the event data is Israel’s recent construction of the massive “Separation Wall” mentioned earlier. This presents several problems. First, because the construction of massive concrete walls is a relatively rare international event (and in the case of a wall that is not on an internationally-recognized border or cease-fire line, virtually unprecedented), it is not at all clear how this event would be reflected in WEIS codes. Second, due to media fatigue effects (and, more generally, the narrative norms of

¹³ Electronic sources include AIPAC - American Israel Public Affairs Committee (<http://www.aipac.org>), Alternative Information Center (<http://www.alternativenews.org>), American Friends Service Committee - Middle East (<http://www.afsc.org/middleeast/default.htm>), B'Tselem: The Israeli Information Center for Human Rights in the Occupied Territories (<http://www.btselem.org>), The Electronic Intifada (<http://electronicintifada.net/new.shtml>), Israel/Palestine Center for Research and Information (<http://www.ipcri.org/index1.html>), Middle East Research and Information Project (<http://www.merip.org>), Miftah: The Palestinian Initiative for the Promotion of Global Dialogue & Democracy (<http://www.miftah.org/Index.cfm>). For a more complete list of Web-based sources of information of the Israel-Palestine conflict, see Gerner’s home page (<http://people.ku.edu/~gerner>) or the appendix in International Quaker Working Party (2004).

journalism) event data have always been weak in dealing with events that occur over a long period of time: news reports do not say “Construction of the Separation Wall continued today.” Finally, the political, economic, and psychological impact of the wall depends not only on the fact of its construction, but on *where* it is being constructed. The earliest parts of the Wall were erected in high-population areas in the northern West Bank. The Wall was then extended through areas of relatively low population density, but it is currently (March 2004) again being built in areas of high population density—and high political significance—in the immediate vicinity of Jerusalem. Because our event data is aggregated to just “Israel” and “Palestine”, we do not pick up any of these geographical distinctions. Reports of the construction of the Wall are subject to media fatigue—most reports occur in the context of new portions being constructed (but only rarely that) or protests about the construction—and the effects, whether in terms of economics or security, will occur only gradually.

These weaknesses certainly do not suggest that event data indicators are useless, but they do indicate that such data alone do not present a complete picture. As we have argued elsewhere, event data need to be supplemented with additional sources of information such as economic and demographic indicators that do not involve events and the monitoring of qualitative information (ideally supplemented with first-hand reports from the region) that will shed light on the overall impact of the publicly-reported events.

Conclusion

Based on our experience over the past eighteen months, the combination of event data and supplemental quantitative indicators, the systematic monitoring of web-based general and specialized media, NGO sources and personal contacts in the region have proven effective in allowing us to construct succinct, policy-relevant summaries that monitor the Palestinian-Israeli conflict despite the fact that we are operating from Kansas. As we noted initially, we are able to do this in part because the area is extensively covered by both the international media and by a dense network of NGOs, and is usually directly accessible to telephone and email communication.

Since we are not part of the policy communities to whom these updates are directed, it is difficult for us to assess the extent to which the event data are providing added value to our

qualitative analysis, but we can speculate on this. First, based on the scores of presentations we've given to various audiences over the years, the first part of the answer is "it depends on the recipient." Some individuals prefer to hear narratives, others prefer to see information presented visually. In particular, we have found that policy analysts who are accustomed to working with economic analysis tend to be more receptive to event data than those dealing with more traditional diplomatic issues, which is unsurprising given the prevalence of quantitative information (and the visual presentation thereof) in economic affairs.

Because event data are virtually the only current mode for aggregating and presenting political interactions as a time series, it is likely to be an attractive tool for individuals who are accustomed to absorbing data from charts quickly. We have also noted that, with very few exceptions, the event data support the narrative and vice versa. On only one or two occasions, usually involving the Goldstein averages, have we had to explain why we thought that the actual situation was different than what the statistical series suggested. In several instances—notably the rise and fall of the "road map" mediation efforts and the continued high level of Palestinian casualties despite the failure of newspapers to report this—the statistical series provide insights that would be much more difficult to establish through narrative materials.

Finally, as academic political scientists, it has been a valuable exercise for us to continually track the accuracy of our analysis. Two cases have been particularly interesting. Our greatest success was correctly (and unambiguously) predicting the failure of the "road map" process. This was done largely on the basis of our detailed assessment of the situation drawn from the specialized secondary literature, whereas our initial assessment prior to completing the analysis—based largely on newspaper sources—had been neutral to slightly optimistic. While we did not use the event data to predict this collapse, the event data patterns track the short-lived nature of this process very clearly, and provide ample evidence of the accuracy of the qualitative analysis.

The most conspicuous place where we—and, frankly, pretty much everyone in the IGO/NGO community—have been consistently incorrect is assessing the impact of the high level of economic deprivation that has accompanied the second *intifada*, particularly in Gaza. Our assessment is that this would not be sustainable and could result in a major humanitarian crisis

due to starvation or a serious outbreak of epidemic disease. This has not, so far, been the case, although the predictions of imminent economic collapse continue. This may be the result of a self-negating forecast: IGO and NGO warnings of impending crisis may have motivated additional aid—such as the 1-million-euro contribution made by European Union in early March 2004 “to secure alternative accommodation for 13,000 Palestinians in the Gaza whose homes have been demolished in recent months by Israeli security forces.” (AP 2004)— that has prevented the crisis from worsening dramatically in the past year, although the situation has not improved. We may simply have incorrectly gauged the magnitude of the problem, although based on Gerner’s most recent trip to the region, we think this unlikely. Or the catastrophe may be just around the corner.

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Appendix: Instructions for updating FAST data sets

This appendix shows the current process we go through to update the data sets on a quarterly basis. A number of the steps are idiosyncratic to our specific technical environment and this should be seen as illustrative only. Over time we have gradually simplified the process by automating various tasks—for example the calculation of the mediation scores used to involve three separate runs of a program originally developed for the research reported in Schrodt et al 2001, but that program was subsequently modified to allow the statistics to be computed in a single run. In the description, computer program names are in Helvetica font; file names and Unix commands are in Courier font; *elements of Web pages* and other internal file information such as *Excel worksheet titles* are in Times italic. All of the non-commercial computer programs used here are open source; most are available on the KEDS project web site and any others can be provided by the authors on request.

Acquiring AFP text

1. In a browser, go to LEXIS-NEXIS page on KU library electronic data sources page:

```
http://web.lexis-nexis.com/universe
```

2. Click "*Sources*" in the blue bar that goes across the top of the page. This will take you to a page titled "*Source List*"
3. In the Source List "*Find Title*" box, enter "Agence France Press" and click "*Find Title*". This will produce a list of several AFP sources.
4. Click the "*Search this title*" link of the first option (*English*) in the list. This will take you to a standard NEXIS search page, except that it has now been set to search only AFP.
5. Enter the search strings below.

```
israel or palestin! or syria or jordan or lebanon or egypt or  
plo
```

This string (and other search strings used in the KEDS project) can be found in the `www.input` file that will be used below.

6. Change the "*in*" selection to "*Full text*"

7. Enter a series of dates that will give you fewer than 1000 stories—this is the limit for the stories returned by a NEXIS search on the Academic-Universe site. Sometimes this takes a bit of experimenting, but a search period of two weeks generally works. Click "*Search*"

8. Click the first story in the resulting list. Copy the address, which will look something like

```
http://web.lexis-nexis.com/universe/document?
_m=69565bab69eb293ee7c03173007d31bd&_docnum=1&wchp=dGLbVzb-1SlzV
&_md5=7178503bdb21eac6c35eb90a4d666814
```

so be sure you get the whole thing. (Netscape messed this up in the past; MS-Explorer, Safari and Mozilla seem to work fine.)

9. Use **BBEdit** to open the file "www.input" in the "download.dir" directory on the KU Unix server raven. Paste the address you just copied into the first line of this file (there can be more stuff in the file; the program just reads the first line) [**BBEdit** is a text editing program for the Macintosh]

10. Log onto the raven account. Enter

```
cd download.dir [puts you into the download subdirectory]
```

```
perl nexispider.pl [runs the nexispider program]
```

11. The `nexispider.pl` program will ask for a file prefix; enter `AFPLE` and hit <return>

12. You should see the stories start scrolling by—this will go pretty quickly and periodically pause when there is a delay retrieving the story.

[You'all young whippersnappers should know that in the old days, we had to do this over a phone line with a 300 baud modem. Before we left to walk to school 5 miles barefoot in the snow uphill both ways in July]

If the program stops immediately you probably gave it the URL of the NEXIS index, rather than the URL of the first story; return to step [8].

13. Tricks if you are downloading a bunch of stories:

- a. You can log into raven multiple times and have several copies of `nexispider.pl` going simultaneously (this is why we use Unix systems rather than MS-Windows...). `nexispider` automatically assigns non-conflicting file names to the resulting files based on the prefix you entered in step [11] and the beginning and end of the download (it gets this information from the file; you don't need to enter it).
- b. As soon as `nexispider.pl` starts in any window, you can change the `www.input` file, putting a new URL at the top of the file.
- c. Click the "*Edit search*" option in the top bar of the NEXIS window to change the dates on a search.

14. Now use the Unix "mv" command to move the file(s) to the appropriate subdirectory, e.g.

```
mv AFPLE.020601-020615 text_files/levant/yr2003/
```

where `"text_files/levant/yr2003/"` gets one into the year 2003 subdirectory inside the `levant` subdirectory inside `text_files`, which is how we've got things set up at the moment.

Hint: You can move a bunch of files at once using a wild-card

```
mv AFPLE.* text_files/levant/yr2003/
```

15. Move into that directory using the `"cd"` command

```
cd text_files/levant/yr2003/
```

16. Copy the contents of the subdirectory into a file named `"filelist"` using the command

```
ls > filelist
```

17. Open the file `"filelist"` in **BEdit** using **BEdit's** *"Open from FTP server..."* menu option (you'll need to go through the intermediate directories to get there) and delete any file names that are not AFP downloads (this will be `"filelist"`, `"nexisreverse.pl"` and possibly some other left-over junk). The remaining files will be in chronological order assuming they have the names given them by `nexispider`.

18. Run

```
perl nexisreverse.pl
```

which combines all of the files, puts the entries into correct chronological order (they are in reverse order in the NEXIS output), and delete everything except the lead (first) sentence. The output will be in a file with a `".rev"` suffix; the original files are left unchanged.

19. Change the name of the output to something informative. This file is now ready to be run through **TABARI**.

Coding and Aggregating

1. Go to Schrodt's G4 and go into the `Data/FAST Data` folder. This has a set of files that look like

```
FAST YYYY-MM
```

Each folder contains **CAMEO** and **WEIS** dictionaries for doing the update, and a file containing the data up until the end of the previous update (this will be data from the beginning of the current year). There should also be a copy of the **TABARI** automated coding program in there somewhere.

Make a new copy of this folder and re-name it with the last month (and year, if doing a new year) of the data.

2. Open the new reversed data and the previous updated data, and append the new data to the old. Rename this data set

```
AFPLE.YYYY-MM.L (e.g. AFPLE.2003-07.L)
```

where MM is the last month of the data. (The “.L” suffix indicates that these are leads only)

3. Move the copy of TABARI and the new text file into the CAMEO folder for the relevant region. It will probably replace an existing folder, unless you've switched to a new year.
4. Update the project file

LVNT.PROJ.FASTYYMM (e.g. LVNT.PROJ.FAST0307)

by modifying the name of the text file (adjusting the month) and then also change the name of that file (updating the month)

5. Run TABARI with the project file that is in the folder; *A)utocode* the new file. Rename the output file

LVNT.WEIS.YYYY-MM (e.g. LVNT.WEIS.2003-07)

Delete the earlier version of the file (there is still a copy in the file you copied the directory from)

6. Run this file through the program **One-A-Day Filter**; output file will have a `.filt` suffix.
7. Run the program **Trim_Events** on the filtered file; delete the `.filt` infix so that `.trim` remains as the suffix.
8. Copy the trimmed file into **K_Count** folder in **FAST Data**. Edit the file

Goldstein.FAST.TAB

and edit the "*Prefix*" and "*Files*" fields to correspond to the new yy-mm. combination.

9. Run the program **K-Count**. Make a new folder `FASTyy-mm` and put all of the output files (which also contain Israel-Lebanon information) plus the `.trim` file in that folder. Copy the `PAL>ISR` and `ISR>PAL` files back to the `FAST YYYY-MM` folder
10. Make a copy of the file

FAST.YYMM.xls (e.g. FAST.0307.xls)

and update the final year-month infix. Open this file in **MS-Excel**.

11. Open the `PAL>ISR` and `ISR>PAL` files in **BBEdit** and transfer the results into the "*Goldstein total*" and "*Goldstein average*" cells, adding months as needed. (Calculate the averages using a calculator based on the Goldstein score and the number of events per month; both are reported in the **K-Count** output files.). Select (i.e. click on) the various lines on the embedded graphs and update the final cell of the series; note that this involves updating both the `$A` entry to get the labels as well as the `$B/$C` entry to get the numbers.
12. Run the **FAST_Mediation** program with the `*.trim` file as input and `YY-MM` as the suffix. The file

Mediate.out.YY-MM (e.g. Mediate.out.03-07)

contains the counts of mediation events for the UN, USA, and Europe. (Note: just enter the *suffix*, not the entire file name, since the latter will cause a buffer overflow and freeze the computer...)

13. Enter these figures into the “*Mediation*” worksheet of the FAST.YYMM.xls file; update the final cells of the series.
14. Update the Documentation worksheet in the spreadsheet.

Updating the casualty data

1. In a browser, go to

<http://www.btselem.org/>

click the “*Statistics*” link, then on that page, the “*Monthly Totals*” link under “*Fatalities*”. (Note that the data may or may not have been compiled to the end of the month. If it hasn’t, wait a few days until it has been completed)

2. Get the total of the following figures:

Table: Israelis Killed in the Occupied Territories (Including East Jerusalem)

Israeli civilians killed by Palestinians

Israeli security forces personnel killed by Palestinians

Table: Persons Killed within the Green Line

Israeli civilians killed by Palestinians

Israeli security forces personnel killed by Palestinians

Total these, and enter in the “*Deaths*” worksheet of the FAST.YYMM.xls file.

3. Go to

http://www.palestinercs.org/crisistables/table_of_figures.htm

Again, note that the data may or may not have been compiled to the end of the most recent month, although usually PRCS does daily updates.

4. Copy the appropriate monthly totals from the “*Total Deaths*” column. Enter this total in the “*Deaths*” worksheet of the FAST.YYMM.xls file; update the final cells of the series.

Updating the WEIS data

1. Make a copy of the Data/Levant.WEIS.yy.mm folder, rename with the new final date.

2. Folder for updating the `.summary` file is currently `Vinland G3/Programming/K_Count.03`. Move the `LVNT.WEIS.yyyy-mm.trim` into this—currently this is moving across volumes on the G3 so it will automatically make a copy.

3. Edit the `Goldstein.TAB` file, changing the lines

```
PREFIX=LVyy-mm. [near top]
```

```
LVNT.WEIS.yyyy-mm.trim [near bottom]
```

4. Run the program `KEDS_Count`, which is the product of an ancient Pascal compiler, takes forever to run, and produces a very large number of individual dyadic files.
5. Edit the file `merge.files` to correspond to the new prefix. Run the program `KEDS.Merge.pl`, which produces the file `merge.output`. This contains the new summary information.
6. Open `Levant.79-yy.mm.summary` and `merge.output` in `BBEdit`. Cut and paste the new data into the `.summary` file, and change the name. Wouldn't hurt to read this into `Excel` and plot a few of the series to make sure nothing weird has happened.
7. Open `LVNT.WEIS.yyyy-mm.filt` and add new records from this to `LEVANT.WEIS`.
8. Edit `Levant.WEIS.ReadMe` to reflect the new dates—these occur in three or four different places and this probably needs some additional re-writing. Also update the total event count.
9. Stuff and zip the files using the `StuffIt` utility; when doing the `.zip` version, change the preferences so that the text files will be converted to MS-DOS line endings.
10. Upload to the KEDS web site, and change the `HTML` text to reflect the new dates and event totals. Test the downloads to make sure they work correctly.