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**Forecasting conflicts with the use of event data: The Greek-Turkish  
case of Imia**

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**“FORECASTING CONFLICTS WITH THE USE OF  
EVENT DATA:  
THE GREEK – TURKISH CASE OF IMIA”**

ATHENS, JUNE 2004

Η έκφραση των συναισθημάτων είναι δύσκολο να αποδοθεί σε λέξεις και ακόμα πιο δύσκολο σε μια γλώσσα που δεν σε έχει μεγαλώσει, οι ευχαριστίες μου δε θα μπορούσαν παρά να γραφτούν στα ελληνικά, στη γλώσσα που με μεγάλωσε.

Ευχαριστώ πολύ τον καθηγητή κ. Πάνο Καζάκο για την βοήθεια και την εμπιστοσύνη που έδειξε στο εγχείρημά μου αυτό.

Τον καθηγητή Philip Schrodtt που με την διάθεσή του και την πραγματικά αναγκαία και πολύτιμη βοήθεια του καταφερε να με εισαγει ομαλά στο αντικείμενο των Event Data.

Το Αθηναϊκό Πρακτορείο Ειδήσεων για την παροχή κάθε δυνατής βοήθειας στην πρόσβαση, μελέτη και χρήση του αρχειακού του υλικού.

Τέλος, θα ήθελα να ευχαριστήσω τον Δρ. Στέφανο Δράκο για την βοήθειά του στην εξοικείωσή μου με τα προγράμματα TABARI, Aggregator v 1.01 και KEDS.

Στους γονείς μου,  
Γεώργιο και Mari-Anne.

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## 1. INTRODUCTION

“The research in international relations, and much of comparative politics, is arguably theory rich and data poor. Too many theories are chasing too few facts (...) At the same time, the interactions in international system are becoming more complex with the end of the Cold War (...) we are sitting amid a river of political data – both event oriented and contextual – flowing past us every day from journalistic sources. Those sources are increasingly machine-readable, and if we can find the means of tapping them using the natural language capabilities of contemporary computers, we will find ourselves awash in data.”

(Schrodt and Gerner, February 2002)

Mathematics, calculations, computers can these words relate to human behavior and extensively to international relations? Can we quantify human action? The answer is yes, up to some point and by achieving along a high percentage of accuracy by using

alternative methods such as events data, artificial neural networks<sup>1</sup> etc. The aim of this project is to introduce you to one of those methods, the **event data**, and run an example, a step-by-step creation of an event data set for Greece and Turkey regarding the incident at the Imia islets.

Before starting our presentation the question that we are called upon to answer is if political behavior free of axiological elements can be quantified. By categorizing political interactions free of subjectivity, as the event data method does, it can be done. What allows event data to do is the coding of political interactions, intra-national and supranational, according to event codes such as CAMEO, IDEA, WEIS, etc.

What allows this method to make predictions can be comprehended in the basis of behaviorism. A number of studies of crisis behavior have assumed that political behavior goes through a series of clear phases characterized by distinct patterns of interaction<sup>2</sup>. Using event data, which can be so enriched today than ever, on account of the plethora of every day news sources and the help of machine coding, makes the signs that can indicate a specific pattern of political behavior easy to be discerned, making the forecast of conflictual or cooperational behavior of international actors feasible.

For example warnings, threats, armory upgrade and growth play a critical role in the outbreak of a conflict, military or not. We can, by focusing on distinguishing these “signs” with the study of event data sets, contribute to the building of a firewall against the outbreak and spread of mass violence. Early warning could enable governments and the international community to intervene at an early stage and put an immediate stop to

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<sup>1</sup> Martin, Andrew D. and Daniel B. Pemstein, 2002, Forecasting Conflict with Recurrent Artificial Neural Networks, Washington University, May 16.

<sup>2</sup> Philip Schrodtt and Deborah Gerner , Empirical Indicators of Crisis Phase in the Middle East, 1979 – 1995, Paper Presented at the 29<sup>th</sup> North American Meeting of the Peace Science Society, Columbus, Ohio, 13-15 Oct.1995.

the outbreak and acceleration of armed conflicts. Event Data's goal is to address root causes and conflict patterns and by that save the world from human lives, political, ecological, social, humanitarian, psychological and financial costs.

According to Schmid's thesaurus early warning is defined as 'The systematic collection and analysis of information coming from areas of crises for the purpose of anticipating the escalation of violent conflict, the development of strategic responses to the crisis and the presentation of options to key decision-makers'<sup>3</sup>. As far as the first part of the definition is regarded, event data it deals with the informational problem of obtaining the necessary quantity and quality of political data and the analysis of all this information by categorizing, signaling and reporting dangerous situations and developments.

We must look back and see if we can learn something from all this information that is available and unexploited. Analysts will be helped in making forecasts based on the notion of some recurring characteristics of human/nations behavior of the past.

## **2. INTRODUCTION TO EVENT DATA**

Interaction among nations isn't a static thing; there is a continuous flow of everyday actions and reactions. Political event data, nominal or ordinal codes recording the interactions between international actors –nations, international organizations, nongovernmental organizations etc– as reported by different press sources, shatter the

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<sup>3</sup> Schmid, A.P., 1998, Thesaurus and glossary of early warning and conflict prevention terms, *FEWER*, [www.fewer.org/research/index\\_01.htm](http://www.fewer.org/research/index_01.htm)

manifold character of political act down to a sequence of basic categories of actions such as agreements, warnings, proposals, accusations, threatening, military engagements etc<sup>4</sup>. When aggregated, these data provide summary measures of political activity. Aggregation can be yearly, quarterly, monthly, weekly, daily, depending on the needs of each project.

‘The failure to predict the end of the Cold War has demonstrated the problems of traditional techniques in a complex world and should (...) spawn an urgent search for new methods, just as the Great Depression revolutionized macroeconomic theory and analytical techniques.’ (Gerner et al., 1993)

Political event data is a quantitative approach of international relations. Quantitative approach helps to trace down the “crucial” areas of international relations and then, by the use of the traditional qualitative approach of international studies, one can examine them thoroughly and in depth<sup>5</sup>. What should be done is the combination of the quantitative and the qualitative approach to international relations.

Relationships between two actors falls along a continuum ranging from military engagement to complete cooperation – integration, event data classify to that range the recorded events of the news sources with the goal of giving to the scientists the ability to trace analogies with the past by locating common sequences.

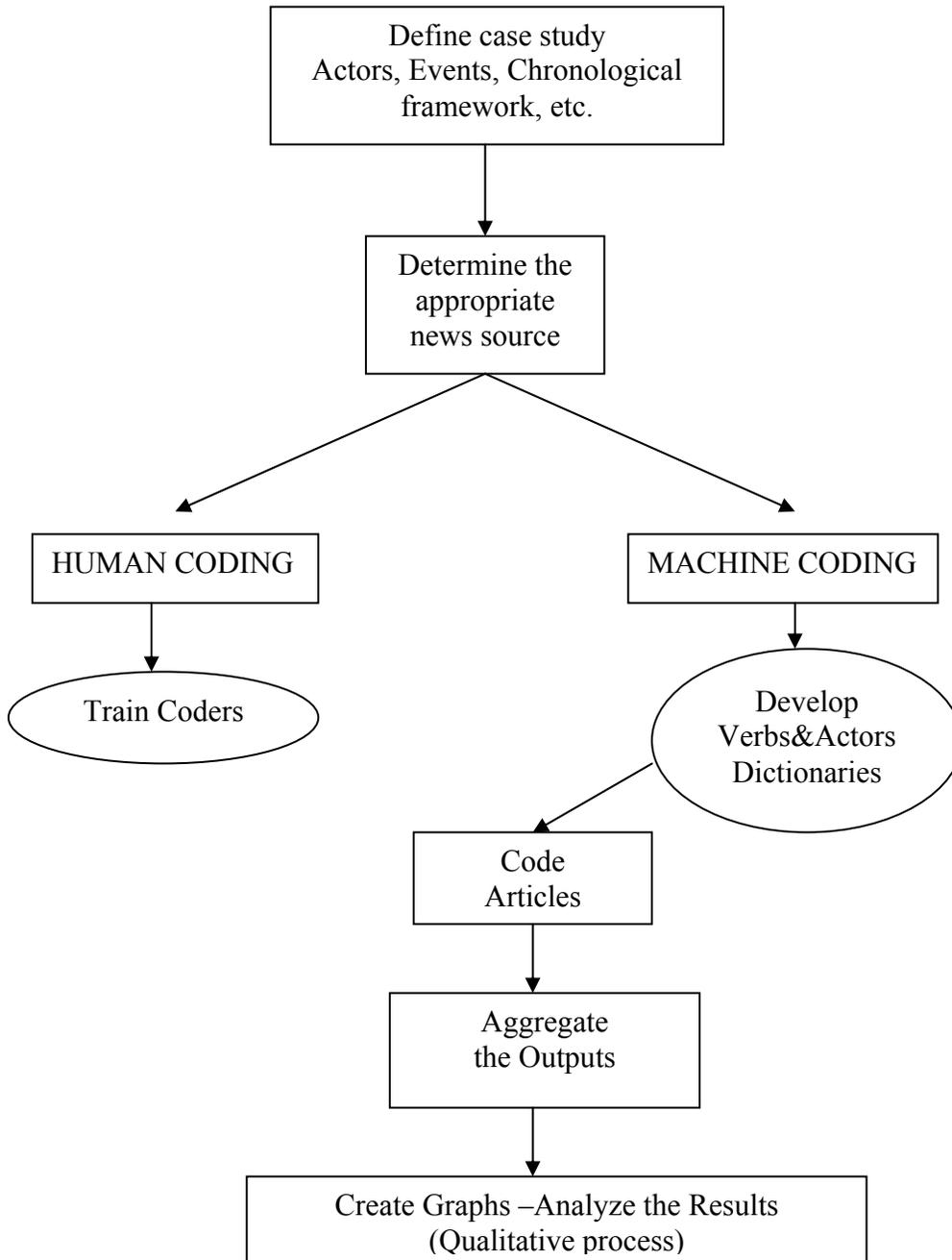
We shall try to clear the fog that surrounds event data by the presentation of an event data flowchart that will be followed by a step-by-step analysis.

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<sup>4</sup> Deborah J. Gerner , Philip A. Schrodt, Ronald A. Francisco and Judith L Weddle,. 1993, Machine Coding of Event Data Using Regional and International Sources, published as Deborah J. Gerner , Philip A. Schrodt, Ronald A. Francisco and Judith L Weddle, 1994, The Political Analysis Of Political Events using Machine Coded Data, *International Studies Quartely* 38:91-119, page 1.

<sup>5</sup> op.cit.

### EVENT DATA FLOWCHART



Defining case study is the first step. Here actors, which can be nations or even politicians, must be determined along with the time period and the general event that will be coded, for example the interactions of USA and USSR during the Cold War.

When deciding the project's groundwork, besides the above one must choose the event code system that one will use (according to which the data will be coded). The event codes system is a list of event categories and a numerical code for each category. We shall make a short presentation of the most prevailing actors oriented coding systems.

- WEIS (World Event Interaction System), created in 1976 by McClelland, sought to record all categories of political interactions of international and national actors. WEIS events have been scaled through the use of the Conflict-Cooperation Scale Values for WEIS, developed by Joshua S. Goldstein in 1992 <sup>6</sup>.
- COPDAB (Conflict and Peace Data Bank), developed by Edward E. Azar in 1980<sup>7</sup>, same as WEIS records conflictual and cooperational events between and within nations, but unlike WEIS it has many shortcomings.
- PANDA (Protocol on Non-violent Direct Action) Codebook was created in 1995 by Bond & Bond<sup>8</sup>. The Program on Non-violent Sanctions in Conflict and Defense at Harvard's Center for International Affairs, from its birth in 1988, aimed at assessing the incident and impact of non-violent struggle and it succeeded in that, especially through the use of KEDS project's (Kansas Event

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<sup>6</sup> Goldstein, S. Joshua, 1992, A Conflict-Cooperation Scale for WEIS Events Data, *Journal of Conflict Resolution* 36(3): 369-385.

<sup>7</sup> Azar, Edward E., 1980, The Conflict and Peace Data Bank (COPDAB) Project, *Journal of Conflict Resolution* 24(1): 143-152.

<sup>8</sup> Bond, Joe & Dough Bond, 1995, PANDA Codebook, Cambridge, MA: The Program on Nonviolent Sanctions and Cultural Survival, Weatherhead Center for International Affairs, Harvard University.

- Data System)<sup>9</sup> automated coding programs (KEDS, TABARI), which made the evaluation of global news reports possible.
- IDEA (Integrated Data for Events Analysis)<sup>10</sup>, King and Lowe 2001, is an extension of WEIS, but unlike it, it doesn't concern exclusively state actors. IDEA, with its high level of specificity of events (for example with its categories of voting and protest behaviors, economic behavior and non-human behavior such as natural disasters etc.), can record with precision a large scale of human exercises.
  - CAMEO (Conflict and Mediation Event Observations) has been developed by Gerner et al. (2002)<sup>11</sup> and aims to optimize the study of third-party mediation in international disputes and for that purpose includes an extended consult category. So far it has been used to generate data sets for the Levant, the Balkans and West Africa.

The next step is the choice of news source, and here emerges the question which source to choose, an international or a regional one? Regional sources provide a much greater level of detail than international sources on regional conflicts. On international scale conflicts international news agencies such as the Reuters are easier to use because the coverage will be sufficient. Of course the objectivity of the regional sources is under

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<sup>9</sup> The KEDS is a ten-year project focused on the development and application of political event data which has three goals: the development of software for the machine coding of political event data, the production of event data sets and the development of early warning methods.

<sup>10</sup> Bond, Dough, Joe Bond, Churl Oh, J Graig Jenkins, Charles Lewis Taylor, Integrated Data for Events Analysis (IDEA): An Event Typology for Automated Events Data Development, Accepted for Publication by the *Journal of Peace Research* (December 2003, forthcoming).

<sup>11</sup> Gerner, Deborah J., Philip A. Schrod, Rejaa Abu-Jabr, Omur Yilmaz, Conflict and Mediation Event Observations (CAMEO): A New Event Data Framework for the Analysis of Foreign Policy Interactions, paper prepared for delivery at the Annual Meeting of the International Studies Association, New Orleans, March 2002.

suspicion, but we believe that by coding clear cut only the “incidents” and by leaving out the personal evaluation of journalists we can secure a high level of objectivity, and that can be easily accomplished by coding lead sentences rather than full story texts<sup>12</sup>.

Next one has to decide on is the coding process. Nowadays coding can be done by scholars or by a software program. When event data appeared in the 1960’s and until the emerge of automated machine coding systems in the 1990’s, by the KEDS project, trained coders were doing the coding manually. It is really interesting to collate the two coding methods, human and by machine.

**Table1. Human vs. Machine Coding**

Human Coding	Machine Coding
<ul style="list-style-type: none"> <li>▪ Slow</li> <li>▪ Labor intensive</li> <li>▪ Protracted investment of time and resources.</li> <li>▪ Difficult to make modifications in the coding rules or categories since it will require recoding the data all over again.</li> <li>▪ Can deal with difficulties arising from syntactical complex texts.</li> <li>▪ Lack of absolute objectivity. That</li> </ul>	<ul style="list-style-type: none"> <li>▪ Quick</li> <li>▪ Minimal labor</li> <li>▪ Inexpensive on time and resources. What one needs are a personal computer, the necessary software and accession to machine-readable news reports.</li> <li>▪ Flexible.</li> <li>▪ Difficulty in reading syntactically complex texts</li> <li>▪ It eliminates intercoder variance.</li> </ul>

<sup>12</sup> See page 20.

<p>means that the same incidents can be coded otherwise from different coders.</p> <ul style="list-style-type: none"><li>▪ Lack of uniform application of the coding rules.</li><li>▪ Privileged knowledge – Intelligence</li><li>▪ Coders change often</li></ul>	<ul style="list-style-type: none"><li>▪ Provides explicit and preservable coding rules.</li><li>▪ No artificial intelligence</li><li>▪ Machine software is internal.</li></ul>
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It is clear that besides some flaws, machine coding is more efficient hence that the event data is a quantitative approach, so faster coding means greater quantity of coded data. Undoubtedly, the use of computing power in the process of creating event data boosted event data research as well as the interest of scientists.

Machine coding is by far faster and less expensive than human coding, the process of establishing the *suitable*<sup>13</sup> actors and verbs (and verb phrases) dictionaries is time-consuming. This time can be significantly minimized through the sharing of actors and verb vocabulary lists, since the dictionaries created for the KEDS program can be used also on the TABARI program (they are completely compatible) hence the dictionaries of other case studies can be used on other projects<sup>14</sup>.

Once we've established vocabulary lists of actors and verbs, the next step for generating event data sets is the acquisition of machine-readable news reports. But even if the texts aren't in the right form, and by that we mean machine-readable, we can create, the appropriate text filter that is necessary to automatically alter the news reports to the right format, if one doesn't already exist.

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<sup>13</sup> See page 22 what do we mean by the word *suitable*.

<sup>14</sup> See page 21 how we create actors and verbs dictionaries

And then comes the basic step of coding the news reports. What event data software programs do, in the present project the TABARI program (see below), is converting the articles to a data set of the following form (plus example):

**Date - Source actor - Target actor - Event**

**961602 TUR GRE 182 MILITARY DEMONSTRATION**

That is translated as follows, 961602: 16<sup>th</sup> of February 1996, Source actor: Turkey, Target actor: Greece, Event: military demonstration. The program identifies the source actor (Turkey), the target actor (Greece) and the event (182= military demonstration).

Here the source or target actor is either Greece or Turkey, but the program is fully capable of dealing with more than two actors, which can not be only nations but also International Organizations (United Nations, European Union etc.), Non Governmental Organizations, politicians etc.

The next step is to aggregate the results of the coding that are on the above form. Aggregation as we have mentioned can be daily, weekly, monthly, etc. The Aggregation program uses the scale values that we have inserted into the coding program. According to the KEDS Modified World Event Interaction Survey (WEIS) Events Codes (Goldstein scale values) the output of the aggregation program, if we run it daily, will be:

**16/2/1996 , -7.6**

After aggregating the coding program results, comes the creation of Graphs, which can be created with the use of a numerical analysis program such as the Microsoft Excel program. And finally, these Graphs can be subjected to further qualitative analysis.

A quick look at an example on the final step of the event data process will be very interesting at this point. We shall analyse two different cases studied by the use of event data, by Philip Schrodt, which resulted to the following figures:

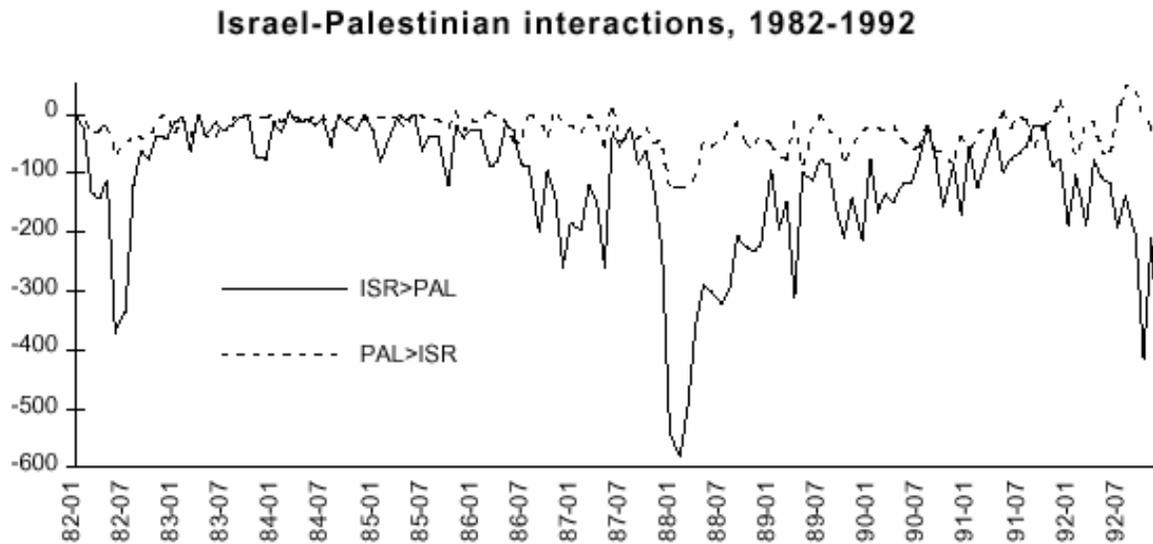


Figure 1<sup>15</sup>

In 1982 Israel invaded Lebanon, Yaser Arafat and his followers, the PLO, managed to escape from the raging Israelis. The second sting of the  $\text{Isr} \rightarrow \text{Pal}$  curve appears in the last and first months of 1987 and 1988 respectively, and agrees totally with the conflict escalation of those months. In December 1987 the first Intifada breaks out in the West Bank and the Gaza strip, more that 20000 (Palestinians and Israelis) were injured or killed. (We can analyse the  $\text{Pal} \rightarrow \text{Isr}$  curve in a similar way). As one could easily notice Figure 1 almost accurately corresponds to the historical narratives made above.

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<sup>15</sup> Philip A. Schrodt, *Event Data in Foreign Policy Analysis*, October 1993, Prepared for Laura Neack, Patrick J. Haney and Jeanne A.K. Hey, eds., *Foreign Policy Analysis: Continuity and Change in its Second Generation*, New York: Prentice Hall, page 4.

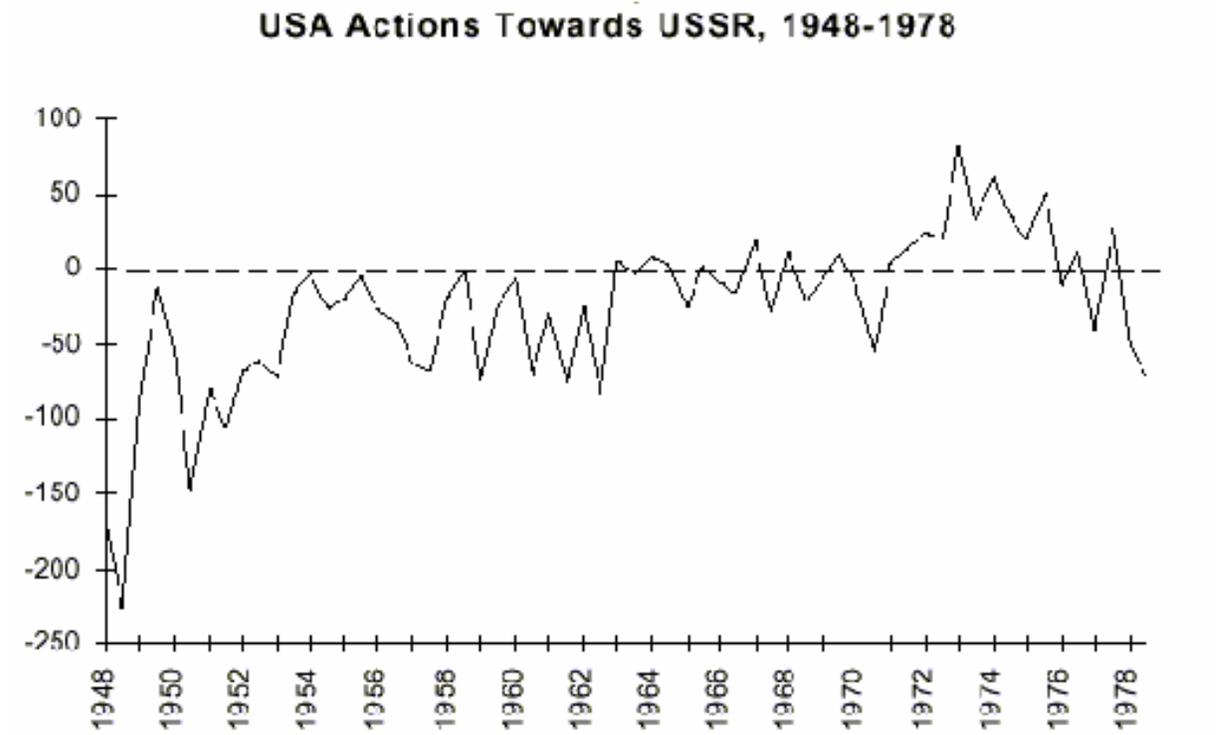


Figure 2<sup>16</sup>

1947 Truman's Doctrine for many political scientists signaled the beginning of the Cold War. The first sting of figure 2 peaked in the middle of 1948 and that completely agrees with the beginning of the harsh politics of USA towards USSR. In June 1948, the USA adopted the Vandenberg Resolution according to which from that time forward USA would use all necessary means in order to defend the national sovereign. Also in 1948, the USA pushed for the NATO creation, which can be thought of as the ultimate hostile activity creating a coalition against a country, here the USSR and extensively the Warsaw Pact. In the same year the tension in Berlin rises to a critical level and starts the blockade

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<sup>16</sup> Philip A. Schrod, *Event Data in Foreign Policy Analysis*, October 1993, Prepared for Laura Neack, Patrick J. Haney and Jeanne A.K. Hey, eds., *Foreign Policy Analysis: Continuity and Change in its Second Generation*, New York: Prentice Hall, page 3.

of Berlin until 1949, as we can see from the figure 2, the curb almost reaches the x (=0) axes in the end of 1949.

Interesting observations can be made for the Era of détente. When Nixon became USA's President (1968 – 1974), he replaced *superiority* to *sufficiency* as the goal of the national defense policy. Likewise Henry Kissinger argued that a multi-polar world is better for the USA and the rest of the world than the existing bipolarity. Détente policy lasted also during the Gerald Ford Presidency (1974 – 1976) who signed the Helsinki Final Act (1975, USA, USSR and European Countries agreed to the non-violation of borders in Europe). After Jimmy Carter obtained power in 1976 (1976 – 1980) the world witnessed a return to idealism and the turnover of the Nixon-Ford administrations détente policy to the return to post-Cuban Missile Crisis Cold War climate.

Looking at figure 2 one can see the concurrence of the above historical facts with the USA→USSR curb's "attitude".

### **3. GREEK-TURKISH EVENT DATA SET CREATION**

#### **3.1. A QUICK OVERVIEW OF THE CAUSES OF FRICTION BETWEEN GREECE AND TURKEY (Up to the Crisis of Imia)**

After the Greek independence from the Ottoman Empire in 1832 conflicts, military engagements and territorial claims have been a steady practice of both nations, Greece and Turkey. But what were the causes of those collisions?

- Greece until the destruction of Smyrna and the massacre of the Greek population who couldn't find a safe sea passage to Greece in 1922, was determined to create the Greece of “ three continents and five seas”, this was the Great Idea.
- Afterwards the Cyprus problem came, which was and still is, a thorn between the two nations, leaving them fatally no chance of irenic bilateral relations and which can fuel up the tension, as it did many times in the past.
- The problem of the ethnic Turkish minority in Thrace
- The Greek veto at the EU on several cases concerning Turkey's interests.

The issues that, according to Turkey, remain unresolved and need to be resolved, through a bilateral dialogue, because as far as Greece's is concerned there is nothing to talk about, with the exception of the continental shelf. These are:

- The military status of the Islands of the Eastern Aegean Sea –Lemnos, Samotrache, Lesbos, Chios, Samos, Ikaria- and the Dodecanese.
- The limits of the Greek Flying Information Region (FIR).
- The expansion of the Greek national waters.

- The Gray Areas (Turkish claims the sovereignty of about 1000 of Greek Eastern Aegean Islands, Islets and Rocks).
- The Continental Shelf.

That bad history between those two nations has resulted in frequent political, diplomatic and military confrontations over time. One of those, the Imia islets case, is being studied here through the lens of political event data.

### 3.2. METHODOLOGY

#### Software Program: TABARI

Professor Phillip Schrodt produced a new automated coding system named TABARI<sup>17</sup> – Textual Analysis By Augmented Replacement Instructions–, the most recent event coding program of the KEDS –Kansas Event Data System– project. TABARI is based on the same sparse parsing principles as KEDS but is much faster and more flexible. Our decision to select the TABARI coding system was based on the grounds that KEDS was written in Pascal and is available only on the Macintosh operating system while TABARI is written in ANSI C++ as “open-source” code and can run on the Linux, Macintosh and Windows operating systems. Moreover TABARI facilitates parsing and grammatical recognition and is about 70 times faster than KEDS. The reduction of the time required to code or recode a data set from hours to minutes or seconds can be of great importance if we are dealing with events of more than a decade. Lastly it is completely compatible with KEDS actor and verb dictionaries and hence can use dictionaries developed for KEDS.

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<sup>17</sup> Shrodt, Philip A., 2001, TABARI: Text Analysis by Augmented Replacement Instructions, paper presented at the International Studies Association Meetings, Chicago.

Scale values: KEDS Modified World Event Interaction Survey (WEIS) Events Codes

(Goldstein scale values)<sup>18</sup>

Chronological Period: 18 Weeks (1<sup>st</sup> November 1995 – 5<sup>th</sup> March 1996). Because by studying this period we shall be able to observe the transit from a state of relatively calm to a state of military climax between the two countries. The chosen period is short because of the pressure of time.

Data Source: We have chosen the use of regional sources of data, as they give greater details on the Hellenic-Turkish relations than for example international sources such as Reuters, Factiva, NEXIS etc. We need to note here that one of the most critical requirements in using event data to study the relations of an international subsystem such as Greece-Turkey or the Balkans is the sheer quantity of information that we'll use, so because of the fact that Greece and Turkey are relatively small countries in the global political arena, and as a result the news coverage at the international press is short by definition, with the exception of periods of high tension when the journalistic spotlight focuses on them. We also added the use of a source in English to the requirements, because in translation a lot might be changed, altering the real weight of the events. Following the above preconditions we've concluded to the selection of Athens News Agency (ANA) as our data source.

Two things must be underlined here. Firstly, we avoided coding articles containing the positions of the opposition parties of the two countries and followed only the official policy positions of each country. Secondly, we coded lead sentences rather than full story texts because the format of the ANA full-story news texts was unsuitable to be

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<sup>18</sup> See Annexe 1

read by the TABARI program. Over the above we lacked the proper text filter and the necessary time to create the needed text filter. Many could comment here that coding only the lead sentences means at the same time losing useful information contained in the full story text, but that's not the case. Lead sentences with little exceptions summarize the full story that follows. Furthermore, big news agencies, such as Reuters and in its category ANA, have intense coverage, with hundreds of article layouts a day. When there's a new piece of information, there is also a new article. Provided that ANA daily article layouts on the Greek- Turkish relations are more than sufficient, for example on the 31 of January 1996 we had more than 10 articles to code, there's a slim chance of lost coded incidents. Results of studies made on the topic (Schrodt and Gerner, 2001) have shown that there is a high correlation between lead sentences and full stories data sets.

By applying the above we will, with the use of automated coding program TABARI and the system of specialized event codes that are sensitive to international interactions WEIS, code lead sentences of ANA articles and study the possibility of forecasting conflicts between Greece and Turkey.

### 3.3. HOW WE CREATE THE PROPPER ACTORS AND VERBS DICTIONARIES

Let's take as an example the first news article that we coded:

951101 IMIA-MAR 2004

Telemahos Hytiris said that there had not been met by Turkey the conditions set by the European Parliament.

In this case we have two actors that we want to take into account - Telemahos Hytiris, Turkey - and one European Parliament- that on the grounds of this study, which is a two actors case study, leaves us indifferent. So we start by adding to our actors' dictionary Telemahos Hytiris and Turkey.

TELEMAHOS\_HYTIRIS [GRE] ;mar

TURKEY [TUR] ;mar

Probably before starting we may prefer inputting the articles into the program in order to create a pilot actors dictionary with the likely to come across actors such as Greece, Greek, Kostas Simitis, Turkey, Turkish, Tansu Ciller, Deniz Baykal, Pangalos etc, and add more as we proceed and encounter new names of people, cities, islands.

The next step is to insert in our verb dictionary the verb phrase said had not been met with the suitable code, which, in this case is 121.

SAID

- \* NOT BEEN MET [121] ;mar

Here Greek spokesman CRITISIZES (=121) the Turkish Government for not being able to meet the criteria set by the EU so as to be granted Customs Union with the EU.

But which are the criteria of how event code should be assigned to each verb? We will examine this issue through an example:

---

951228 IMIA- MAR 2004

According to the Greek ministry Ankara will be obliged to abide to the decisions of the European Court.

960107 IMIA- MAR 2004

Turkish aircrafts infringed Greek airspace several times over the weekend.

951228	GRE	TUR	096	REQUEST POL CHANGE
960107	TUR	GRE	133	SYMBOLIC ACT

---

We can see the articles that we inserted into the coding program and the corresponding outputs as they were coded by the TABARI program. Here we can behold clearly the signification of the creation of the proper verb dictionaries that we use. According to the system that our project is using, the second article, where we have an airspace infringement, is coded 133=symbolic act (see scale-values), whilst in a non Greek-Turkish case an airspace infringement is considered an important sovereignty violation and normally would be coded 182=military demonstration. Take for example the infringement of Swedish airspace by military aircrafts of Turkey!

But in the Greek-Turkish case airspace infringements and aircrafts interceptions are a daily basis practise for both countries, it is estimated that the weekly violations of Greek FIR by Turkish aircrafts are 23. If we had ignored this characteristic of Greco-Turkish relations and code 23 times a week the event 182 we would be up against an unpleasant surprise. It would have appeared from the results of the aggregation that Greece and Turkey were on a permanent state of conflict.

In conclusion, most of the verbs do not need “special treatment” when assigned a code, but a researcher must take into account any special features of the actors relationship when it is needed.

### 3.4. CODING RESULTS, GRAPHS AND VALIDITY ASSESSMENT OF THE GREEK-TURKISH EVENT DATA SET

We coded 136 articles and the output of the TABARI coding program was a list, a part of which (15 results/ 961202-961902) is presented here:

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961202	TUR	GRE	132	FORMAL PROTEST
961402	GRE	TUR	102	URGE
961402	GRE	TUR	112	REFUSE
961402	GRE	TUR	140	DENY
961502	GRE	TUR	123	INVESTIGATE
961602	TUR	GRE	182	MILITARY DEMO
961602	GRE	TUR	112	REFUSE

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961602	GRE	TUR	174	ULTIMATUM
961702	GRE	TUR	152	CLAIM RIGHTS
961702	TUR	GRE	112	REFUSE
961702	TUR	GRE	096	REQUEST POL CHANGE
961702	TUR	GRE	111	TURN DOWN
961902	TUR	GRE	100	PROPOSE
961902	GRE	TUR	193	CUT AID
961902,	GRE,	TUR,	120	ACCUSE

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This list was aggregated (daily) and the result of the aggregation was another list, a part of which (that corresponds to the above 15 results list/961202-961902) is presented here:

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"Date", "GRE--TUR", "TUR--GRE"

12/2/1996 , 0 , -2.4

14/2/1996 , -5 , 0

15/2/1996 , -1 , 0

16/2/1996 , -10.9 , -7.6

17/2/1996 , -5 , -8.3

19/2/1996 , -7.6 , .5

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In the first column is the date, the second column shows that Greece is the source actor and Turkey the target and in the third column Turkey is the source actor and Greece the target. Therefore, the first line of the column can be interpreted as follows: On February 12, 1996 Turkey's actions towards Greece, expressed numerically, were -2.6.

After the first day-by-day aggregation we proceeded to a weekly, two-week and monthly aggregation. Then we took the results of the aggregation process and created Graphs of Greek and Turkish interactions for the studied period.

By following the historical facts as written in the open press (ANA) and by comparing them with the figures, created from the results of the aggregations, we want to assess the validity of the created Greek –Turkish data set

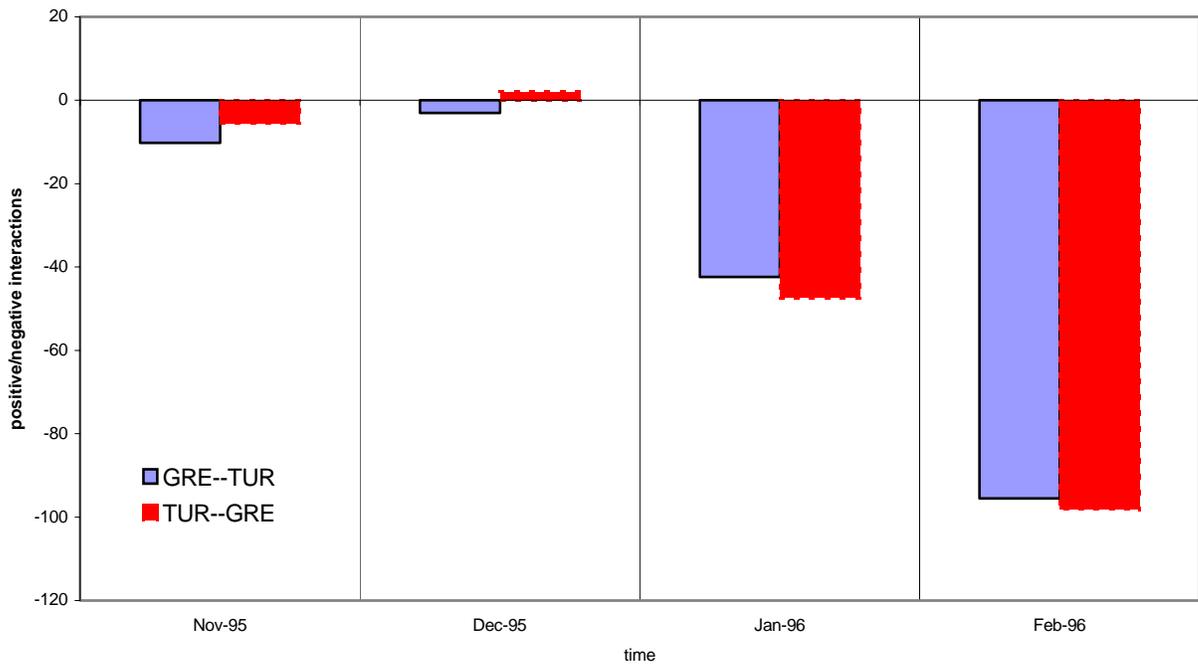


Figure 3. Monthly Results

Figure 3 illustrates the monthly interactions of the two countries. As we can observe, during the first two months, Greece holds a more negative stance towards Turkey, while Turkey is less hostile and moreover, her actions in December are positive. That can be

reasonably explained by a few words; Turkey “had” to keep a more positive position, if Greece were to withdraw the veto on Turkey’s accession to the European Customs Union. Indeed Turkey’s attitude at that time was guided by her will to join to the European Customs Union. As we are going to see a little bit further down, there were days in November and December when Turkey accused Greece of hostility, but those weren’t able to influence the overall Turkish policy towards Greece which was to try to alter Greece’s permanent position of blocking the road for Turkey to the EU.

While Turkey was trying to join the Customs Union, Greece seized the opportunity to take advantage of her upper hand. The Greek Government raised a few times the issue of democratisation of Turkey and the respect of human rights and criticized the fact that she didn’t fulfil the conditions set by the European Parliament. Moreover, Greece placing Exoset missiles in the Eastern Aegean, led Turkey to charge Greece for the bad climate between the two countries and ask for dialogue through which the two neighbouring countries could pursue solutions to the existing problems. Even when Turkey ordered US Flying Tankers she hastened to ensure Greece that she has nothing to fear from that buy.

There is a rapid change in the two countries’ interactions in January and February 1996. Let us start with January. Until the last week of January things were relatively calm. But what happened in the last days of the month, when the crisis of Imia broke loose, was the cause of interactions of both countries, as is illustrated in figure 3, descending lower than  $-40$ . In the next month, hostility was sustained by both sides of the Aegean and the curb kept on falling and almost reached  $-100$ . It’s a month that starts with the missing bodies of the crew of the Greek military helicopter that crashed early in the morning of January 31. The withdrawal of the Greek and Turkish marine forces

followed a continuum of mutual threats of war, and Turkish territorial claims on Greek islands, islets and rocks. Greek statements of intending to expand Greece's national waters from 6 to 12 nautical miles fuelled up the tension resulting in Turkey's ultimatum that such an action would be considered as a *casus belli*. Hellenic veto against Turkey at the COREPER Council made Turkey release her anger to many directions, even towards the EU, accusing her of treating Greece with the glove.

One last observation on figure 3. While Greece is more aggressive in the first two months, in the last two months we see that Turkey takes the lead by being more aggressive. This can be attributed to the fact that until Greece withdrew the veto against Turkey's accession to the Customs Union, Turkey was restrained by that aim. Subsequently there was nothing to keep her from revealing her hostility.

So far the results of our Greek-Turkish data set seem to follow what we expected. But let us move forward to the analysis of a second figure and then make a more complete evaluation.

The next figure is the result of a day- by- day aggregation of the data set:



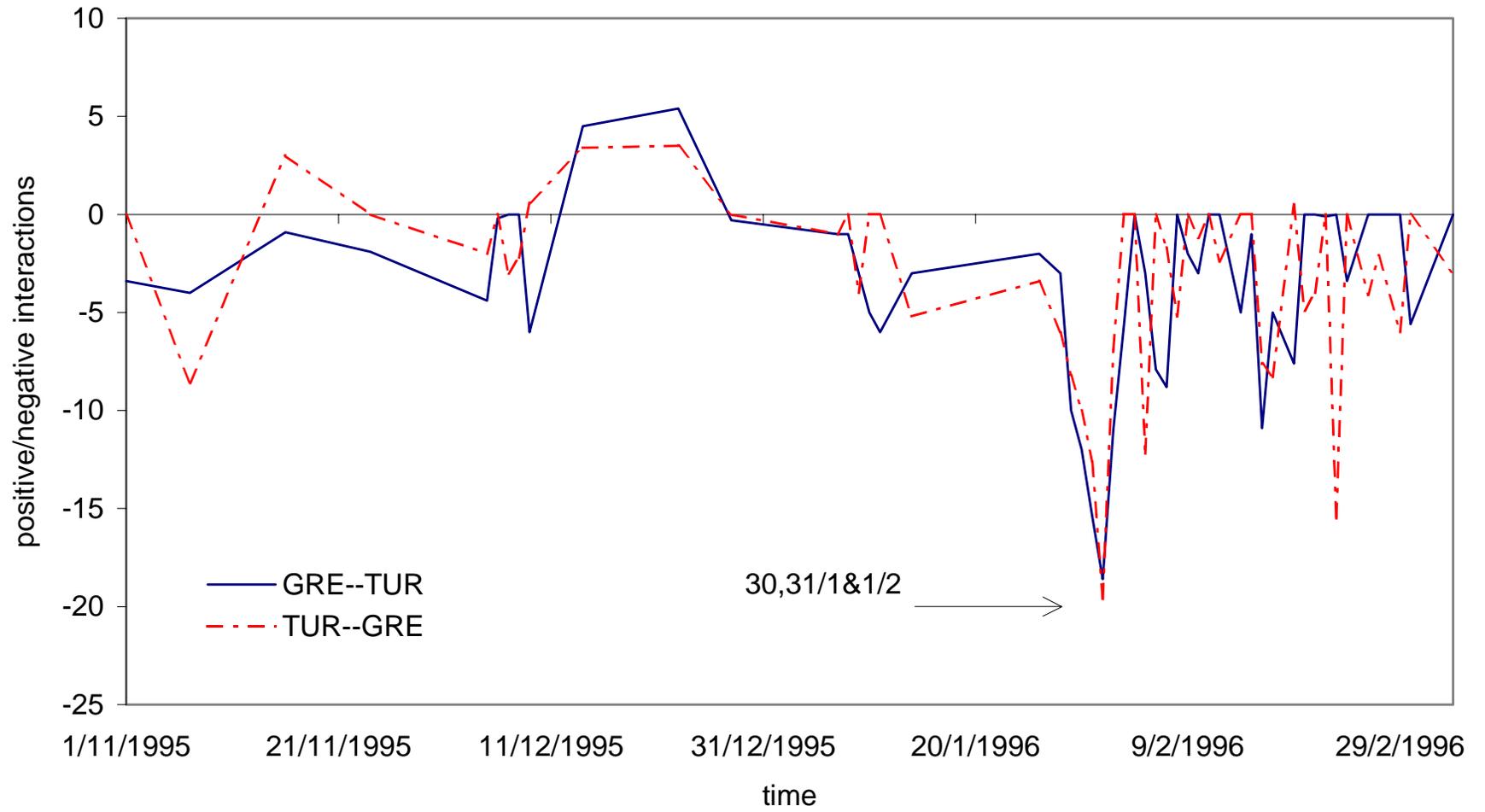


Figure 4. Daily results

The first spike (Greek and Turkish) appears during the days of the highest escalation of the Imia crisis 30, 31/ January & 1/February. On the 30<sup>th</sup> of the month the Greek armed forces were on alert around the Imia Islets after Turkish journalists stepped on one of the Greek Imia Islets, replaced the Greek flag with a Turkish one, and threatened Turkey that any Greek response to Turkish aggressive nationalism would be strong. Late at night on the morning of 30<sup>th</sup> to the 31<sup>st</sup> Turkish commandos landed on the unguarded second Imia islet. Early in the morning a Greek military helicopter that was appointed to locate the Turkish commandos crashed two miles north of the Islets. Although the crisis began to de-escalate late that day, the tension remained acute.

After 3–02–96 and until 20–02–96, we can observe that on the whole Greece is more aggressive and tries to “hit” Turkey at various levels, diplomatic, political, territorial (announcements of intending to expand its national waters), economic (blockage of EU funds). On the one hand Greek hostility is justified by the clear violation of Greek sovereign rights, while Turkey keeps on repeating the need for bilateral dialogue on all issues. On the other hand, Turkey keeps being very provocative by publishing new maps of the Eastern Aegean that challenge the sovereignty over approximately one thousand Greek islands, islets and rocks. On 5-02-96 Turkey brought up the issue of the status of Greek islands, islets and rocks of the Eastern Aegean Sea, which she unilaterally named Grey Areas (that’s the cause of the second Turkish spike of figure 4).

But what made Turkey react so inimically after the 22<sup>th</sup> of the month (3<sup>rd</sup> spike of Tur→Gre curve, Figure 4)? Greece tried and succeeded in revoking special privileges given to Turkey only two months before Turkey entered the European Customs Union.

According to Greek government a country that violates fundamental values of the EU and International Law cannot possibly enjoy privileges that other law-abiding countries do, so Greek foreign Minister Theodoros Pangalos instructed the Greek permanent representation at the EU to block EU funding of Turkey. When the EU decided not to discuss the regulation of financial cooperation between the EU (23-02-96) and Turkey, the latter recalled her Ambassador to Athens and proceeded to harsh statements against the EU and basically against Greece because the decision to cancel the talks was the result of Greece's position at the COREPER meeting, where the Greek permanent representative Pavlos Apostolides raised the issue of EU Turkish financial cooperation and declared that "approval of this regulation (which was foreseen to give the amount of 750 million ECU to Turkey) was not possible when this country had created problems to Greece, an EU member state" and vetoed the economic funding of Turkey. The Turkish Foreign Minister Deniz Baykal went a step further and warned Greece that she would pay the price for the hostility towards his country.

Analysis made for Figures 3 and 4 verified the accuracy of the data set, the outcomes of event data process corresponded closely to historical facts and to that than one would normally expect. There were no unpleasant surprises.

As these graphs illustrate, event data can be used to summarize the overall relationship between two countries over time.

We shall present two more Figures (5,6) that are the outcomes of fortnightly and weekly aggregations, without analysis, in order to avoid the repetition of what has already been said.

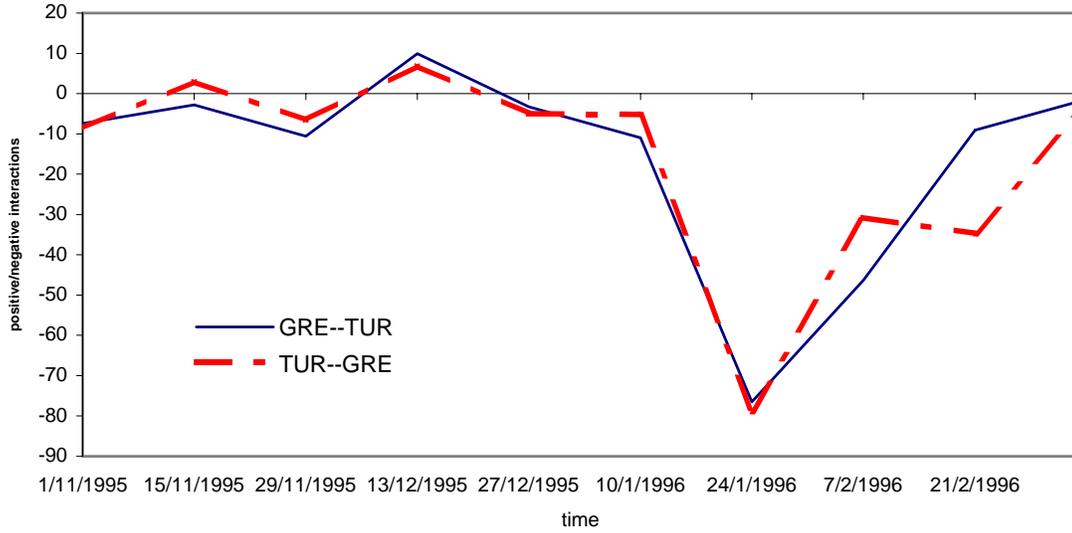


Figure 5. Results per two weeks

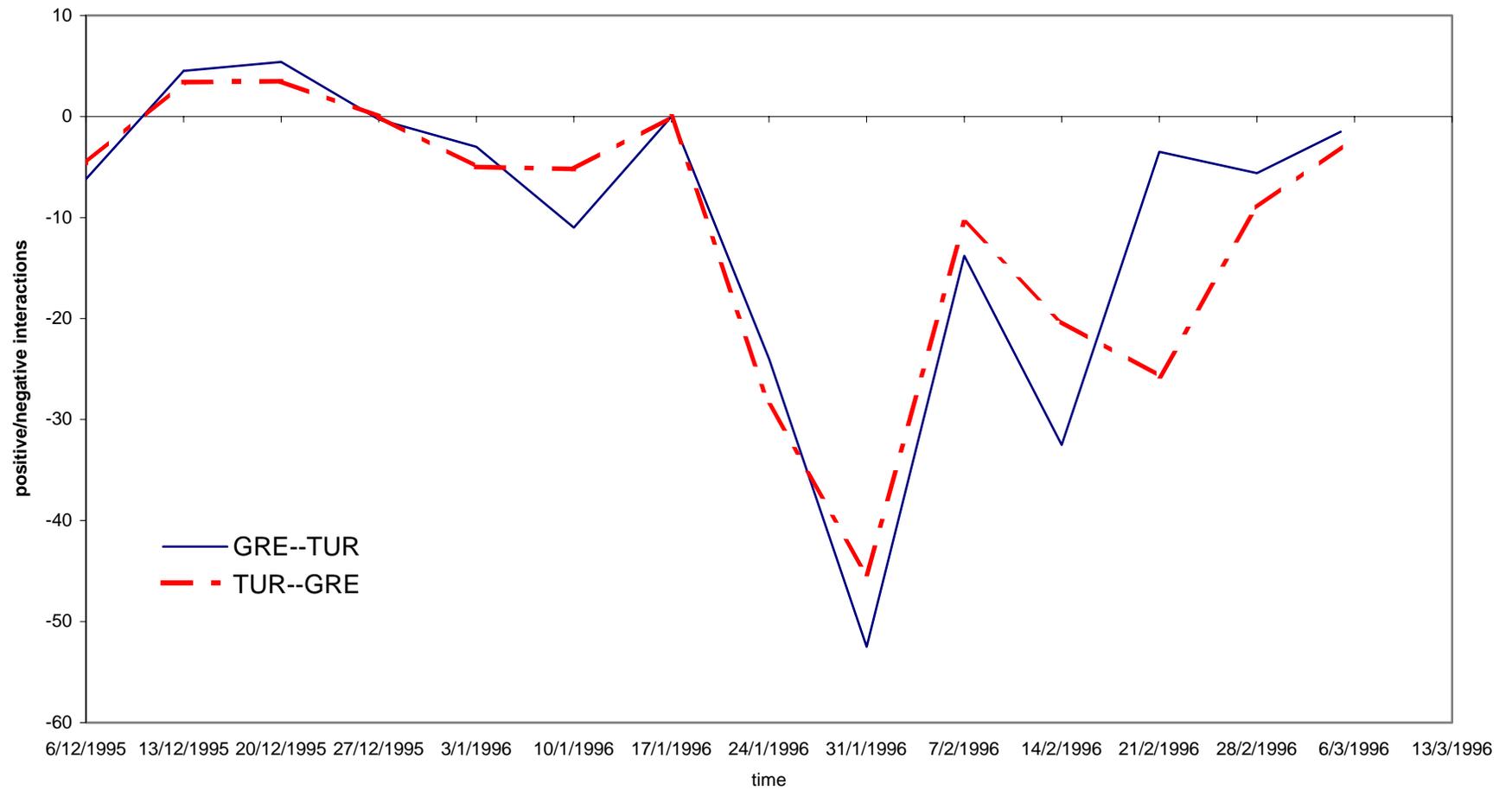


Figure 6. Weekly Results

#### **4. CONCLUSION**

The aim of this project was to make an introduction to event data and the examination of Greek-Turkish interactions, over a short period of time, with the use of event data method. The created data set accurately reported all key events without the occurrence of any contingencies. In all figures (Figures 3, 4, 5, 6) we noted a high level of accuracy compared to what really happened.

Because of the unique characteristics of the Greek-Turkish relations, for example, the importance of third parties such as Cyprus, which always plays a leading role in the configuration of bilateral relations, and EU (a great economic power that directly affects both countries) that has greatly affected Turkish-policy guidelines towards Greece, especially over the last decade, the next step must be the creation of an event data set that would include more actors (Cyprus, EU, USA) and of course the creation of a widely based data set by coding years of data, on the ground that our goal is to be able to forecast conflicts between Greece and Turkey and for that, for being able to make pattern recognitions, we must code a big amount of data.

This project is too small a specimen to allow us to conclude on any patterns of conflictual or cooperational behaviour of these two countries but we provided ample evidence that event data is a valid and accurate method of quantitative political analysis that allows the construction of a close monitoring “mechanism” of Greek-Turkish conflicts.

The rapid improvements in the field of quantitative political analysis through the introduction of automated coding programs and the accessibility to a plethora of news

sources, if coupled with theoretical bases, will prove to be an important supplement to classic qualitative approaches.

## **APPENDIX 1**

KEDS Modified World Event Interaction Survey (WEIS) Events Codes (Goldstein scale values):

010 = YIELD (1.0)

011 = SURRENDER, YIELD TO ORDER etc. (0.6)

012 = RETREAT, EVACUATE (0.6)

013 = RETRACT (2.0)

014 = ACCOMOD, CEASEFIRE (3.0)

015 = CEDE POWER (5.0)

020 = COMMENT (0.0)

021 = DECLINE TO COMMENT (-0.1)

022 = PECIMISTIC COMMENT (-0.4)

023 = NEUTRAL COMMENT (-0.2)

024 = OPTIMIST COMMENT (0.4)

025 = EXPLAIN (FUTURE) POSITION/ EXPLAIN POLICY (0.0)

030 = CONSULT (1.0)

031 = MEET (1.0)

032 = VISIT (1.9)

033 = RECEIVE (2.8)

034 = VOTE, ELECT (1.0)

040 = APPROVE (3.5)

041 = PRAISE, HAIL, APPLAUD, CONDOLENCES (3.4)

042 = ENDORSE, GIVE VERBAL SUPPORT (3.6)

043 = RALLY (3.8)

050 = PROMISE (4.0)

051 = PROMISE POLICY SUPPORT (4.5)

052 = PROMISE MATERIAL SUPPORT (5.2)

053 = PROMISE OTHER SUPPORT (4.5)

054 = ASSURE, REASURE (2.8)

055 = PROMISE RIGHTS (4.5)

060 = GRANT (2.0)

061 = APOLOGIZE, EXPRESS REGRET (1.8)

062 = STATE INVITATION (2.5)

063 = GRANT ASYLUM (-1.1)

064 = GRANT PRIVILEGE (5.4)

065 = TRUCE (2.9)

066 = RELEASE PERSONS/PROPERTIES(1.9)

067 = APPOINT TO GOVERNMENT POSITION (3.5)

070 = REWARD (7.0)

071 = EXTEND ECON AID (7.4)

072 = EXTEND MILLITARY AID (8.3)

073 = GIVE OTHER ASSIST (6.5)

080 = AGREE (6.0)

081 = MAKE AGREEMENT (6.5)

082 = AGREE FUTURE ACT (3.0)

083 = ALLY (6.0)

084 = MERGE, INTEGRATE (10.0)

090 = REQUEST (3.0)

091 = ASK INFORMATION (0.1)

092 = ASK POLICY AID (3.4)

093 = ASK MATERIAL AID (3.4)

094 = CALL FOR (-0.1)

095 = PLEAD (1.2)

096 = REQUEST POLICY CHANGE (-0.3)

097 = REQUEST RIGHTS (-0.3)

100 = PROPOSE (0.5)

101 = OFFER PROPOSAL (1.5)

102 = URGE (-0.1)

110 = REJECT (-4.0)

111 = TURN DOWN (-4.0)

112 = REFUSE (-4.0)

113 = DEFY LAW (-5.0)

114 = ALTER RULES (-2.0)

120 = ACCUSE (-2.0)

121 = CRITICIZE (-2.2)

122 = DENIGRATE, DENOUNCE (-3.4)

123 = INVESTIGATE (-1.0)

130 = PROTEST (-1.9)

131 = MAKE COMPLAINT (-1.9)

132 = FORMAL PROTEST (-2.4)

133 = SYMBOLIC ACT (-1.0)

140 = DENY (-1.0)

141 = DENY ACCUSATION (-0.9)

150 = DEMAND (-4.9)

151 = ISSUE COMMAND (-4.0)

152 = CLAIM RIGHTS (-5.0)

160 = WARN (-3.0)

161 = WARN POLICIES (-3.0)

162 = WARN OF PROBLEM (-3.0)

170 = THREATEN (-6.0)  
171 = UNSPECIFIED THREAT (-4.4)  
172 = NONMIL THREAT (-5.8)  
173 = SPECIF THREAT (-7.0)  
174 = ULTIMATUM (-6.9)

180 = DEMONSTRATE (-6.0)  
181 = NONMIL DEMO (-5.2)  
182 = MILITARY DEMO (-7.6)

190 = REDUCE RELATIONS (-4.0)  
191 = CANCEL EVENT (-2.2)  
192 = CUT ROUTINE ACT (-4.1)  
193 = CUT AID (-5.6)  
194 = HALT NEGOTIATION (-3.8)  
195 = BREAK DIPL RELAT (-7.0)  
196 = STRIKE (-6.0)  
197 = CENSOR (-5.0)  
198 = WITHDRAW FROM (-4.0)

200 = EXPEL (-5.0)  
201 = EXPEL PERSONNEL (-5.0)  
202 = EXPEL GROUP (-4.9)  
203 = BAN ORGANIZATION (-5.0)  
204 = EXPEL FROM GOVT (-5.0)

210 = SEIZE, FINE (-5.0)  
211 = SEIZE POSSESSION (-9.2)  
212 = ARREST PERSON (-9.0)  
213 = KIDNAP, SENTENCE JAIL(-2.5)  
214 = SPY (-5.0)

220 = FORCE (-9.0)

221 = NONINJURY DESTR (-8.3)

222 = NONMILITARY DESTR (-8.7)

223 = MILITARY ENGAGEMENT (-10.0)

224 = RIOT, VIOLENT CLASH (-7.0)

225 = ASSASSINATE TORTURE EXECUTE (-9.0)

226 = COUP ATTEMPTED (-8.0)

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