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Voting in Eurovision: Shared tastes or cultural epidemic?

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Abstract

Apparent vote-exchange ("logrolling") in the Eurovision Song Contest has been variously interpreted as a manifestation of political attitudes within Europe, a reflection of regional tastes in pop music, or a social (memetic) epidemic. This paper provides data supporting the third of these three options, also demonstrating that the cultural contagion has now nearly reached saturation. As well as logrolling, ethnic diasporas and the "semi-final effect" are also shown to influence the result of the contest. Reform of the voting system to produce a contest which better rewards musical excellence, without suppressing the mass participation element, is therefore a complex problem.

Keywords: pop-music, memetics, voting system

Introduction

Something strange has started to happen across Europe every spring. Millions of people tune into two 3-hour television broadcasts featuring a selection of songs that frequently exhibit the utmost disdain for mainstream pop music industry taste, each performed by a representative of a different European country. At the end of both broadcasts, constituting the semi-final and final of the whole event, many thousands of people will vote, using telephone lines which may charge rather more than the standard rate, for the representative of a country different to their own. Their choice, it seems, is often decided in advance, and may bear no relationship whatsoever to the song or its performance. They seem also to be aware of the apparently predetermined votes of people in other countries and may act reciprocally, effectively exchanging a vote with strangers they will probably never meet. Neither side in this informal arrangement has any control over the behaviour of their anonymous counterparts and no guarantee that the others will not defect at the last minute and vote for a completely unexpected country. The cumulative effect is of a giant Prisoner's Dilemma game (Chess, 1988; Poundstone, 1992; Rapoport, Chammah, & Orwant, 1965), played on an international scale with thousands of participants who may not even share a language. The prize for the winning country is the honour of hosting the following year's ritual, at considerable expense to its taxpayers. For the winning performer, the prize may vary from international stardom to immediate career oblivion. There are no prizes, of course, for the voters, but nevertheless something motivates them to do this in increasing numbers each year. For all the participants, meaning the voters as much as the artistes, the whole ritual is of immense importance and, depending on the outcome, a source of great joy, frustration and hilarious fun.

This ritual is, of course, the Eurovision Song Contest (ESC) and, it must immediately be said, the above interpretation is highly disputed. Its origin lies in the thoughts of long-term

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observers of the event, such as the BBC's Terry Wogan, and it has been given a quantitative basis in previous work by the present author (Gatherer, 2004, 2006). In summary, it can be characterised as the view that a substantial proportion of the votes in the ESC are motivated by quasi-political considerations that are unrelated to the music. The American electoral practice known as "logrolling" (Stratmann, 1992) provides a strong analogy in a genuinely political contest. In the US Congress, the lack of ideological distinction between the right-wing of the Democratic Party and the left-wing of the Republican Party, coupled with the absence of firm "whipping", means that there is less rigid party-line voting than is normal in the UK Parliament. Often one group of representatives will only be able to muster a small amount of support for their favourite issue, and may seek to strengthen their hand by obtaining promises of votes from others who may be neutral on the particular issue. These promises are given on the understanding that reciprocation will be granted on future votes. A British equivalent term to "logrolling" might be "mutual back-scratching".

Against this interpretation, it has been suggested that apparent regional bias in voting is a reflection of shared regional tastes in popular music (Fenn, Suleman, Efstathiou, & Johnson, 2006; Ginsburgh, 2005; Ginsburgh & Noury, 2004). One earlier author was of the opinion that both regional tastes and behavioural conventions may operate (Yair, 1995; Yair & Maman, 1996).

This paper attempts to bolster the author's previous arguments against the "shared tastes" viewpoint by demonstrating how the apparent collusive voting patterns have been spreading throughout Europe since the early/mid 1990s, to the extent that there are now only 7 countries out of the 38 regular participants who are not implicated in some statistically significant vote trading. This contrasts with the period 1975-1995, when collusion never involved more than 6 countries out of the 25 or so who participated in that earlier era. Logrolling is, in effect, a cultural epidemic, a *meme* (Dawkins, 1976) that has colonised the behaviour patterns of the ESC audience since the introduction of telephone voting. Dawkins defines a meme as a cultural entity that exploits humans as vehicles for its propagation. Some memes are beneficial to their hosts, for example the knowledge of which poisonous mushrooms to avoid eating, whereas others may be neutral or deleterious, such as playing Russian roulette. The degree to which a meme spreads by virtue of increasing the survival or reproductive potential of its human host is termed *natural selection*, by formal analogy with natural selection in genetic systems (Cavalli-Sforza & Feldman, 1981). The rarity of Russian roulette is probably explicable in this way. For memes that are selectively neutral, such as Eurovision voting (leaving aside the small cost of the phone call), something other than natural selection must be at work, and this process is termed *cultural selection*. Any cultural practice that seems to spread rapidly throughout human populations without any obvious benefit to its hosts, is said to be culturally selected or *contagious*. The field of *viral marketing* has also adopted this analogy with infectious disease to describe deliberate attempts to start novel fast-spreading purchasing behaviours.

As well as collusive voting, this paper will also describe statistically significant one-way voting patterns, here termed *vote donations*. These are often a reflection of ethnic diasporas across Europe.

Methods

The voting in the ESC is by the Borda count system, first devised in the 1770s in France. In the context of the ESC, the Borda system is implemented as follows: each voting country allocates points to 10 other countries on a descending scale of preference; 12 for the favourite, 10 for the second favourite, and then 8-1 descending. This system has been used in the ESC

since 1975, although the contest had previously experimented with various other systems. The only innovations since 1975 have been the gradual introduction of telephone voting since the early 1990s, replacing the former national juries, and the introduction of a two-stage contest since 2004. Prior to 2004, only those countries participating in the final were allowed to vote, but since then it has been the practice to allow all countries to vote in both semi-final and final.

Collusive voting patterns were identified using the following process:

1. Determine the range of years over which the significance threshold is to be calculated. In practice, this is done for sliding 5-year windows (e.g. 1975-1979, 1976-1980 and so on, up to 2002-2006).
2. Determine the significance threshold desired. 5% was used in all cases here, meaning there is a 95% probability that the trends identified are not the products of chance. A more stringent significance threshold could be selected, but then the length of the sliding window needs to be lengthened to provide a larger number of data points. 5-year windows and 5% significance represent a compromise that is sensitive to short-term fluctuations in preferences.
3. For each year within the range, determine which countries were participating and which countries voted for them (these two arrays are the same for all years up to 2003, after which the voting array is larger than the participating array).
4. Based on the number of voting countries, calculate the prior probabilities for each score for each year within the chosen year range. For instance with 37 countries voting, the prior probability of a maximum 12 points from any one country is 1/36 or 2.8% (as countries cannot vote for themselves). However, since each country can cast only 10 votes, the prior probability of receiving no points at all from any one country is 26/36 or 72%. The prior probability of receiving the dreaded *nul points* (a grand total of zero, always pronounced in the French manner) is therefore 0.72^{36}, or around 1/140,000.
5. Having ascertained the prior probabilities, perform a simulation for each year within the range, using the exact countries that participated and voted in that year.
6. For each pair of countries, determine the actual and simulated average scores over the chosen year range, from one country to the other and vice versa. This is a single iteration of the simulation.
7. Repeat the simulation for the chosen number of iterations (10,000 is sufficient), each time adding the simulated average to an array.
8. On completion of the iterations, the 5% significance threshold is the fifth percentile of that array.
9. These thresholds are compared with the actual average points awarded from one country to another over the year range.
10. When one country's vote for another country exceeds the threshold, and the reciprocal also exceeds the threshold, a collusive voting pattern has been identified.

In summary, thousands of simulations are run of the history of the contest, producing a statistical profile of voting behaviour as if votes were allocated at random. The assumption is made, of course, that if voting were on musical quality the eventual pattern would approximate to randomness after a sufficiently long period of time. Unsatisfactory though this may seem, until musical quality can be quantified (possibly a contradiction in terms), it is the best that can be achieved. Real voting behaviour is then averaged over 5-year sliding windows, and these are compared with the theoretical distribution derived from the simulation for the same 5-year period. Statistically significant tendencies for one country to vote for another are

recorded. Where these exist as reciprocal pairs, a Venn diagram can be drawn in which interlinked sets of vote trading pairs (and in a few cases triplet and quadruplets) assemble into voting blocs. Computer code in Perl as well as a pseudocode representation for porting to other languages, are given in Gatherer (2006).

Results

The spread of collusive voting

Each 5-year period, beginning with 1975-1979 and ending with 2002-2006, is analysed as described above. The total number of countries represented in the final bloc Venn diagram (actual diagrams not shown, but available from the author on request) for each period, was counted, and then divided by the number of countries participating in the event in that period. The resulting proportions are then smoothed by a three-period moving average, tabulated in Table 1 and plotted in Figure 1.

Table 1. Proportion of countries involved in at least one significant vote-trading partnership.

year	no.	total	prop.	smooth
1979	2	19	0.105	0.105
1980	2	19	0.105	0.120
1981	3	20	0.150	0.122
1982	2	18	0.111	0.120
1983	2	20	0.100	0.158
1984	5	19	0.263	0.174
1985	3	19	0.158	0.140
1986	0	20	0.000	0.113
1987	4	22	0.182	0.140
1988	5	21	0.238	0.216
1989	5	22	0.227	0.216
1990	4	22	0.182	0.167
1991	2	22	0.091	0.207
1992	8	23	0.348	0.226
1993	6	25	0.240	0.276
1994	6	25	0.240	0.247
1995	6	23	0.261	0.283
1996	8	23	0.348	0.323
1997	9	25	0.360	0.396
1998	12	25	0.480	0.425
1999	10	23	0.435	0.458
2000	11	24	0.458	0.501
2001	14	23	0.609	0.606
2002	18	24	0.750	0.671
2003	17	26	0.654	0.607
2004	15	36	0.417	0.571
2005	25	39	0.641	0.624
2006	31	38	0.816	0.728

In Table 1 for each 5-year period ending in year, the number of logrolling countries (no.), the total number of participants (total), the proportion of logrollers (prop.) and the smoothed 3-point average (smooth) are tabulated.

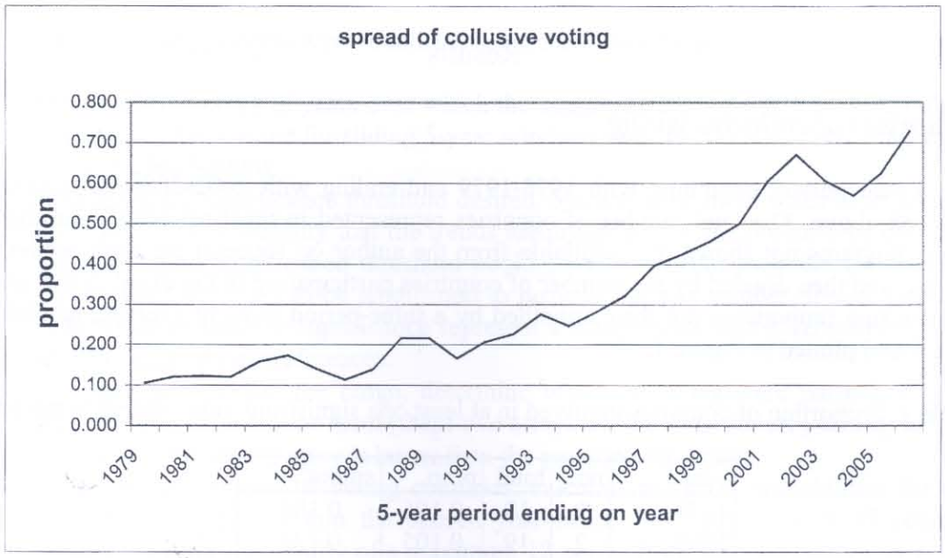

Figure 1. The spread of logrolling voter behaviour, plotted as a three-point moving average of consecutive 5-year periods (data from Table 1).

It is clear from the plot of prevalence of collusive voting (Fig. 1) that the phenomenon is spreading across Europe. A rather slower rate of increase during the 1980s is followed by a strong trend upwards from 1994 onwards. This corresponds to the period when telephone voting began to be introduced, and suggests that the earlier jury system was less prone to such behaviour. It is difficult to explain this trend using the "shared tastes" hypothesis.

The current structure of the blocs

The structure of the blocs in the latest 5-year period, 2002-2006, is shown in Figure 2. This can be compared with the structures for previous 5-year periods (Gatherer, 2006, Figures 1 and 2, http://jasss.soc.surrey.ac.uk/9/2/1.html). Only 7 countries: Malta, Monaco, France, Israel, Switzerland, Portugal and Germany are *not* members of a current bloc. One salient feature that has emerged with the 2006 contest is the appearance of a new bipartite bloc comprising the UK and Ireland. This is one of 3 such small partnerships, the others being Belgium-Netherlands, and Spain-Andorra. The three large blocs continue to dominate, with an expansion in the Warsaw Pact evident. Interestingly, Romania, by virtue of its logrolling relationships with Greece (in the Balkan Bloc) and Moldova and Russia (in the Warsaw Pact) is a hinge between the two blocs. There is a single 4-way cluster (Croatia, Bosnia-Herzegovina, Serbia-Montenegro and FYR Macedonia) at the heart of the Balkan Bloc, and three 3-way clusters (Iceland-Sweden-Norway, Iceland-Sweden-Denmark, Sweden-Norway-Finland) overlapping in the Scandinavian core of the Viking Empire, as well as a Black Sea triplet of Romania-Moldova-Russia within the Warsaw Pact.

Just as the current structure of the Scandinavian core of the Viking Empire revolves around Sweden, the new structure of the Warsaw Pact revolves around Russia, which participates in each collusion within that bloc, with the exception of Ukraine-Poland. The Balkan Bloc has the 4-way former Yugoslav core, each member of which has a further partnership with a different country.

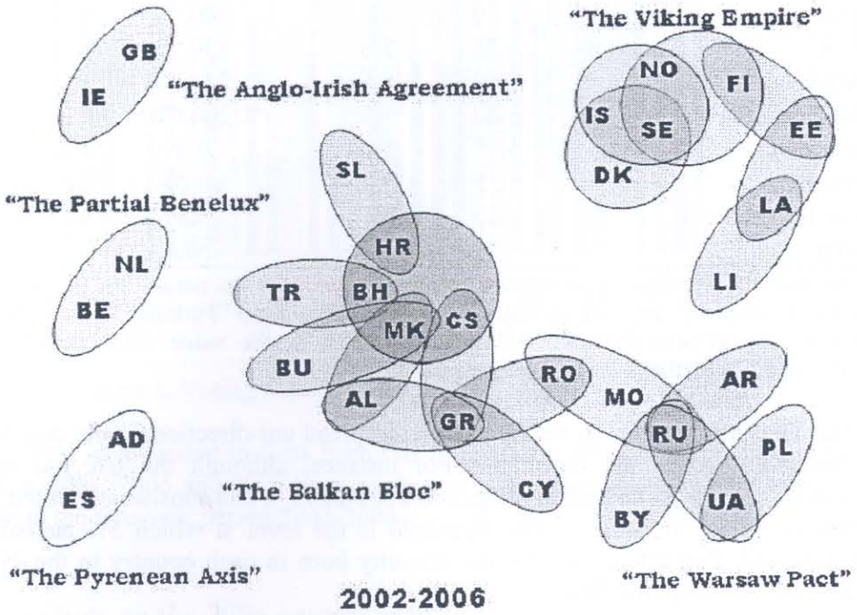

Figure 2. Venn diagram structure of logrolling over the period 2002-2006. GB: United Kingdom, IE: Ireland, NL: Netherlands, BE: Belgium, AD: Andorra, ES: Spain, SL: Slovenia, HR: Croatia, BH, Bosnia-Herzegovina, TR: Turkey, MK: FYR Macedonia, BU: Bulgaria, AL: Albania, CS: Serbia-Montenegro, GR: Greece, CY: Cyprus, RO: Romania, MO: Moldova, RU: Russia, BY: Belarus, AR: Armenia, UA: Ukraine, PL: Poland, LI: Lithuania, LA: Latvia, EE: Estonia, FI: Finland, SE: Sweden, NO: Norway, DK: Denmark, IS: Iceland.

Diasporas and vote donation

Not all statistically significant voting patterns are bi-directional. Turkey only exchanges votes with Bosnia-Herzegovina and is therefore a peripheral member of the Balkan Bloc. However, it regularly receives votes from 11 other countries, as shown in Table 2.

Table 2.The Turkish diaspora vote.

Country	years	average	threshold	Turkish
Germany	5	8.40	4.6	3,000,000
France	5	10.40	4.6	400,000
Netherlands	4	11.75	4.75	350,000
Belgium	5	8.30	4.6	300,000
Austria	4	6.75	5.0	250,000
Romania	5	7.60	4.6	200,000
FYR Macedonia	4	6.00	5.0	200,000
Switzerland	4	5.75	5.0	80,000
Denmark	4	5.25	5.0	70,000
Bosnia-Herzegovina	5	7.60	4.6	N/A
Albania	3	7.50	5.0	N/A

Countries with statistically significantly elevated voting for Turkey over the period 2002-2006. The size of the Turkish minority in each country is given (data from Turkish Weekly News http://www.turkishweekly.net/news.php?id=29895). The threshold is the value above which 5% significance is achieved (see Methods for further explanation).

The Turkish Diaspora appears to be the most widespread uni-directional vote donation phenomenon, but many others are detectable. For instance, although the UK has only consistently *received* votes from Ireland in the period 2002-2006, it has consistently voted *for* several countries as shown in Table 3. The threshold is the level at which 5% statistical significance is achieved. Population data for the minority born in each country in the 1991 and 2001 UK censuses are from the BBC:
http://news.bbc.co.uk/1/shared/spl/hi/uk/05/born_abroad/ countries/html/overview.stm.

Table 3.Significant votes from the UK in period 2002-2006.

Country	years	average	threshold	1991	2001
Ireland	4	9.75	4.75	592,283	494,850
Greece	5	6.2	4.6	14,459	35,007
Sweden	5	4.8	4.6	11,001	22,366
Malta	5	5.1	4.6	N/A	N/A

Aside from the large Irish-born population of the UK, these numbers are small compared to the Turkish diaspora given in Table 3. The rise of the partnership between Great Britain and Ireland can be seen in Figure 3.

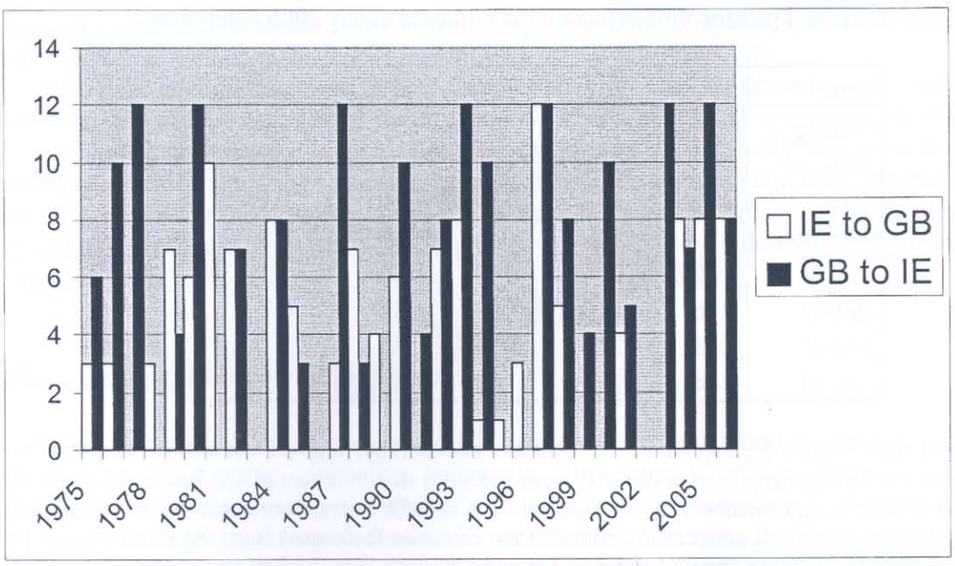

Figure 3. Voting between the UK and Ireland over the period 1975 to 2006.

Net votes have tended to flow from GB to IE, but a series of three 8-point votes from IE to GB in 2004, 2005 and 2006 have made this a significantly collusive partnership for the first time in the five-year period 2002-2006.

The effects on the 2006 contest result

Tables 4 and 5 demonstrate the effect of these patterns on the result of the 2006 contest. The Viking Empire voted an average of 10.3 points to Finland in the semi-final and 11.1 points in the final. By contrast, the Balkan Bloc was less supportive of Bosnia-Herzegovina in the final than it had been in the semi-final, dropping its average score to 9.4 from 10.1. This factor was responsible for Bosnia fading into third place. Russia's jump into second place in the final was aided by a slightly stronger vote from its Warsaw Pact allies, up from 10.5 to 10.7. If each country has its bloc vote subtracted from its total, it can be seen that Finland would still have won. Therefore, unlike in 2003 and 2005, aberrant voting patterns did not affect the eventual outcome of the contest in 2006. Turkey scored over half its points total from the Diaspora, receiving 50 points from these 7 countries (the 11 countries of Table 2 are reduced by removing those that are also in the Balkan Bloc) and only 41 from the remaining 31 countries. As a result of this, Turkey just dropped out of the top 10 in the final and will have to re-qualify via the semi-final next year.

Table 4. The bloc vote effect on the outcome of the 2006 semi-final.

semi	FI	BH	RU	TR	average
Viking	72	43	52	7	10.3
Balkan	76	101	60	37	10.1
Pact	44	48	63	10	10.5
Diaspora	48	50	9	50	8.3
non-V	220	224	165	84	7.3
non-B	216	166	157	54	6.1
non-P	248	219	154	81	5
non-D	244	217	208	41	1.3

FI: Finland, BH: Bosnia-Herzegovina, RU: Russia, TR: Turkey, non-V: votes from countries not members of the Viking Empire, non-B: votes from countries not members of the Balkan Bloc, non-P: votes from countries not members of the Warsaw Pact, non-D: votes from countries not part of the Turkish Diaspora. Each cell contains the votes for the countries (columns) from the Blocs (rows). For instance, the Viking Empire gave 72 votes to Finland and only 7 to Turkey and so on. The average column is the average vote for the cell highlighted in grey in each row. For instance, countries in the Viking Empire gave an average of 10.3 votes each to Finland, and those in the Turkish Diaspora gave an average of 8.3 each to Turkey.

Table 5. The bloc vote effect on the outcome of the 2006 final.
Organised as above in Table 4.

final	FI	BH	RU	TR	average
Viking	78	33	51	0	11.1
Balkan	71	94	73	34	9.4
Pact	44	41	64	6	10.7
Diaspora	53	47	15	53	8.8
non-V	214	215	178	91	7.1
non-B	221	154	156	57	5.7
non-P	248	207	165	85	5.3
non-D	239	201	214	38	1.2

Discussion

Memetic epidemic or shared tastes?

The "shared tastes" theory postulates that the collusive voting behaviour demonstrable in the contest is merely a reflection of regional tastes in pop music. According to this hypothesis the Balkan Bloc represents the area in which the swirling sounds of Balkan folk music find a receptive audience. Likewise, the Viking Empire constitutes the domain of post-Abba Nordic pop. It is true that some countries in these blocs frequently enter songs that reinforce these stereotypes, for instance both the Bosnian and Swedish entries in 2006. However, just as frequently, songs appear to be diametrically opposed to stylistic norms, for instance both the highly-placed Lithuanian entry and the winning Finnish entry in 2006 were completely different to the Swedish one and also to each other. Further investigation of distinctive

regional styles would require effort at producing some kind of stylistic metric for each song, a task that is likely to be difficult and fraught with issues of subjectivity.

However, even if this were possible, and even if it could be demonstrated on that basis that there are consistent regional styles within each bloc, the steady spread of logrolling (Fig. 1) is a strong argument against it. The shared tastes theory can only accommodate such a phenomenon by postulating that regional taste areas are expanding and strengthening. This is too contrived a notion to be plausible. By contrast, the memetic epidemic theory predicts the spread seen in Figure 1 as well as the process by which each bilateral arrangement grows (Gatherer 2004).

The social psychology of logrolling

Certainly, the original organizers of the ESC cannot have anticipated the emergence of such an odd, yet fascinating, collective behaviour. The game known as Prisoner's Dilemma provides a possible model. In Prisoner's Dilemma, each individual is imagined to be a prisoner who can receive a reduction in sentence by betraying a fellow prisoner to the authorities. However, if both prisoners betray, their sentences are lengthened. An example is given in Table 6.

Table 6. A typical Prisoner's Dilemma game rule set for two players A and B.

	A silent	A betrays
B silent	2 years each	4 years for B, A released
B betrays	4 years for A, B released	10 years each

The decision to co-operate or defect depends on the relative lengths of the sentences. Extensive study of Prisoner's Dilemma in the behavioural laboratory, (usually involving financial reward rather than a prison sentence) and in computer simulations has produced an extensive literature on the subject (rev. by Fudenberg & Tirole, 1991). The ESC also requires each country to reach a decision on whether or not to vote for anther, and if so, to what extent. Reciprocal voting enables both countries to acquire points at the expense of the other competitors, but does not give either partner an advantage over the other. Defection on the other hand, which in the context of the ESC would mean a decision not to award an expected vote, would give the defecting country an advantage also over its erstwhile partner. A reciprocal antipathy benefits neither country. Like Prisoner's Dilemma in the behavioural laboratory, co-operative patterns will tend to strengthen the longer the game is played with the same participants. Also, some tit-for-tat situations, typical when co-operative relationships are in their early stages or when a previous strong relationship has broken down, are weakly detectable in the data set (Fenn et al., 2006; Gatherer, 2004).

The structure of the voting system therefore appears to be similar to Prisoner's Dilemma, with a complex scoring system, played iteratively by multiple participants. However, there are also a few disanalogies that need to be taken into account. The first of these is that it is not countries per se that are voting, but rather the individuals within each country whose collective voting is determining the final decision. Therefore, the true players are hidden behind a further voting process. This means that the issue of the rewards and punishments becomes complex, since these are meted out to the country rather than its constituent individuals. A comparison may be made with "The Tragedy of the Commons" (Hardin, 1968), in which individuals must act alone but the rewards and punishments for their actions are bestowed on

their group. Without a guaranteed prize for co-operation to the individual voter, nor any enforceable penalty for defection, it is therefore difficult to decide if the game actually has an objective outcome for the individual, even though it obviously does for the countries of which the individuals are part. The outcome may be subjectively different for each voter depending on whether or not they wish to see their vote contribute to a contest win or high position, or simply as a symbolic gesture. It seems unlikely, therefore, that any game theorist could formalise the voting system in terms of Nash equilibria or Pareto optima as can be done for more structured Prisoner's Dilemma situations.

Leaving this aside for the moment and assuming that countries are effectively agents in the voting process, one might also observe that the smaller pairs of logrolling countries existing outside of large blocs are, ceteris paribus, unlikely to gain very much from a single high score, or lose much from its absence. Conversely, within the larger blocs, it may be difficult to maintain cohesion, as votes are necessarily more thinly spread. The structure of the Warsaw Pact is such that Russia will benefit most, being at the hub of 5 reciprocal relationships, with a potential benefit of 60 "free" points as a consequence. However, Belarus, Armenia and Poland only benefit from a single collusive partnership, and are unlikely to win any future contest on the basis of bloc membership alone. By contrast, the Balkan Bloc exhibits a far greater degree of internal cohesion with several of the former Yugoslav states able to count on at least 40 "free" points from their neighbours.

It therefore seems that the ESC presents a complex challenge to Prisoner's Dilemma theorists. Its relevance to politics is also complex. Although the rapid spread of the collusive voting meme throughout Europe since the early 1990s would seem to show that such behaviour is not a reflection of any well-established cultural preferences, it is interesting that the current blocs do tend to reflect regional identities (blocs existing in earlier years were often more add hoc - see Gatherer, 2006 for some examples). In the European parliament, countries do negotiate as agents for influence within political and economic institutions. However, the decisions made by countries in real politics are determined often by a small number of politicians who, although almost always democratically elected, are not beholden to the wishes of their constituents once they are in power. In effect, the current structure of institutions like the EU is rather more similar to the ESC in the jury-voting era. In both of these cases, a very small number of individuals exercise their personal preferences in the name of their country. Since, in the ESC and under many circumstances in the EU, each country's votes carry equal weight, it has been remarked on occasion that the votes of individuals from smaller countries are proportionally more influential than those from larger ones. However, even in a country with as small an electorate as Andorra, the number of telephone votes will exceed by many orders of magnitude the size of a jury. The current phone-voting system perhaps gives us a glimpse of the kind of ultra-participatory cyber-democracy predicted by some futurologists, in which individuals can directly force their national representatives to vote in certain ways on certain issues. The implication would seem to be that such massively devolved political decision-making would tend to accumulate Prisoner's Dilemma-like alliances.

Familiarity breeds admiration

A further point of interest is the "semi-final effect" (Table 7). Semi-finals have only been conducted since 2004, so there are only 3 data points available and no significant trend can yet be established. Nevertheless, it seems that success in the semi-final provides an advantage in the final. In the 2005 final the top 12 contained 8 that had qualified from the semi stage, and in 2004 it was 6 of the top 9. In 2006, the effect was even more marked, with 8 of the top

10 being qualifiers. The decision of the European Broadcasting Union (EBU) to withhold the precise semi-final scores and positions until after the final in 2006 was probably designed to prevent the final being too predictable on the basis of the semi-final. It seems that familiarity is a factor in influencing voters. A song that has appealed to voters on the Thursday night semi-final is likely to remain a favourite even when new songs, from pre-qualified countries and the "Big Four", are brought in for the final on Saturday.

Table 7. The final top 10 ordering in the 2006 semi-final and final.

semi	final
FI	FI
BH	RU
RU	BH
SE	RO
LI	SE
AR	LI
UA	UA
TR	AR
IE	GR
MK	IE

Countries in the top 10 in both are highlighted in grey. FI: Finland, BH: Bosnia-Herzegovina, RU: Russia, SE: Sweden, LI: Lithuania, AR: Armenia, UA: Ukraine, TR: Turkey, IE: Ireland, MK: FYR Macedonia, GR: Greece, RO: Romania.

Conclusions

This paper advances the debate on logrolling in the ESC by demonstrating that the phenomenon is a behavioural epidemic that has now nearly reached saturation. It is suggested that this system constitutes a new kind of mass Prisoners' Dilemma game with variable and often subjective rewards and penalties, lying outside of the remit of standard Prisoners' Dilemma theory. Manipulation of the system by the organizers to reduce the level of log-rolling might be achieved by further investigation of such unconventional Prisoners Dilemma game variants.

References

Cavalli-Sforza, L. L., & Feldman, M. W. (1981). *Cultural transmission and evolution: A quantitative approach.* Princeton: Princeton University Press.

Chess, D. M. (1988). Simulating the evolution of behavior: the iterated prisoners' dilemma problem. *Complex Systems, 2,* 663-670.

Dawkins, R. (1976). *The selfish gene.* Oxford: Oxford University Press.

Fenn, D., Suleman, O., Efstathiou, J., & Johnson, N. F. (2006). How does Europe make its mind up? Connections, cliques, and compatibility between countries in the

Eurovision Song Contest. *Physica A: Statistical mechanics and its applications, 360*(2), 576-598.

Fudenberg, D., & Tirole, J. (1991). *Game theory*. Cambridge, Mass.: MIT Press.

Gatherer, D. (2004). Birth of a meme: The origin and evolution of collusive voting patterns in the Eurovision Song Contest. *Journal of Memetics - Evolutionary Models of Information Transmission, 8*. Retrieved July 18, 2007, from http://jom-emit.cfpm.org/2004/vol8/gatherer_d_letter.html

Gatherer, D. (2006). Comparison of Eurovision Song Contest simulation with actual results reveals shifting patterns of collusive voting alliances. *Journal of Artificial Societies and Social Simulation, 9*(1). Retrieved July 18, 2007, from http://jasss.soc.surrey.ac.uk/9/2/1.html

Ginsburgh, V. (2005). Languages, genes, and culture. *Journal of Cultural Economics, 29,* 1-17.

Ginsburgh, V., & Noury, A. (2004). Cultural voting. The Eurovision Song Contest (deposited paper). Brussels. Retrieved July 18, 2007, from http://ssrn.com/abstract=884379

Hardin, G. (1968). The tragedy of the commons. *Science, 162,* 1243-1248.

Poundstone, W. (1992). *Prisoner's dilemma*. London: Doubleday.

Rapoport, A., Chammah, A. M., & Orwant, C. J. (1965). *Prisoner's dilemma: A study in conflict and cooperation*. Ann Arbor: University of Michigan Press.

Stratmann, T. (1992). The effects of logrolling on congressional voting. *American Economic Review, 82*(5), 1162-1176.

Yair, G. (1995). 'Unite Unite Europe'. The political and cultural structures of Europe as reflected in the Eurovision Song Contest. *Social Networks, 17,* 147-161.

Yair, G., & Maman, D. (1996). The persistent structure of hegemony in the Eurovision Song Contest. *Acta Sociologica, 39,* 309-325.