The Predictioneer's Game© Basic Software Training Manual

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Getting Started

Welcome to the ***Predictioneer's Game Software***©. The following guidelines will allow you to correctly enter issue-specific data into the program and then interpret the model's results. The quality of the information you provide is critical to the reliability of the analysis, so please follow these directions closely.

The issue analysis Version you are using is for instructional purposes or academic research purposes only.

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A: Constructing a Data Set for Analysis

- **Definition of Issue**

Having selected a topic for analysis the initial step is to identify and define the Issue or Issues that Stakeholders will need to decide to determine what the outcome will be. An issue is any specific policy question for which Stakeholders/players have differing preferences regarding the outcome. The range of preferred outcomes on an issue must be capable of being represented along a single line or continuum. Be sure to define carefully the precise policy question you want to analyze. The right and left ends of each Issue continuum should specify the most extreme outcomes **actually supported** by any interested party. Of course, these extreme outcomes need not refer to a resolution that anybody believes will be achieved, but refer only to the fact that there is at least one stakeholder that currently seems to support such an outcome.

Most Issues fall into three types of Scale:

- Natural scales: For example a dollar amount or a percentage of territory to be agreed in a settlement of a dispute or the purchase of an asset.
- "Beauty Contests": Issues that can be meaningfully structured as a straightforward measure of support or opposition for a Political Entity or Individual (Typically 0 = strongly against, 25 = against, 50 = neutral/undecided, 75 = support, 100 = strong support). More generally, numbers below 50 are increasingly leaning against and numbers above 50 are increasingly leaning in favor.
- Constructed Scales Based on Specific Potential outcomes: Issues such as Healthcare Reform need to be constructed from the specific outcomes that are advocated from one extreme to the other. You should associate labels for the major points on the continuum to reflect a progression on the line from (a) the most radical resolution supported by anyone; to (b) progressively less radical resolutions; to (c) progressively more conservative; to (d) the most conservative resolution supported by anyone (or from most conservative to most radical). In defining the meaning of points along the issue continuum, it is useful to keep in mind that these defined points are part of an assumed continuum. They can represent discrete outcomes in a discrete space but more often the issue is likely to have continuous outcome possibilities. The spacing of defined points should reflect their relative substantive distance from each other. That means that you should avoid just dividing the issue continuum into equally spaced points and defining those without regard to their relative substantive proximity. It is important **that the numerical values assigned to different positions reflect the relative distance or proximity of the different solutions to one another**.

For any type of scale it is useful to identify the location of the status quo on the issue continuum. Not every issue has a status quo, but it is useful to keep a record if it exists. When a status quo position is identified it is important to reflect on how it was chosen and how the issue continuum is defined relative to the location of the status quo. Sometimes the status quo is at one or the other extreme end of the continuum, but this is **uncommon**. More often, when there is a status quo it is located somewhere between the extremes of the issue continuum. Sometimes locating the status quo at one or another extreme could bias the analysis by assuming that no one supports a position farther out than the status quo. That is an uncommon situation. Just because some policy is the status quo does not mean that some interested players would not like to change the policy in one direction or the other.

- **Stakeholder Data**:

The meaning of each variable is explained below. After you master the meaning of the variables you can create the data set and enter it directly into the program. You can download sample datasets from incidepro.com

The following are the first three lines of the data set for the World War I example.

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Group	Name	Influence	Position	Salience	Flexibility	Veto
	AUH	6.8	100	90	5	0
	GMY	20.8	100	80	13	0
	ITA	4.9	100	50	45	0

Column 1 Labeled GROUP. This column needs to be included but is left blank (as in the World War 1 example) unless you have decided to divide Stakeholders into Groups to facilitate collecting the influence data. At the end of this section there is a paragraph on Using Groups to facilitate influence data collection for large data sets (say more than 30 players).

Column 2: Name: The name of each Stakeholder. Names must not contain spaces or commas. It does not matter whether you use all lower case, upper case, or a mix. For instance, if you have a stakeholder named John Doe enter it as JohnDoe. The length of the name does not matter as long as there are no spaces or commas. You can use dashes, apostrophes and so forth.

A stakeholder or player is anyone with both an interest in influencing the outcome and some capacity to influence the outcome on the issue being analyzed. Do not limit the list of players just to those who will ultimately make the decision. There are normally additional players who will weigh in by trying to influence the decision makers. All who try to influence the outcome and have some chance of doing so should be represented in the stakeholder list.

A Stakeholder can be an individual player, an entity that acts as a single player such as a Trade Union or a set of similar individuals provided that their position, salience, and resolve/flexibility score is the same even if their influence value is different.

Column 3: Influence: This column contains data on the relative potential influence of each player. This must be greater than 0. The value assigned to each player in this column reflects the relative ***Potential*** ability of each player to persuade other stakeholders to adjust their approach to the issue to be more in line with the influencer's perspective. ***Potential ability*** is the influence the Stakeholder could exert *if* they tried as hard as possible (the amount of their potential influence they actually use will be determined by the salience variable below).

100: The most potentially persuasive stakeholder on this issue. There can be more than one Stakeholder at this score or at any other score. The value 100 is illustrative and is convenient to use, but the software does not restrict resource estimates to be between 0 and 100, the values can be larger than 100.

The ability to persuade may be derived from holding a position of authority, being an expert, commanding a large budget, or any other factor that makes others listen to someone. Below is a useful way to think about constructing all other player potential influence values relative to the most influential player's score of 100.

Calibrating Player Influence**:**

A stakeholder's influence must be positive and must be evaluated relative to 100 (or the maximum score assigned) and relative to the resource values for other stakeholders. So, two stakeholders with 40 and 60 would equal the one stakeholder at 100 in a head to head contest with no one else involved if each of these three stakeholders tried as hard as they can. A player with influence of 15 and another with influence of 30 would, if they shared a common position, be very close in potential influence to a Player with influence of 40 and probably would just barely persuade the 40 to accept their point of view if there were no other players involved.

The influence scores should not be thought of as percentages. A decision maker with a score of 100 does not have 100 percent of the potential influence and may, in fact, have only a small percentage of the total. The total, of course, is the sum of all of the potential influence across all of the groups or decision makers.

Column 4: Position: The numeric value for the outcome on the issue scale that is currently advocated or supported by each player. The range of values will depend on how you defined the issue. For each stakeholder, the position s/he advocates is not likely to be the outcome the stakeholder expects or is prepared to accept, nor is it likely to be what the player wants in his or her heart of hearts. It is the position the stakeholder favors or advocates within the context of the situation. When a player's position has not been articulated, it is best thought of as the answer to the following mind experiment: If the stakeholder were asked to write down his or her position, without knowing the values being written down by other stakeholders, what would he or she write down as the position he or she advocates on the issue continuum?

Column 5: Salience: The salience each player attaches to the issue. This will be values greater than 0 and less than 100. Salience assesses how focused a stakeholder is on the issue. Its value is best thought of in terms of how prepared the stakeholder is to work on the issue when it comes up rather than some other issue on his or her plate. Would the stakeholder drop everything else to deal with the issue? Would the player work on it on a weekend day, come back from vacation, etc.? The more confidently it can be said that this issue takes priority over other matters in the stakeholder's professional life (or personal life if the issue is about a personal or family matter), the higher the salience value.

90-99: I feel passionate about this Issue.

80-90 This is my most important issue. I would drop whatever I am doing and turn to this issue whenever asked.

70-80: This issue is very important to me. It is certainly one of my most important issues. I would try very hard to reschedule to handle this issue when it arises. Addressing this issue is my job.

50-60: This is one of several important issues. Others are more important. I would have to drop this if one of those others arose, but otherwise I will try to focus on this issue.

30-40: This is an issue I care about, but it is not that important to me. I have many more important issues to deal with and so generally would not drop what I am doing to deal with this and generally would focus on something else.

10-20: This is a minor issue to me. I rarely pay attention or make much effort.

Less than 10: I really don't care about this issue.

Column 6: Flexibility: A measure of a player's resolve or flexibility. It takes values between 0 and 100, including the possibility of a value of 0 or of 100 but normally varies between 0 and 35 as explained below. Every stakeholder is assumed to care about two dimensions when addressing an issue. The position variable, discussed above, assesses the outcome the player currently advocates. Flexibility/Resolve evaluates the stakeholder's preference for reaching an agreement as compared to sticking to his or her preferred position even if it means failing to reach an agreement. The variable theoretically ranges between 0 and 100 but normally falls between 0 and 30 or 35; higher values are unusual except for a third-party mediator who does not care about the outcome, only that there is agreement. Higher values reflect greater flexibility; lower values greater resolve. The meaning of alternative values is illustrated below.

- Players generally have a value on this variable that is 35 or lower.
- A value of 0 means the player declares that s/he is immovable and resolved to stick to the current position. The model recognizes that this may be a bluff or a sincere position and calculates the odds of each as part of its updating process.

NORMAL FLEXIBILITY RANGE:

30-40: **T**he stakeholder is open to significant concessions on the issue dimension in order to improve his or her welfare on the flexibility/resolve dimension.

10-20: The stakeholder is open to making some significant concessions to reach an agreement not too far from his/her current position. Losing is preferred to being a party to a deal that is not close to the stakeholder's preferred position.

Near 0: The stakeholder is almost completely intransigent so that there are very few issue resolutions s/he will agree to and they must be very near the stakeholder's preferred position. The player is highly resolved and prepared to lose rather than offer more than minor concessions.

Column 7: Veto: This column consists of 0s and 1s. A 1 is assigned to any player who has the technical right to veto an otherwise agreed-upon outcome. Do not confuse veto authority with influence. It is possible to have low influence and still have a veto. Lawyers, for instance can have a veto over a negotiated agreement between firms planning a merger even if they are not very influential.

Using Groups to facilitate collecting Influence data

If the number of stakeholders is not large then the influence of a specific player can be compared to all others and there is no need to divide players into Groups. When Stakeholder lists become large then it is often useful to break up the list into groups of players that are easy to compare to one another in terms of their influence even though members of the constructed group may have different views on how the issue should be resolved. For example if modelling an international negotiation between two countries there may be many stakeholders in each country, politicians, civil-servants, business groups etc. Comparing the influence of a civil servant in country A to a politician in country B may not be intuitive. In this situation dividing the players into two country groups can be helpful or, within each country, into several groups, such as politicians, civil-servants, business groups, media, and so forth. Influence is then collected in a three stage process.

- The influence for the Groups, e.g., Country A and B, are ranked against each other (see instructions under the Influence heading above). Illustrated In collecting Group weights box below
- Intra-group Influence: The influence of all players in Country A are ranked against each other (i.e. each country A player is ranked against the most powerful Country A player and relative to all other country A players) to obtain the Intra-Group ranking. A *separate* ranking is made for Country B players.
- Then the group weights are used to convert the intra-group influence numbers to overall Comparative Influence Numbers which are the influence numbers for Column 3 of the data set.

Collecting Group Weights

Group Name	Group Weight	%
Country A	100	56%
Country B	80	44%
Total	**180**	**100%**

Collecting Intra-Group Influence

Group Name	Stakeholder Nam	Title	IntraGroup Influence
Country A	Jane		100
Country A	Bob		80
Country A	George		50
Sum of Influence Scores Within Group Country A =			230
Country B	Francois		80
Country B	Yevette		100
Country B	Henri		50
Country B	Jules		20
Sum of Influence Scores Within Group Country B =			250

Conversion of Intra-Group Influence to Comparative Influence

Group	Stakeholder	Intra Group Influence	Computation	*Comparative Influence*
Country A	Jane	100	(100/230)*100	43
Country A	Bob	80	(80/230)*100	35
Country A	George	50	(50/230)*100	22
Country B	Francois	80	(80/250)*80	26
Country B	Yevette	100	(100/250)*80	32
Country B	Henri	50	(50/250)*80	16
Country B	Jules	20	(20/250)*80	6

You can use as many groups as appropriate for your stakeholder list. Groups should be chosen because the "Influence" of the constituent Stakeholders is easy to compare. It is irrelevant whether they have the same or different positions. The model is unaffected by Group classifications as it uses the resulting Comparative Influence for each stakeholder.

C: Loading and Running Data

Once a data set is built it needs to be saved as a **filename.txt** file (i.e., Text Tab delimited).

Open the Predictioneer's game software and click on **open project.** Go to the .txt file in your computer that you want to analyze and either double click on it or click on it and on open.

After the data are loaded, you will see a new PG screen. It has used the file name as the default Project ID. You can change that to any name you desire or modify it to note changes you have made to the basic data. A second line asks for the Project Name and again defaults to the data set name but you can change that to specify a project for which the data set is just one of several issues you are analyzing.

Next the program asks for the number of bargaining "Rounds". A Round represents an exchange of views/proposals between the players. Depending on the characteristics of the issue you may estimate that a single Round will be quick, for example a day, or for an issue such as a multinational agreement on climate change several months. Enter the number of rounds you want in the adjacent box. The model will run the data for as many rounds (periods in which the players can exchange information, proposals, etc.) as you select. As a month is a typical length for a single round I often set rounds to 24 – two years of analysis – but you must judge how many rounds of information you want (this does not influence the program's estimation of when the game is likely to end). The program's default is 10 rounds.

When the data options have been entered as you desire, then click on the RUN button at the top. You will see a progress bar and the software will report when the run is completed (this happens quickly unless you have more than 100 players or are running a very large number of runs). When the run is completed, click on the "Results" tab. Output 1 should be copied and pasted into the excel output management program tab called output 1. Output 2 should also be copied and pasted into the excel management program in the tab output 2. Now you are ready to interpret the output. See the instructions in the excel program for the details.

After you have run the model, as noted above, you will see that output files have been generated with a name you gave the analysis. The output files are in.csv format (comma separated variables) and, as noted, can be read into the excel output management program we have provided or into many other spreadsheets.

To use the provided Excel Output Interpretation worksheet: Read the instructions on the Initial Sheet labelled "Intro". Then copy Output 1.csv into the Excel sheet labelled Output 1 and Output 2.csv into the excel sheet labelled Output 2.

OUTPUT

The following summarizes the meaning of the different outputs in the csv output sheets. The Labels used in the Output are shown in red font below.

Output Sheet 1:

1. Players Data: The output first echoes the input data, including whatever options you have chosen, so that you have a record of what data were analyzed.
2. Round-by-Round Positions: The first round consists of the positions you entered. Subsequent rounds are the values calculated by the Predictioneer's Game©.
3. Round by Round Forecasts:
   - "Smoothed Mean" takes into account the Round Forecasts for the round and the surrounding rounds. The Smoothed Mean is the most reliable basis for predicting the outcome where the outcome is determined by the consensus rather than by Veto players.
   - "Round Forecast" is the weighted mean value of the positions of all of the players in that round.
   - "Security Forecast" is the weighted median position of all of the players in the round.
   - "Utility Gain": Utility gain for Veto Players. If this will decrease it triggers the end rule.
   - "Utility Gain2": Utility gain for all players. If this will decrease it triggers the end rule.
   - "Veto Min": The position value for the lowest Veto Player
   - "Veto Max": The position value for the highest Veto Player
   - "End-Rule": A "1" indicates players wish to end discussion as their Utility will decline. I judge the game to end in the round in which a 1 appears for the first time in the end-game row of the Forecast matrix but this is not a hard-and-fast rule. You may wish to evaluate the likely forecast in the round or two immediately before and after the end of game rule is met or only when at least 2 end rules have occurred back to back to judge how confident you are in the predicted value. Also, for some games, there is no natural endpoint. For example, if you are modeling a "beauty contest" – that is, how strongly to players favor or oppose a particular question, say how strongly do they support or oppose the policies of the governing regime in X – then although there may be a time when the game seems to end in reality people can continue to modify their views of the regime in question. Here the end rule indicates the period in which, for instance, any public debate on the question might end but still people continue to reassess. You, the analyst, must judge whether the issue requires a decision-point (e.g., passing legislation, negotiating the end to a dispute) or not.

4. Round by Round Summary of Actor Relationships
   The round-by-round summary of actor relationships. The values are percentages. "No Dispute" calculates the percentage of pairs of players who share the same position. "Status Quo" is the percentage of players whose relationship with each other is to leave each other alone. "Compromise" refers to the percentage of player interactions in the round that are predicted to involve their compromising on an intermediate position somewhere between their current stances. "Coerce" refers to the unilateral imposition of costs by one player on another who then gives in rather than resist or to a player who gives in to another in anticipation of the other imposing unacceptable costs if they don't give in. "Clash" refers to relationships in which each player in a pair imposes costs on the other. In the excel output management program you will also be able to

look at the specific relationship between any pair of players or groups of players to get a more nuanced view of the level of tension (coerces+provokes+clash) or negotiation/bargaining taking place between them. You will be able to see which players are not talking to each other; which are trying to talk unsuccessfully; and which are interacting productively.

5. Round by Round Salience
6. Round by Round Influence
7. Round by Round Power: Salience times Influence
8. Resolve (--> 0) or Flexibility (--> 100)
9. Round by Round Costs: The costs, or impact on their influence, that the player incurs in the round

Output Sheet 2: (output2.csv)

1. Equilibrium -Round 1:
   The equilibrium outcome relationship between row player (row moving first) and column player in each round, indicating whether they are clashing, coercing, negotiating, or not talking to each other.

2. Credible Proposals -Round 1
   The equilibrium outcome matrix for a given round is followed by a matrix of "Credible Proposals" by row player toward column player. A proposal is credible if the recipient's (the column player) equilibrium relationship with the row player indicates it will respond to the proposal (e.g., if a player is being coerced it will view the proposal as credible; that is, as worthy of being taken into account in deciding its next course of action) and if the proposed shift in policy position falls within the flexibility tolerance of the column player (unless it is coerced or losing a clash).

The above information is then repeated for all subsequent rounds.

D: Additional Analytic Tools

- Fixed Position Option: If you click on the "Player's Data" tab you can put a 1 in any player or players' cell in the column called "Fixed Position." Doing so will prevent the selected player or players from shifting position throughout the game even if, in the face of pressure or proposals from others, any of them would naturally shift its position. Generally you will not want to do this but sometimes it is interesting to see how the game is altered if a player stands rigidly by its position.