

Personalized Propaganda of the 21st Century:

The use and effectiveness of psychographics in
tailoring the language of
political messages

World Studies Extended Essay:

Psychology & English Language & Literature

Theme: Science, Technology & Society

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Word Count: 3970

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1.0: Introduction

The internet was once seen as a democratizing force. It now seems to be turning into a powerful tool of social control that is being used to manipulate public opinion by influencing individual citizens.

The internet, big data, Artificial Intelligence (AI) and the technological advancements of the digital revolution are changing society in all aspects. Raw data produced by individuals' digital footprint is being collected and analyzed by advanced algorithms to gain insight by modelling trends in a process called 'Big Data Analytics'. This is being done on a scale never seen before and some argue is a threat to democracy (Helbing et al., 2017).

Firms and governments now have access to an immense amount of data on citizens. AI is now able to profile individuals to infer things such as sexual orientation, political leaning, emotional state, and personality to a high degree of accuracy based on an individual's digital footprint. Algorithms with high speeds and high turnover rates process large amounts of data based on user responses. Consequently, the propaganda of the 21st century is individualized, adaptive and designed with behavioral psychology principals. This makes it persuasive and predictive and hence more effective in controlling and changing individual behavior (Anderson and Horvath, 2017).

The OCEAN psychometric model quantifies personality based on a spectrum of 5 traits - Openness, Conscientiousness, Extraversion, Agreeableness & Neuroticism. This model is used to customize political messages to individuals in order to manipulate them and change their behavior more effectively by targeting their personality.

The term 'propaganda' has been replaced by 'a behavioral approach to persuasive communication with quantifiable results.' “

—Tamsin Shaw, Invisible Manipulators of Your Mind

This is a global issue because firms and governments can manipulate public opinion- individually- in a way that they never could before. This paper aims to focus on the trait of neuroticism- core to the element of fear mongering in propaganda- to answer the question:

To what extent does an individual's level of neuroticism - as measured by the OCEAN model- affect their response to a political messages whose language is tailored to appeal to their level of neuroticism?

1.1: Trump, Brexit, Cambridge Analytica & Psychographics

The current context and media coverage regarding this issue is essential for a complete understanding of the relevance of this research. Cambridge Analytica is a data firm that claimed to use a unique data driven approach, called psychographic behavioral micro-targeting to sway the outcome of the US election and Brexit referendum (BBC Newsnight, 2017). According to the CEO, Alexander Nix, they have over 5000 data points on 220 million US voters, and they used this data to tailor almost every message the campaigns sent out. Conventional propaganda targets by demographics and geography. Cambridge Analytica combines conventional voter segmentation with a personality profile in order to tailor messages to individuals. The premise is that personality drives behavior and behavior decides how one votes (Alexander Nix, 2016)

A Vice News article entitled “The Data that Turned the World Upside Down” investigated this technology. Measuring personality was once a tedious process that involved extensive questionnaires until researcher Dr. Kosinski revolutionized the process. In 2012 his team developed a model that took the Facebook ‘Likes’ of 58,000 participants and correlated their personal data in order to develop a model that “correctly discriminates between homosexual and heterosexual men in 88% of cases, African Americans and Caucasian Americans in 95% of cases, and between Democrat and Republican in 85% of cases. For the personality trait “Openness,” prediction accuracy is close to the test–retest accuracy of a standard personality test”, all of this with an average of just 68 likes (Kosinski, M., Stillwell, D. and Graepel, T. , 2013). In a further study, algorithms using ‘Likes’ had to make an assessment of an individual’s personality. The individual was evaluated better by an algorithm than their colleagues with 10 likes, their friends with 70 likes, their spouse and parents with 150 and according to the study with more than 300 likes” could even surpass what a person thought they knew about themselves”. Algorithms outperform the individuals’ assessment of themselves when it came to predictions about life outcomes on issues like substance abuse, physical health, political attitudes etc. (Youyou, W. , Kosinski, M. and Stillwell, D. 2015).

This model was replicated by Cambridge Analytica to send out political messages - the most nefarious of which were the “dark posts” on Facebook. These posts are highly individualised messages that show up in Facebook users feeds and are invisible to all others - including any regulatory commissions. The article claims that “using personality targeting, Facebook posts can attract up to 63 percent more clicks and 1,400 more conversions.” This is “The Data that Turned the World Upside Down” (Grasegger, H. and Krogerus, M., 2017).

Another element in this discussion is bots. Automated pieces of code that act as social media users to purport fake news, retweet graphics and essentially play the role of political trolls. Combined with the psychographics this became a powerful, precise propaganda machine of the 21st century. The Oxford Internet Institute tracked the use of these bots in the US 2016 election and found that they played a role in swaying the election (Woolley, S. and Howard, P., 2017). Combined with a network of amplifiers who were psychographically targeted, the spread of fake news was inevitable.

In the wake of these articles, The MIT technology review published an article entitled *The Right Wing Propaganda Machine May Not be as Smart as You Think*. This argued that the idea of blaming manipulative uses of big data and psychological profiling for Brexit and Trump “is certainly an attractive proposition”. However, Yale political scientist Huber says “in terms of a valid, unbiased, randomized assessment of its effectiveness, I don’t think we know much at all” (Talbot, 2016). When Dr. Kosinski - pioneer of the nexus between big data and psychology - was asked if Big Data swayed the US elections, he responded by saying "Obviously, it is not big data analytics that wins the election. Candidates do. We don't know how much his victory was helped by big data analytics" (Bershidsky, 2016).

These technologies can be applied to any local issue or campaign. In fact, the primary research that has underpinned these technologies have been in consumer behaviour and marketing studies. This is a highly relevant topic of global significance and fits under the broader theme of how society needs to adapt by way of campaign regulations and data/online privacy laws at a fast pace in order to keep up with technological advancements of the 21st century.

1.2: Interdisciplinary Approach: Psychology & English Language and Literature

Propaganda, particularly in Facebook ads is an interaction between a user and the language.

An interdisciplinary approach of Psychology and English Language and Literature – specifically the *Language* aspect- is crucial to answer the research question. These subject disciplines are innately linked to one another when it comes to political messages.

Language as a *Way of Knowing* has an immense influence on the human psyche. *Language and mass communication* and the *language of persuasion* are integral parts of the IB course.

The personality profiling aspect provides the creators with information, but it is fundamentally how that information is used to guide the language and whether that even matters, which requires an interdisciplinary approach. The creativity and understanding of language use and effects comes from the Language and Literature course that must be combined with the scientific approach and tools of Psychology to empirically study this fascinating phenomena.

2.0: Literature Review

Relevant literature reviewed below formed the basis to the interdisciplinary investigation of the affect of individual's level of neuroticism and their response to a tailored message.

2.1: Quantifying Neuroticism - OCEAN Model

The OCEAN model is a psychometric model that quantifies personality. Although widely used, it is criticized for being reductionist by quantifying personality on only five dimensions and ignoring the interaction between traits that holistically make up a personality. This an is empirical model that is based on clustering traits together hence does not look to explain the reasons behind personality but merely to quantify it (Boundless Psychology, 2017).

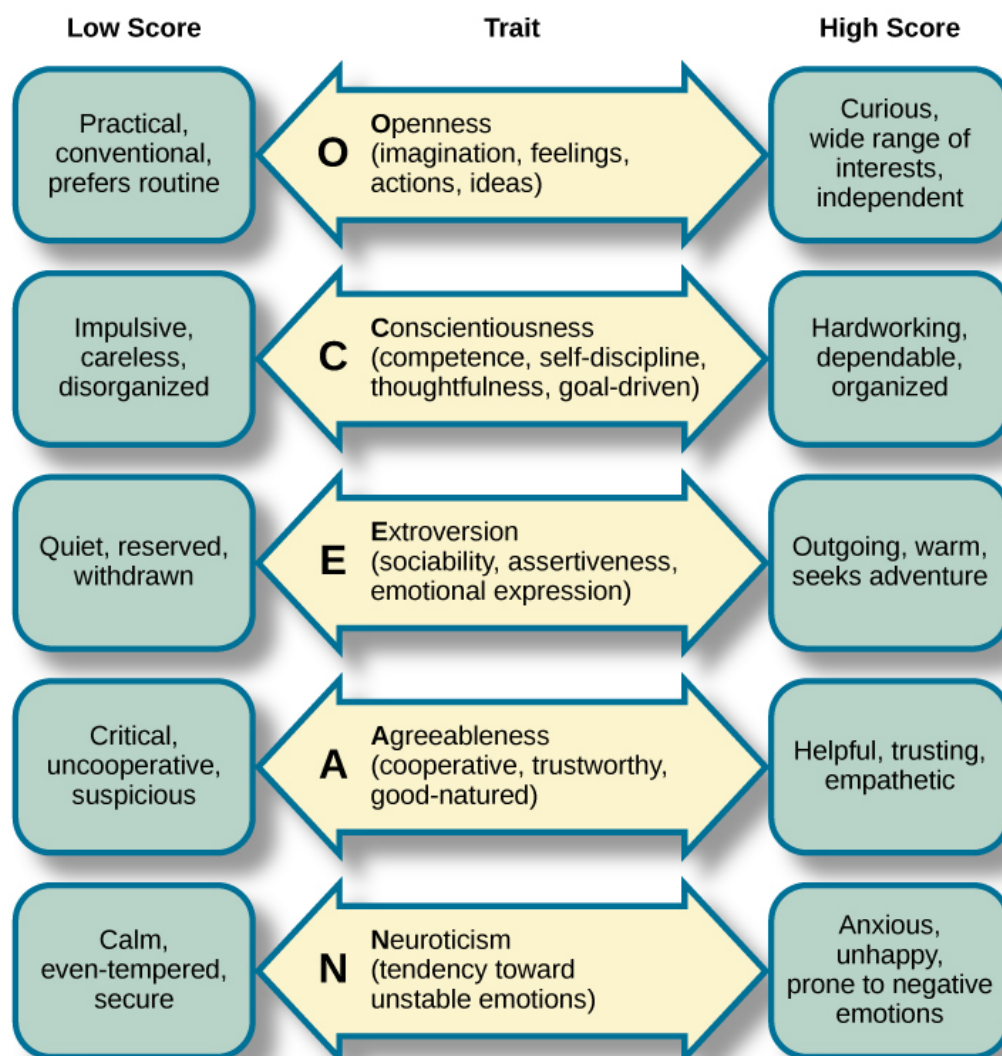


Fig. 1: OCEAN Diagram – (Boundless Psychology, 2017)

“Neuroticism is a unique dimensional measure of personality thought to capture emotional stability and a temperamental sensitivity to negative stimuli” - Encyclopedia of Stress (Second Edition), 2007.

Individuals who score high are more prone to emotional distress and have an overactive sympathetic nervous system. Inability to accurately respond to environmental stressors mean that neurotic individuals are known to get caught up in negative thinking. Highly neurotic individuals are prone to amygdala hijack (fight-or-flight response) while individuals with low levels of neuroticism require more stimulation for the amygdala hijack. The pre-frontal cortex is associated with higher reasoning skills such as planning, solving complex problems etc., but when the fight or flight response is triggered the pre-frontal cortex is disengaged and rational thinking no longer takes place (Steward MD., 2015). This suggests that neurotic individuals are particularly vulnerable to propaganda that appeals to the emotion of fear.

2.2: Persuasion & Personality

Hirsh et al. conducted the first comprehensive study linking all five personality traits to tailored slogans all attempting to sell the participants the 'XPhone.' 324 individuals were profiled using the *Big Five* and then presented with five slogans - each meant to appeal to a corresponding trait. For extroverts the slogan was: “with the XPhone, you’ll always be where the excitement is” for neuroticism it was “stay safe and secure with the XPhone.” Participants had to rate the advertisements on a Likert scale in terms of how appealing the message was and the results were regressed and correlated to the individual’s trait. The researchers found a positive correlation between the trait and the participant’s response to the tailored messages. However, in the study researchers state that “the results suggest that advertisements targeting neuroticism may have somewhat less specific effects than advertisements targeting the other Big Five dimensions.” This is because the correlation was lowest for this personality trait (Hirsh, Kang and Bodenhausen, 2012). However, this seems to be because the language used was ineffective and not realistic, particularly to appeal to neurotic individuals. The slogan made a superficial appeal. A phone is not a product where safety is a major concern. There was no direct appeal to emotion.

2.3: Schema Matching

Schemas are mental representations of the world around us and individuals use schemas to process information. Knowledge of one's own personality traits can significantly affect the way individuals process information (Baumeister, 1998). Self schemas are representations of ourselves. These affect the brands and messages we find appealing. Messages or products which match individuals self schema are more positively correlated than mismatched messages (Cacioppo, Petty, and Sidera, 1982). Even when the argument quality was lower messages which matched personal schemas were found to be more persuasive (Wheeler, S & Petty, Richard & Bizer, George. 2005). In another study on abortion arguments, arguments which appealed to a specific self schema i.e religious, legalistic etc. were found to be more effective wherein religious messages appealed to the religious people and legalistic messages to the legalistic people. Products with a brand that appeals to a certain self schema are more likely to be viewed favourably by the consumer: i.e rugged brands for consumers who see themselves as rugged) (Aaker, 1999).

2.4: Language

Language is a tool of persuasion. Ethos, pathos, logos are the fundamental ways to make an appeal to morality/ethics, emotions, and logic respectively. Psychographics help the propagandist to decide how to best make the appeal and the language to use. Often these appeals are fallacious and take advantage of emotion.

With regard to neurotic individuals the message should be emotive. Use of strong modalities (must, ought to), intensifiers (very) along with emotive words (loaded language) have been shown to elicit greater emotion from the audience. With each word comes a mental representation. Emotive language used in arguments are persuasive in convincing individuals to make value judgments as they create a strong emotional distortion of reality (Gilbert, 2014).

2.5: Similar research

Using the Big Five for customized advertising on Facebook

Matz et al. used the same tools as Cambridge Analytica to profile individuals on Facebook to see if users would be more likely to engage with advertisements that corresponded to their personality trait of extroversion. With a sample of 6,433,120, the experiment allowed for these ads to appear in the participant's Facebook feed where the click-through-rate (CTR) and return-on-investment (ROI) was measured. Graphic designers made five ads for both introverted and extroverted based on a general description of the personality type. All the ads were promoting the same online beauty retailer. They found that tailoring a message to a consumer led to an increase in the ROI for digital advertisements. The ROI was higher for introverted ads aimed at introverted individuals as opposed to extroverted ads aimed at introverts and vice – versa. (Matz et al., 2015)

3.0: Methodology

3.1: Overview

Data was collected through an online survey to correlate the individuals level of Neuroticism to their rating of a political message that is framed and uses language that either appeals to a highly neurotic individual (High Level) or a low level neurotic individual (Low Level).

Participants were asked to rate two messages put forth by two candidates on the same issue. The rating was on a slider and assigned a numerical rating of the appeal of each message (Fig.2). The candidates take the same stance on the issue but use language and rhetoric differently. The issues will be based on relevant, local politics.

3.2: Variables

Independent Variable	Dependent Variable	Control Variables
Language/phrasing of political message	Rating by participant on slider - 0: Message B = Very Appealing 50: Ambivalent (A=B) 100: Message A = Very Appealing	1 - Stance of message based on the local issues 2 - Questionnaire (instructions/layout etc.)

Fig. 2: Explanatory Diagram- Slider

Issue 1: Stray Dogs

Candidate A- "Why wait until that crazed red-eye rabid dog attacks you or your children? They are a danger to us and to our loved ones. Stray dogs need to be cleared off our street now. PMC must act"

Candidate B- "Stray dogs are a menace. It is barbaric we tolerate such unsanitary practices. PMC should make sure stray dogs are cleared off our street."

*PMC- Pune Municipal Corporation

** Note: You must click on the circle to make a selection on the slider below

4. Rate the message of each candidate against each other- Which do you find more appealing?



Prev

Next

3.3: Operationalizing: Messages

Based on the literature review the variable of 'language' was operationalized through a direct appeal to either pathos (emotion) or logos (logic). The 'High Level' message appealed to the underlying motivation of a neurotic individual - the pursuit of safety and security. The premise is that emotionally reactive individuals will find that more appealing. For a 'Low Level' the message was tailored to individuals by appealing to their sense of logic with language that is clear and literal - non emotive language.

In order to measure appeal, respondents were asked to rate the messages against each other on a slider. In order to quantify appeal each extreme of the scale has the prompt on the right, *Candidate A- Very appealing* (100) and on the left *Candidate B- Very appealing* (0). In the middle *Ambivalent* (50)- this was the default position (Fig. 2)

3.4: Operationalizing: Personality

Neuroticism was measured by the OCEAN psychometric based on the 20 questions that focused on Neuroticism (Goldberg, L. R. , 1999). The scale used had a Cronbach's alpha coefficient of 0.91, an excellent level of internal reliability. Questions were positively and negatively keyed and numerical values assigned to each response. (IPIP.org., 2017). These questions were presented in a matrix form where each statement had one of five responses (Fig.3).

Fig. 3: Explanatory Diagram- Personality

7. Respond to each statement

	Very Inaccurate	Moderately Inaccurate	Neither Inaccurate nor Accurate	Moderately Accurate	Very Accurate
Often feel blue	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dislike myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Am often down in the dumps.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have frequent mood swings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3.5: Issues & Messages

1. Stray dogs on the street in Pune
2. Road safety during monsoon in Pune
3. Rohingya refugees in Pune

Classification	Issue	Political Message
Low Level	1	Stray dogs are a menace. It is pathetic we tolerate such unsanitary practices. PMC should make sure stray dogs are cleared off our street.
High Level	1	Why wait until that crazed red-eye rabid dog attacks you or your children? They are a danger to us and to our loved ones. Stray dogs need to be cleared off our street now. PMC must act
Low Level	2	Potholes are a sign of how weak our infrastructure is. Pune's roads are infamous around the world for their poor quality. We should do something about it
High Level	2	Potholes are death traps during the monsoon. They are invisible killers and we don't know who they will get next. It could be you.
Low Level	3	We can't let the minority Bangladeshi Rohingya into the country. We can hardly feed our own. We cannot just open our borders to anyone and everyone when we simply do not have the resources to do so.
High Level	3	We must not let unpredictable Muslim Rohingya into our nation. They could be terrorist and we have no way of knowing. They are a blood thirsty people that have left a wake of death in their path. We must not open our borders for our own safety and the safety of the nation

3.6: Sample

The sample consisted of 91 respondents who are residents of Pune, India. Since the aim is to investigate political messages relating to election campaigns the sample consisted of individuals above 18. Due to the complex English used, a high level of proficiency in English was required. The criterion was a minimum of 5 years of reading and writing English. The intention was to get a representative sample of the population of Pune. The tables below show the sample is quite evenly spread across age but has significantly more females than males. English proficiency is very high with 84 out of 91 respondents' having more than 15 years of experience writing and reading English.

Fig. 4: Sample- Sex

ANSWER CHOICES	RESPONSES
Female	68.13% 62
Male	31.87% 29
TOTAL	91

Fig. 5: Sample- Age

ANSWER CHOICES	RESPONSES
18 to 24	20.88% 19
25 to 34	17.58% 16
35 to 44	20.88% 19
45 to 54	26.37% 24
55+	14.29% 13
TOTAL	91

Fig. 6: English Proficiency

ANSWER CHOICES	RESPONSES
At least 5 years but less than 10 years	3.30% 3
At least 10 years but less than 15 years	4.40% 4
More than 15 years	92.31% 84
TOTAL	91

3.7: Survey Design

Clear language was used when detailing instructions in order to prevent the instructions biasing the answers of the respondents in any way. In order to eliminate any biases, the numerical rating is hidden from the respondents where they only have a slider in between the two messages. Order effects may influence relating to the first piece of information so the order of presentation for candidate A & B was swapped from question to question. Furthermore, research on Schema Matching suggests that the personality questions themselves may influence the individual's responses to the messages. Hence, personality questions were on a separate page after the questions regarding the issues (Appendix 9.1).

3.8: Ethical Procedure

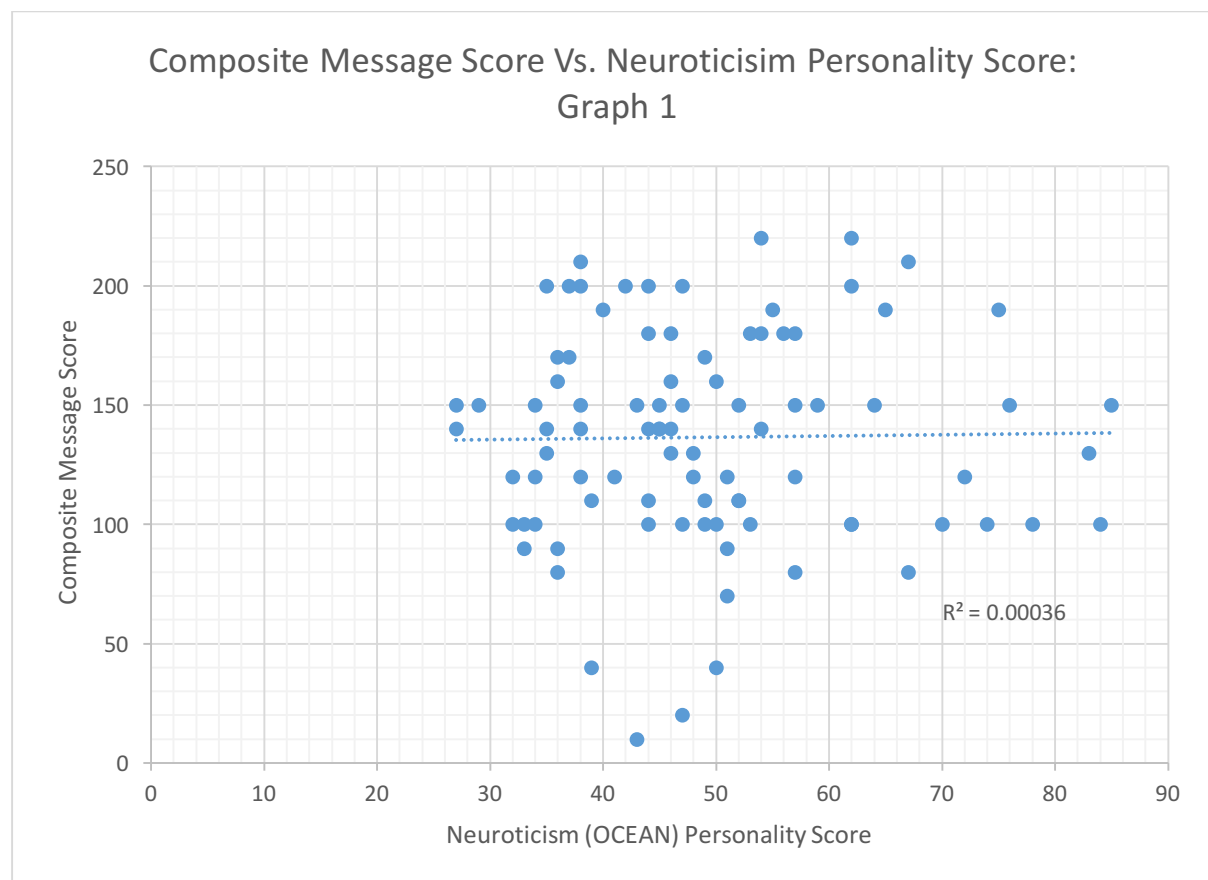
In order to ensure ethical data collection, no identifying information of the respondents was collected. Sufficient information was provided before-hand and Informed consent was taken before the experiment. All respondents were above the age of 18, and were informed of their right to withdraw at any stage of the survey. There was an exit option present on all pages. Furthermore, respondents were debriefed fully post data collection and given the option to be informed of the results post data collection if they wish to do so. At the end, respondents were asked once again for their consent and if they ticked 'No' their data was omitted. 2 out of 93 respondents selected this option and their responses were deleted and excluded from the study.

4.0: Results and Discussion

91 respondent's raw data were processed (Appendix 9.3). Each response to an issue was given a numerical quantity from 0-100 in discrete steps of 10. Personality was quantified based on the OCEAN model with a score of 1-5 assigned to each of the 20 questions aimed at quantifying individuals on the trait of Neuroticism.

The graph below shows the composite score of the messages which is made up of each individual rating of the issue each issue. *Maximum Composite Message Score* = Issue 1 + Issue 2 + Issue 3 = 300

The graph below plots composite message score against neuroticism as quantified by the model. The significant scatter and calculated Pearson correlation co-efficient of 0.0188 (Appendix 7.2) shows that there is no significant correlation between the variables.



In *Graph 2* data was ordered and grouped in personality brackets of 31-40, 41-50, 51-60, 71-80. This was done in order to aggregate personality to analyze mean composite responses for the respective bracket. The extremes deviate from the trend set by the personality points from 41-70. However, this could be due to a participant not paying close attention to the questions. The lowest score on emotional reactivity (27) when normed against the myPersonality data base of over 6,000,000 responses was put in the bottom 12% and the highest (83) placed in the top 90% (University of Cambridge - The Psychometric Centre, 2017). These represent extremes on the scale. It is a possibility that they had bias in answering the matrix hence skewed the data response. However, this data method has unequal number of readings for each bracket.

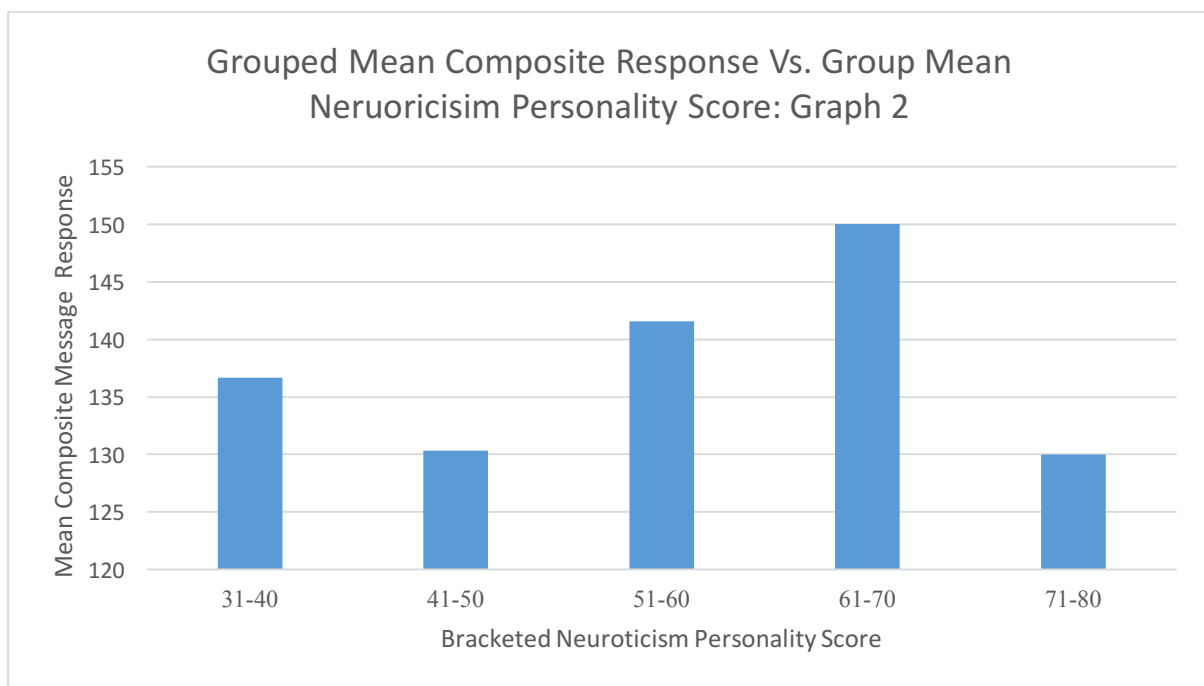


Table 1 used percentile bracketing. Each quartile's mean composite message response is against the next to the average response. This table is a better measure than *Graph 2* as the same number of data points go into each quartile. This table shows no correlation.

Quartile	Mean Composite Message Response
25%	140.45
50%	138.26
75%	142.17
100%	142.50

Table 1: Quartiles

5.0: Evaluation

An online survey was selected since it logistically enabled the researcher to get a larger sample. With this platform however there was a loss of control over how seriously the respondent filled in the survey since this survey was not done in a controlled environment with the researcher present. The trade-off was necessary in order to come to a meaningful conclusion due to the nature of the human sciences and particularly this topic since in studies like these it is typical to have much larger samples. Generally, when data is aggregated, trends emerge. In this case, there were not enough respondents to mitigate other variables. In future studies, a larger sample size must be taken of 1000+ respondents.

The experiment design was meant to replicate the conditions of a data driven political messaging campaign. The use of local issues made the survey more ecologically valid, but unlike the research conducted by Metz et al., the messages were presented in an artificial setting and the question asked respondents to rate messages against each other – an awkward demand because it required respondents to take an imaginative leap. They needed to “imagine these are messages in a local election presented by two different candidates.” This effort combined with personality questions led to many respondents starting but not finishing the survey, and possibly resulting in rushed bubbling at the end which skewed their personality results.

The use of the large matrix facilitated the bubbling bias in measuring personality. The way the questions were presented in a large matrix made it easy for participants to select randomly for the sake of ease. This flaw does not exist in traditional psychometric tests which present questions, one at a time. This survey used the 20-item scale and in hindsight should have used the 10 item scale because the 20 item scale led people to rushed responses and also confused people in the end.

There were only three issues that were measured. A greater number would mitigate any effect of any single rating on the Composite Message Score. Personality is not the dominating cause for one’s political stance. It is an underlying influence. This research question would have been better studied with more issues. More issues would have teased apart the variables better and could possibly have shown stronger correlation.

In this study there seemed to be no influence of the language on appeal. The results of this study lack generalizability due to the small sample, uneven gender spread and focus on Pune, and there exist methodological flaws that must be considered for future research.

6.0: Conclusion

To what extent does an individual's level of neuroticism - as measured by the OCEAN model- affect their response to a political messages whose language is tailored to appeal to their level of neuroticism?

Based on this empirical study there seems to be an insignificant affect of neuroticism - as measured by the OCEAN model - on the response to tailored messages. *Graph 2* suggests that in aggregate there might exist a trend of positive correlation but it would require a larger sample to statistically justify. However, in this data collection, the significant scatter and statistically insignificant correlation in *Graph 1* combined with the quartiles *Table 1* lead to an inconclusive understanding of how personality affects response to tailored political messages.

7.0: Real World & Extension

The study was reductionist in the context of a real election and the method was too limited to show correlation. This however, does not mean that governments and firms collecting and analyzing personal data to better persuade individuals is ethical. These practices which take advantage of laziness, ignorance - or a combination of both - undermine democracy and need to be regulated. There is an utter lack of academic research in this field and while it requires an interdisciplinary approach which leads to complexity- from that complexity greater understanding will come. The academic community should continue to stay ahead of the private sector in order to inform citizens and public policy. Creativity is required to study these intersecting fields as knowledge is not compartmentalized in their subject disciplines. The 21st century brings with it new technology and we must not let that technology become a tool of influence and control of modern society as we know it.

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9.0: Appendices

9.1: Survey

[Exit](#)

World Studies: Data Collection

Political Messaging & Persuasion

Thank you for agreeing to take part in this data collection relating to World Studies. This data collection is related to political messaging (slogans) and appeal. Questions will be asked about your preference of one message over another and general questions about your personality. Points to note:

- The survey will take 5-7 minutes to complete
- You - at any moment during the survey - have the right to withdraw and withhold your data post data collection
- Your data will be used but kept completely anonymous- **your email and name will not be asked or recorded.**
- By agreeing to take this survey you promise to fill in all answers **as honestly as you can in order to protect the integrity of this research**
- I affirm that:
 1. I have been speaking English for at least 5 years
 2. I am a resident of Pune above the age of 18

Please continue to the next section if you have understood the points and give your consent.

1. What is your age?

- ☐ 18 to 24
- ☐ 25 to 34
- ☐ 35 to 44
- ☐ 45 to 54
- ☐ 55+

2. How many years have you spoken & written English?

- ☐ At least 5 years but less than 10 years
- ☐ At least 10 years but less than 15 years
- ☐ More than 15 years

3. What is your sex?

- ☐ Female
- ☐ Male

[Next](#)

World Studies- Political Messaging

In this situation, there are two candidates in a fake local election- Candidate A & Candidate B. Each candidate will have one message on each of the three local issues.

1. Stray dogs
2. Road Safety
3. Rohingya Muslims

There will be a slider with scores in-between the two messages. The center position means you are ambivalent- there is no difference between the two messages. As you move left or right each step reflects a more positive appeal to the specific message. The ends mean you find the message 'Very Appealing'. You are the best judge of where to place the slider to best reflect your response. Mid-range on either left or right = 'Appealing'

Please try to do this as critically as you can. Please read carefully and when rating and reading the messages carefully note if it is for candidate **A or B**

Consider how you would personally react if these messages sent to you in a real local election.

Prev

Next

Issue 1: Stray Dogs

Candidate A- "Why wait until that crazed red-eye rabid dog attacks you or your children? They are a danger to us and to our loved ones. Stray dogs need to be cleared off our street now. PMC must act"

Candidate B- "Stray dogs are a menace. It is barbaric we tolerate such unsanitary practices. PMC should make sure stray dogs are cleared off our street."

*PMC- Pune Municipal Corporation

** Note: You must click on the circle to make a selection on the slider below

4. Rate the message of each candidate against each other- Which do you find more appealing?



Prev

Next

Issue 2: Road Safety

Candidate B- "Potholes are a sign of how weak our infrastructure is. Pune's roads are infamous around for their poor quality. We should do something about it"

Candidate A- "Potholes are death traps during the monsoon in Pune. They are invisible killers and we don't know who they will get next. It could be you."

** Note: You must click on the circle to make a selection on the slider below

5. Rate the message of each candidate against each other- Which do you find more appealing?



Prev

Next

Issue 3: Rohingya

Candidate A- "We must not let unpredictable Muslim Rohingya into our nation. They are dangerous. They are a bloodthirsty people that have left a wake of death in their path. We must not let them in for fear our own safety and the safety of the city."

Candidate B- "We can't let the minority Rohingya into Pune. We can hardly feed our own. We cannot just open our city to anyone and everyone when we simply do not have the resources and infrastructure to do so."

*Rohingya are a minority that is fleeing from persecution in Myanmar- refugees

** Note: You must click on the circle to make a selection on the slider below

6. Rate the message of each candidate against each other- Which do you find more appealing?



Prev

Next

Personality

In this part of the survey, you will be asked questions about your personality. Please answer as honestly as you can.

7. Respond to each statement

	Very Inaccurate	Moderately Inaccurate	Neither Inaccurate nor Accurate	Moderately Accurate	Very Accurate
Often feel blue	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dislike myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Am often down in the dumps.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have frequent mood swings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Panic easily.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Am filled with doubts about things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feel threatened easily.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Get stressed out easily.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fear for the worst.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Worry about things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seldom feel blue.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feel comfortable with myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rarely get irritated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Am not easily bothered by things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Am very pleased with myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Am relaxed most of the time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seldom get mad.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Am not easily frustrated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Remain calm under pressure.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rarely lose my composure.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**All questions sourced from the official psychographics Inter-Personality Item Pool (IPIP)

Source: Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models. In I. Mervielde, I. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality Psychology in Europe*, Vol. 7 (pp. 7-28). Tilburg, The Netherlands: Tilburg University Press.

Prev

Next

Final Consent

The information you provided is relating to my research on the link between personality and language used for persuasion.

Please once again validate that the information you provided is accurate and you give your consent tick 'Yes'

If you have NOT filled this accurately or do not consent to provide this information tick 'No'. While the survey is anonymous the data input if you select 'No' your data will be deleted and NOT included in the study.

If you would like to be informed about the results of the study please email me at armanj@mbis.org I will get back to you within a week with more context.

8. Do you consent to your data being used for this research?
(Kept completely anonymous)

- ☐ Yes, I do
- ☐ No, I do not

Prev

Done

9.2: Researchers Reflection Log

Reflection	Date
Because of my interest in technology and passion for politics I cast such a wide net of interest over the summer that I spent countless hours reading articles and research papers from the Economist, reports by the Oxford Internet Institute on quantifying the effect of a network of false amplifiers, bots on the US election and Brexit. I came to the conclusion that I wanted to focus on computational propaganda. There is a complete lack of research on this topic and an understanding of how propaganda is being used as a tool of control is the first and most crucial step to mitigating the effects.	12/07/17
Coming into my first meeting with my supervisor there were such large ideas floating around in my head. I wanted to write about concepts like democracy, propaganda, big data and bots in the US election. I was captivated by the use of computational propaganda. Yet, after much discussion with my supervisor I needed to have a clear focus on a specific area and collect data. After I focused on psychographic targeting the personality trait of neuroticism was a perfect. There was an utter lack of research in this area and particularly on this specific trait in the OCEAN model. As I stated, the I set out on the mission to fill that void in knowledge I was excited.	15/08/17
During my literature review I felt like there is a different standard to what constitutes as evidence in both disciplines. As I tried to find literature linking language use to behaviour response it was extremely difficult as this is an area that has not been studied much and is (as I am finding out) very difficult to study. Language is subjective and psychology strives to be objective.	17/10/17
I am struggling with the messages. I feel like that my process isn't scientific or objective enough- that I am simply using my own creative process and not following a scientific method. I understand that these are the problems I face when I try to objectively test the effect of a slogan. Language is open to interpretation. From a researcher's point of view, I can't let go of the criteria that I have synthesized from my extensive literature review but when it comes to actually writing the messages I don't know where to start. After an extensive process of drafting and redrafting I came to a point where I had three issues which I was happy with and two slogans for each. When one reads them	20/10/17

after each other it is clear they both take the same stance on the issue but the language use and rhetoric is stark opposite.	
As I decide on my data collection method, there is a trade off I face between a control over confounding variables and a larger sample size. If I do all my data collection, face to face – the environment will be controlled. But, if I do an online survey I will be able to get a larger sample. After much discussion and deliberation, I decided to go ahead with the remote online survey since there are so many possible confounding variables. These types of studies generally have such large sample sizes.	23/10/17
When it came to measuring appeal a traditional Likert scale wouldn't work- instead I had to experiment with different methods. I finally came to the slider but I had to constantly think about how I am going to quantify and analyse this. The actual survey underwent many changes, I switched from using Google-Forms to SurveyMonkey. Another challenge I faced was with the getting people to take these extensive psychological surveys. It is the issue all psychological researchers face: the greater the questions the better the reliability of the data but the more likely participants are to not answer seriously. This is combined with the level of complexity and subjectivity of my data collection required me to have a large sample. Given the constraints in terms of the resources getting 90 responses was a herculean effort in itself.	30/10/17
This research process has given me such an appreciation of the studies I see by published scientist. It is rigorous and difficult to follow. By the end of it, when there was no correlation a part of me was disheartened, but my supervisor told me that no correlation does not mean that this work is moot. In fact, he told me that I should focus even more on evaluating my method so that future researchers can see what I did and maybe take some inspiration. Overall this interdisciplinary research process has been so eye opening and educational. I hope to do research like this in the future.	13/11/17

9.3: Raw Data

Participant No.	Positive Key - Questions										Negative Key - Questions												Issue Rating				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Personality Score	1	2	3	Message Score		
1	3	3	3	2	3	4	3	4	1	2	4	2	4	4	4	2	4	4	4	4	64	40	60	50	150		
2	4	4	3	4	1	4	2	3	4	3	3	3	3	4	4	1	1	2	2	2	57	50	40	90	180		
3	2	1	3	2	2	3	3	3	2	3	3	2	3	4	2	2	3	3	2	3	51	50	10	30	90		
4	3	3	2	1	2	2	1	1	1	1	4	1	2	2	2	2	2	2	2	2	38	100	30	80	210		
5	1	1	1	1	2	1	2	2	1	1	1	1	4	5	1	2	4	1	2	2	36	50	90	20	160		
6	5	4	5	4	5	5	3	5	4	5	5	5	4	4	4	4	1	3	4	5	84	30	70	0	100		
7	1	1	1	1	1	1	1	1	2	1	1	3	4	1	3	4	4	2	1	1	35	40	60	40	140		
8	2	2	1	2	1	4	3	2	2	2	4	2	4	4	2	2	2	3	2	3	49	20	90	0	110		
9	4	3	2	2	4	4	3	5	4	4	4	3	4	4	3	4	4	4	4	3	72	50	20	50	120		
10	2	1	2	1	2	3	2	3	2	3	2	1	2	1	3	1	1	2	2	1	37	80	70	50	200		
11	4	1	4	4	3	2	1	2	1	5	4	2	4	3	2	4	4	2	2	3	57	70	10	0	80		
12	3	3	2	2	2	3	1	2	2	3	4	2	3	4	3	3	4	3	2	3	54	70	40	70	180		
13	5	4	5	5	4	4	3	4	4	4	5	4	4	4	4	4	4	4	4	4	83	50	30	50	130		
14	1	1	1	1	2	1	1	2	2	2	5	1	4	4	3	4	2	1	2	1	41	50	20	50	120		
15	2	1	1	1	1	2	2	3	2	4	2	1	2	4	1	3	2	1	1	2	38	60	30	30	120		
16	3	4	4	5	3	3	1	5	2	4	4	3	5	5	3	3	5	5	3	5	75	90	100	0	190		
17	2	1	1	2	2	2	2	2	3	4	2	1	2	2	2	4	3	3	2	2	44	30	90	60	180		
18	4	1	5	2	4	4	2	1	2	2	4	2	1	1	2	1	1	1	1	1	42	50	100	50	200		
19	3	1	1	4	1	1	1	1	4	4	2	1	2	4	2	2	4	4	2	3	47	50	10	40	100		
20	3	1	3	3	1	1	1	5	1	3	3	1	3	4	2	3	4	4	3	3	52	50	90	10	150		
21	2	1	1	4	2	4	4	1	5	4	5	1	2	4	1	3	4	4	1	1	54	70	80	70	220		
22	3	1	1	2	1	2	1	1	1	1	3	3	5	4	5	5	5	5	4	4	57	50	20	50	120		
23	1	1	1	2	3	2	1	2	3	2	5	5	1	2	2	5	2	1	3	3	47	50	100	50	200		
24	4	4	2	2	4	2	3	2	4	4	2	2	4	4	4	4	4	4	4	4	67	40	10	30	80		
25	3	2	3	2	3	2	3	3	1	2	4	2	3	3	2	5	3	3	3	3	55	20	90	80	190		
26	1	1	1	1	3	4	2	2	3	2	2	1	2	2	1	2	2	2	1	1	36	30	10	50	90		
27	3	1	2	1	4	4	1	3	4	5	3	1	2	2	1	1	2	2	2	2	46	90	0	50	140		
28	2	1	1	2	1	3	1	1	1	1	2	2	3	2	2	3	2	3	1	2	36	50	60	60	170		
29	4	3	4	5	5	5	4	4	5	5	4	2	4	3	4	3	4	4	2	4	78	30	20	50	100		

30	4	2	3	4	1	2	2	4	4	2	2	1	2	4	2	2	2	4	2	3	52	70	30	10	110
31	1	1	1	1	3	1	1	4	4	4	1	1	3	3	2	3	3	3	3	3	46	60	70	50	180
32	4	4	3	4	5	4	4	4	5	5	4	4	3	3	2	4	3	3	4	2	74	10	80	10	100
33	2	1	1	3	2	2	2	2	1	3	2	2	2	2	1	1	2	3	2	1	37	70	30	70	170
34	2	1	1	2	1	1	1	1	1	2	2	1	2	2	2	1	2	2	1	1	29	50	60	40	150
35	2	1	3	2	3	3	2	2	2	2	3	2	2	2	4	3	3	3	4	2	50	80	10	10	100
36	2	1	2	2	1	1	1	1	1	2	2	2	2	2	3	2	2	2	2	2	35	30	70	30	130
37	1	1	3	5	4	2	4	5	4	4	5	5	4	3	4	3	1	3	1	3	65	100	70	20	190
38	1	1	1	1	4	3	4	5	4	5	5	4	4	4	1	3	3	4	2	3	62	30	20	50	100
39	3	1	1	2	3	3	2	5	4	4	2	1	5	3	3	3	2	2	5	3	57	50	50	50	150
40	2	1	2	4	3	2	2	3	2	2	4	2	3	2	2	2	3	3	2	3	49	80	80	10	170
41	4	1	4	4	1	1	1	3	4	4	2	1	2	1	1	4	2	4	2	2	48	50	30	50	130
42	1	1	1	1	1	2	2	4	3	4	2	1	2	2	1	2	2	2	2	2	38	50	70	80	200
43	1	1	1	3	4	4	1	4	3	4	1	1	4	2	2	2	3	1	1	2	45	50	100	0	150
44	5	2	4	5	4	3	2	4	3	2	3	2	3	3	1	1	3	1	1	1	53	20	50	30	100
45	1	1	1	1	1	4	1	4	1	1	2	1	2	2	2	2	2	1	1	2	33	40	20	30	90
46	2	1	1	1	1	2	1	1	1	1	2	1	2	1	3	1	1	1	2	1	27	50	40	50	140
47	1	1	1	1	1	2	2	1	1	1	1	1	2	4	3	3	2	2	1	1	32	20	90	10	120
48	1	1	1	2	3	4	1	3	2	5	4	5	1	5	4	5	4	4	4	3	62	50	50	0	100
49	4	3	5	5	2	3	1	3	1	5	1	1	1	2	1	1	3	3	2	4	51	0	0	70	70
50	2	2	2	2	2	2	2	2	2	2	4	2	2	2	3	2	2	2	2	2	43	10	0	0	10
51	3	1	1	2	2	4	3	3	1	3	2	2	2	2	2	2	2	2	3	2	44	100	100	0	200
52	2	1	2	4	1	4	3	4	2	4	2	1	5	2	2	2	4	2	1	2	50	20	0	20	40
53	2	3	4	5	4	5	4	5	4	5	4	4	4	4	3	2	4	3	4	1	74	70	70	30	170
54	2	1	1	2	2	2	2	2	2	3	2	1	2	2	1	2	1	2	1	1	34	50	20	50	120
55	2	1	1	4	1	2	2	2	2	2	2	1	2	2	1	1	2	2	1	2	35	40	80	80	200
56	4	1	1	1	1	1	1	2	1	2	5	2	4	1	1	1	1	4	1	1	36	60	10	10	80

57	4	1	2	2	4	2	2	4	3	4	2	1	3	2	2	3	4	3	2	2	52	50	30	30	110
58	2	2	1	3	2	4	4	4	5	5	2	3	5	4	4	4	4	4	4	4	70	50	0	50	100
59	5	1	4	5	4	4	5	5	5	4	4	2	4	4	2	4	4	4	2	4	76	80	20	50	150
60	1	1	2	1	2	2	1	2	4	4	2	1	1	2	1	1	2	1	2	1	34	50	70	30	150
61	2	3	1	1	2	2	2	3	3	3	2	2	3	3	2	2	2	2	3	3	46	50	60	20	130
62	3	1	1	3	4	3	4	4	5	4	2	2	4	4	2	2	4	2	4	4	62	70	70	80	220
63	1	1	1	1	1	2	1	4	1	2	2	1	4	4	2	2	4	2	1	2	39	50	10	50	110
64	4	1	1	4	5	4	1	4	4	1	2	1	2	2	2	5	2	2	1	2	50	50	30	80	160
65	1	1	1	1	1	2	2	1	3	4	2	2	4	2	3	2	2	5	2	2	43	70	70	10	150
66	2	1	1	4	1	2	1	1	1	4	2	1	4	2	2	1	4	2	1	1	38	80	30	30	140
67	3	1	1	2	4	2	2	2	2	1	3	1	2	2	2	2	2	2	2	1	39	20	10	10	40
68	4	3	3	3	3	4	2	3	4	2	2	2	2	2	2	2	2	2	2	2	49	20	30	50	100
69	3	3	3	2	2	2	2	4	4	4	4	2	4	2	2	4	4	4	2	2	59	70	40	40	150
70	5	4	4	4	5	5	5	5	4	5	4	1	5	5	4	4	3	5	4	4	85	50	10	90	150
71	3	3	1	3	2	3	2	1	2	1	2	2	3	2	3	2	3	3	2	2	45	50	20	70	140
72	2	1	1	1	3	3	1	2	2	1	5	5	3	5	2	2	2	2	2	2	47	10	0	10	20
73	2	2	2	5	1	2	3	1	3	2	2	2	3	3	2	3	4	3	3	3	51	50	30	40	120
74	1	3	2	1	4	2	2	1	3	2	5	5	4	4	5	4	3	5	3	3	62	50	90	60	200
75	4	1	1	1	3	3	3	2	2	3	4	2	2	3	4	2	4	4	3	3	54	40	50	50	140
76	4	3	3	3	1	4	2	1	4	4	4	1	2	2	2	1	2	2	1	2	48	40	30	50	120
77	1	1	1	1	2	1	1	1	1	2	4	1	2	3	3	3	3	3	3	3	40	50	90	50	190
78	1	1	1	1	1	1	1	1	1	4	2	1	1	2	2	1	1	2	1	1	27	50	40	60	150
79	4	2	2	2	4	2	4	4	4	4	4	1	1	2	3	2	2	2	2	2	53	50	90	40	180
80	1	1	1	2	2	2	1	2	1	2	3	2	2	1	1	1	2	1	2	2	32	50	0	50	100
81	2	1	1	1	4	3	4	4	2	2	1	1	3	4	1	2	2	2	2	2	44	50	20	40	110
82	4	2	2	3	2	2	1	2	2	1	2	4	4	3	1	1	2	2	2	2	44	50	70	20	140
83	1	2	1	1	1	2	2	2	1	2	2	1	2	2	2	1	2	2	2	2	33	30	40	30	100

84	1	1	1	1	1	1	3	2	3	4	1	5	3	2	5	5	4	2	1	1	47	30	80	40	150
85	3	1	2	3	3	4	3	4	4	4	4	2	4	4	4	4	4	4	3	3	67	80	80	50	210
86	2	1	1	1	2	4	2	2	1	3	3	2	3	3	2	2	4	1	2	3	44	50	0	50	100
87	3	1	1	1	1	2	1	1	1	4	2	2	2	4	2	4	2	2	1	1	38	20	90	40	150
88	4	2	2	2	2	4	2	2	2	3	3	2	2	2	2	2	2	2	2	2	46	60	70	30	160
89	1	1	1	2	3	2	3	2	1	2	1	1	2	2	1	1	2	2	2	2	34	50	30	20	100
90	2	2	3	4	1	2	2	3	3	3	2	3	3	3	3	3	3	4	3	4	56	70	80	30	180
91	3	4	5	4	3	2	1	5	5	5	2	3	4	4	5	2	1	1	2	3	64	60	50	40	150