APPENDIX 1: THE DOCTOR'S PERSONALITY

Note

This preprint is being made available because the first printing of the book this appendix appeared in contained an error in the figures that made them uninterpretable. The following can be interpreted without referring to the book, but for full context it could help to read Chapter 1 in:

Rodebaugh, T. L. (2019). *The Black Archive #27: The Face of Evil*. Obverse Books: Edinburgh, UK.

Typical APA-style references are not given, but the original text plus an online search should suffice for the interested reader. Finally, if the reader does not have a passing acquaintance with the television show Doctor Who, none of this will make any sense at all.

A Demonstration of the Big Five Personality Traits

In Chapter 1 I proposed that we can use the Five Factor Model of personality to understand the Doctor's personality and analyse to what extent the Doctor is more accurately described as the same person played by different actors, as opposed to a set of entirely different people with different personalities. I therefore collected some data to test the 'same person' hypothesis versus the 'different people' hypothesis.

I should be clear that I did not approach this question entirely as I would if I were conducting scientific research, although I did use some scientific methods. Of the many things I would do differently if I were conducting scientific research, two are worth a special mention. First, I would have pre-registered my hypotheses in some format (most likely on the online Open Science Framework) prior to collecting data or testing my hypotheses. Although pre-registration has only recently become a standard part of psychological science, I see it as crucial. Without pre-registration, it is simply too easy for researchers to fool themselves into thinking that their hypotheses were 'really always X,' where X is something that fits the data they have collected, but isn't actually what they would have hypothesised before they collected the data. Fortunately, in this case, I have my proposal for this book, which set out the hypotheses before I collected the data. The trouble is that I didn't specify how I would test it, which would be part of a pre-registration.

Second, if this were a scientific project I would not have attempted to collect all possible data all at once. There are simply too many Doctors to collect ratings of all of them using a high-quality personality scale. Either multiple projects or a more elaborate design would have been appropriate, but either of those would have been too complex for our current purposes.

Instead, I conducted a non-scientific study using some scientific methods. Because the results would not be publishable in any scientific journal, I reached out to Dr Paul Booth (of DePaul University), who collaborated with me to make sure the data collected would be of interest for further media criticism work. He contributed some aspects of the design not reported on here.

While acknowledging contributions to the project, I should thank Kaela Parkhouse, who contributed original drawings of the characters being rated. These drawings helped make the survey more entertaining for the respondents and were, no doubt, partially responsible for the large number of people who completed at least a significant portion of the survey.

Taking the material in Chapter 1 as the introduction to this project, I will now set out a brief version of how this project might have been written up in a scientific publication. A full scientific presentation of these results would be

longer, include more detail, and be more tedious for most readers (including psychological scientists).

Method

Participants were 211 respondents who completed a rating of at least one Doctor. Participants were recruited primarily via the internet, including Twitter and postings to the Gallifrey Base online forum and Reddit, although beyond the first 50 or so participants, enrolment must be attributed primarily to some specific sources: a) a retweet of the call for participation by the Twitter account of Radio Free Skaro and b) a mention in Paul Cornell's weekly newsletter. It must be remembered that any unusual aspects of the audience for any of these single sources may be reflected in the results.

Among other tasks, participants were asked to rate three companions and then the first 13 Doctors (including the War Doctor). The companions were Leela, Jackie Tyler, and Brigadier Lethbridge-Stewart. They were included to help set the scale for the ratings, to avoid a situation in which ratings for the Doctors diverged merely because participants were avoiding repeating their ratings. That is, the three companions were chosen because they were expected to differ considerably from most of the Doctors in personality (and, in Leela's case, because of the purpose of this book). Participants rated all characters using the Ten Item Personality Inventory, a very brief measure of the OCEAN model, or five factors of personality¹. This measure works reasonably well given how short it is (longer measures typically work better for psychological assessments). Participants first rated the set of companions, who were presented randomly. Next, the Doctors were presented randomly. For each character, participants could indicate that they could not rate the character and therefore skip out of that section.

Data Analytic Plan

The data obtained are complex because many possible ratings are missing. That is, of the 13 Doctors, some are much more likely to be known to participants than others. Ignoring participants because they could not rate some Doctors would focus the sample on a small group (under 100 participants) who would be considered an unusual group of super-fans. It is not that the other respondents could not rate the Doctors if they knew them, but rather simply that they had not encountered them so far. Although this situation might seem specific to the current context, it is quite common in psychology. It is often the case that many, sometimes even most, participants do not answer every question. Ignoring participants who do not answer questions leads to misleading results. This conclusion may be obvious in this case of the super-fans versus the raters as a whole. To include all participants who rated at least one Doctor, I planned to conduct tests in statistical software called 'Mplus', which allows me to test whether ratings differ without 'throwing out' data from participants who did not rate each Doctor.

A second complexity in the data is that 16 individuals are each rated on five factors. To reduce this complexity somewhat, I will concentrate on the Doctors. First, I will test whether ratings of each of the five factors differ overall across the Doctors. I will do this essentially by asking the software if holding the Doctors' scores all equal is a bad idea. This is a strict test, for two reasons. First, it is very sensitive to differences in either direction. Second, it would return the result that constraining the Doctors to be equal is a bad idea even if only a few Doctors differ from all of the others. If the initial test is statistically significant for a given factor, I planned to examine the means and conduct further tests to determine the origin of the differences.

¹The measure was developed by Gosling, Samuel D, Peter J Rentfrow, and William B Swann ('A Very Brief Measure of the Big-Five Personality Domains', *Journal of Research in Personality* Volume 37). It is 'very brief' in the sense that similar measures are more typically 25 to several hundred items long. Both the measure and the original article about its development are available online at Dr Gosling's website.

Results

The initial tests showed that the Doctors differed on each of the five factors, with the largest difference for extraversion, followed by agreeableness, conscientiousness, neuroticism, and openness. Were these differences across the Doctors as a whole, or based only on a small number of Doctors? To test this question, depending on the size of the differences, Doctors were either: a) left out of the set being held equal until there was no longer a statistically significant difference (when differences were small) or: b) added to the set until there was a difference (when differences were large). For openness, the results suggested that the second, fourth, seventh, 10th, and 11th received equally high ratings, which were higher than those for the other Doctors. For neuroticism, fewer Doctors could be said to receive equally high ratings: the first, eighth, ninth, and 12th Doctors were equal on this factor, with some scoring higher and some lower than this central group. For extraversion, only the fourth, 10th, and 11th Doctors, who all had high levels of extraversion, could be held to be equal; adding the somewhat lower sixth Doctor produced a significant difference. For conscientiousness, only the fifth and seventh Doctors (with mid-high ratings) could be held to be equal; adding the ninth Doctor (somewhat more conscientious than the fifth and seventh, although less than the War Doctor) led to a significant difference. Similarly, for agreeableness, only the mid-low ratings of the War and third Doctor could be held equal; adding the 12th Doctor (slightly more agreeable than those two, but considerably less agreeable than most other Doctors) produced a significant difference.

The pattern of results certainly suggests that the Doctors overall are more similar on some factors (openness and neuroticism) than others (agreeableness and conscientiousness), with extraversion somewhere in between (a diversity of ratings, yet a notable clump of relatively highly extraverted Doctors). Only examining how similar the Doctors are to each other, however, does not give a clear sense of whether all the Doctors share a certain similarity in comparison to other characters or people in general. Recall that the hypothesis in the main text was that the Doctor cannot be too agreeable, too conscientious, or too neurotic and still work as a character. Let's take 'too X' as meaning 'overlapping with the highest ratings of X among people in general'. To get a better sense of this, we can consider how participants rated themselves.

Participants' self-ratings of agreeableness ranged from -4 to 6, but this distribution was not even, because 1.00 was the middle of the pack. By this standard, none of the Doctors are very highly agreeable: even the eighth, with a rating of 2.59, is well below the upper limit of self-ratings. In contrast, the sixth, at -3.16, nears the bottom of the self-rating range. Similarly, although self-ratings of conscientiousness run the full range from -6 to 6 (centred again around 1), even the War Doctor (3.87) doesn't hit the maximum of conscientiousness (the Brigadier, however, comes close, at 5.55). In this case, the Doctors do not near the bottom of the rating scale, either, with the 11th Doctor marking the bottom (-1.75). Neuroticism self-ratings again showed the full range of -6 to 6, but this time centred on 0. By these standards, the Doctors are all neither highly neurotic (the sixth scrapes just below 3 at 2.94) nor extremely calm and relaxed (with the third and seventh both rating about -1.88).

To give a better sense of the range of ratings the Doctor received, see the two figures below. For each, the Doctors who could be constrained to be equal were held equal for the sake of a more concise figure. Figure 1 displays the factor upon which the Doctors are most consistent, openness. Figure 2, in contrast, shows the factor with the least consistency, agreeableness.

Figure 1: Characters rated according to their openness.

Figure 2: Characters rated according to their agreeableness.

Discussion

The data collected found some support for the notion that the Doctors share strong similarity on some personality factors (primarily openness), as well as the idea that the degree to which they vary on other factors (such as agreeableness) is constrained by certain boundaries that may be enforced by needs of the narrative. That said, the degree of variation in ratings was higher than I originally anticipated: I expected to be able to treat more Doctors as

equivalent on more factors than was ultimately allowed by the data. Considering the two extreme hypotheses of 'a whole new person' versus 'always the same person', it appears clear that neither of these hypotheses entirely matches the data. Instead, it seems more accurate to say that the Doctor is always high in openness, is often quite extraverted, and is never too very high in agreeableness, conscientiousness, or neuroticism.

In research papers, it is traditional to suggest avenues for further research. This is typically done even though it is unlikely that anyone will follow these suggestions; it is unclear to me whether it is more or less likely to occur in this case. However, if I were to collect further data, one potentially interesting focus would be on the facets that make up each factor. Here, the measure used assessed only the five factors, but each factor is proposed to be made up of several facets. It might be particularly interesting to see whether the Doctors show greater disparity on any of the openness facets, for example. Somewhat similarly, there are alternative conceptions of personality that might be even more useful, such as the interpersonal circumplex (IPC). The IPC views interpersonal behaviour, as well as personality, as consisting of two main axes, often referred to as dominance and warmth. Here, the Doctors show the greatest variety in extraversion and agreeableness, which are strongly related to the two axes of the IPC. Someone high in extraversion is medium-high in both dominance and warmth, for example². Perhaps the IPC would be an even more useful way to examine the differences between the Doctors³. Finally, it occurs to me that there is one additional rating that would have made it much clearer what sets the Doctors apart from other characters. I should have had people rate the Daleks as well.

² Other words are sometimes used for the dominance and warmth axes, including assertion and affiliation, respectively.

³ I thank my graduate student Natasha A Tonge for this thought.