

1 Power motivations and risk sensitivity and
2 tolerance. Testing purposes

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6 Abstract

 One or two sentences providing a **basic introduction** to the field,
 comprehensible to a scientist in any discipline.

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Contents

9	1 Introduction	3
10	1.1 Dominance, Prestige, and Leadership orientation	3
11	1.1.1 <i>Dominance</i>	3
12	1.1.2 <i>Prestige</i>	4
13	1.1.3 <i>Leadership</i>	5
14	1.2 The present study	6
15	1.3 Materials	6
16	1.3.1 <i>Demographic Questionnaire</i>	6
17	1.3.2 <i>Dominance, Prestige, and Leadership Orientation</i>	6
18	1.3.3 <i>Domain Specific Risk-taking Scale</i>	7
19	1.4 Procedure	7
20	1.5 Data analysis	8
21	1.6 Results	8
22	1.6.1 Preregistered Analyses	8
23	1.6.2 <i>Demographic and DoPL</i>	8
24	1.7 Domain-Specific Risk-Taking	10
25	1.8 Interactions	10
26	1.9 Discussion	10
27	2 Experiment 2	10
28	2.1 Methods	10
29	2.2 Materials	11
30	2.2.1 <i>Brief-Pathological Narcissism Inventory</i>	11
31	2.3 Procedure	11
32	2.4 Data analysis	11
33	2.5 Results	12
34	2.6 Preregistered Analyses	12
35	2.6.1 <i>Demographic and DoPL</i>	12
36	2.7 Domain-Specific Risk-Taking	12
37	2.8 Interactions	12
38	2.9 Discussion	12
39	2.10 Limitations	12
40	2.11 Future Implications	12
41	3 References	13
42	4 Figures and Tables	16

1 Introduction

Throughout political history, tyrants, and despots have influenced great power over large swaths of land and communities. One common thread amongst these individuals is how they wield their great power, often through dominant tactics such as threats and political subversion. Recent history has shown with individuals like Donald Trump, Kim Jong-Un, and Rodrigo Duterte who display authoritarian traits often wield their power through fear and threats of violence (Bernstein, 2020; “Glamorizing Dictators,” 2018; Kirby, 2021). How this power is wielded is often different for each individual. Some individuals such as Duterte and Bolsonaro wielded their power more dramatically than the likes of Trump. Individuals wielding power need not be tyrants such as the former. Individuals like Angela Merkel used her position and leadership skills to be a world leader in most negotiations. While individuals more well known for their status demonstrated their power through prestige motives. To better understand how individuals such as world leaders or opinion makers gain and wield their power over others. Research in this field is often difficult to research yet strides have been made to understand power, namely through research in moral judgment and decision-making such as power orientation.

1.1 Dominance, Prestige, and Leadership orientation

Research in power desire motives has focused on three subdomains: dominance, leadership, and prestige (Suessenbach et al., 2019). Each of these three different power motives is explained as to different ways or methods that individuals in power sought power or were bestowed upon them. Often these dominant individuals will wield their power with force and potentially cause risk to themselves to hold onto that power.

1.1.1 Dominance

The dominance motive is one of the more researched methods and well-depicted power motives. Individuals with a dominant orientation display the more primal of human behavior. These individuals will seek power through direct methods such as asserting dominance, control over resources, or physically assaulting someone (S. L. Johnson et al., 2012; Winter, 1993). Early research in dominance motives has shown that acts of dominance ranging from asserting physical dominance over another to physical displays of violence has been shown in many mammalian species, including humans (Petersen et al., 2018; Rosenthal et al., 2012).

78 Individuals high in dominance are often high in Machiavellianism, nar-
 79 cissism, and often are prone to risky behavior (discussion further in the next
 80 section). Continued research has hinted at a possible tendency for males to dis-
 81 play these dominant seeking traits more than females (Bareket & Shnabel, 2020;
 82 Sidanius et al., 2000). When high dominance individuals assert themselves they
 83 are doing so to increase their individual sense of power (Anderson et al., 2012;
 84 Bierstedt, 1950). Asserting one's own sense of dominance over another can be
 85 a dangerous task. In the animal kingdom, it can often lead to injury. While,
 86 in humans asserting dominance can take a multitude of actions such as leering
 87 behaviors, physical distance, or other non-verbal methods to display dominance
 88 (Petersen et al., 2018; Witkower et al., 2020). Power from a dominant perspective
 89 is not always bestowed upon someone. Often, high dominance individuals will
 90 take control and hold onto it.

91 **1.1.2 Prestige**

92 Contrary to the dominant motivation of using intimidation and aggression
 93 to gain more power, a prestige motivation or prestige, in general, is bestowed
 94 upon an individual from others in the community (Maner & Case, 2016;
 95 Suessenbach et al., 2019). Different from the dominance motivation, a prestige
 96 motivation is generally unique to the human species (Maner & Case, 2016).
 97 Due in part to ancestral human groups being smaller hunter-gatherer societies,
 98 individuals that displayed and used important behaviors beneficial to the larger
 99 group were often valued and admired by the group. Therein, the social group
 100 bestows the authority onto the individual. Generally, this type of behavior
 101 can be passively achieved by the prestigious individual. However, this does
 102 not remove the intent of the actor in that they too can see prestige from the
 103 group, but the method of achieving that social status greatly differs from that of
 104 dominance-seeking individuals.

105
 106 Apart from dominance-motivated individuals that continually have to fight
 107 for their right to have power over others, individuals that seek or were given power
 108 through a prestige motivation are not generally challenged in the same sense as
 109 dominant individuals. Displaying behaviors that the community would see as
 110 beneficial would endear them into the community making the survival of the
 111 community as a whole better (Maner & Case, 2016). Evolutionarily this would
 112 increase the viability of the prestigious individual and their genes. Similar to
 113 the dominance perspective, the prestige perspective overall increases the power
 114 and future survivability of the individual. However, due to the natural difference
 115 between prestige and dominance, dominance-seeking individuals are challenged

more often resulting in more danger to their position (S. L. Johnson et al., 2012).

1.1.3 Leadership

With a shared goal a leader is someone that takes initiative and attracts followers for that shared goal (Van Vugt, 2006). Leadership is an interesting aspect of behavior in that it is almost exclusive to human interaction. Discussions by evolutionary psychologists point to the formation of early human hunter-gatherer groups where the close interconnectedness created a breeding ground for leadership roles. As early humans began to evolve it would become advantageous for individuals to work together for a common goal (King et al., 2009). Often, individuals with more knowledge of a given problem would demonstrate leadership and take charge or be given power. Multiple explanations of the evolution of leadership exist such as coordination strategies, safety, along with evidence for growth in social intelligence in humans (King et al., 2009; Van Vugt, 2006).

An interesting aspect of leadership motivation is the verification of the qualities of the leader by the communities. Individuals that are often put into leadership roles or take a leadership role often display the necessary goals, qualities, and knowledge to accomplish the shared/stated goal. However, this is not always the case especially for those charismatic leaders where they could stay on as a leader longer than the stated goal requires (Vugt & Ronay, 2014). Traditionally, leadership was thought to be fluid in that those with the necessary knowledge at the time would be judged and appointed as the leader. However, these charismatic leaders use their charisma, uniqueness, nerve, and talent to hold onto their status. ## Risk

Every time people leave the relative safety of their home, every decision they make they are taking some form of risk. Financial risk is often discussed in the media usually concerning the stock market. However, the risk is not just present in finances but also in social interactions such as social risk, sexual risk, health and safety risk, recreational, and ethical risks (Breakwell, 2007; Kühberger & Tanner, 2009; Shearer et al., 2005; Weber et al., 2002). Each individual is different in their likelihood and perception of participating in those risks. Some will be more inclined to be more financially risky while others would risk their health and safety.

Whether to engage in a risky situation is very complex depending on a cost-benefit analysis (P. S. Johnson et al., 2015). Do the positives outweigh the negatives? In practice, not all individuals will do a cost-benefit analysis of

a risky situation. Often, the timing of an event makes such an analysis disadvantageous. The benefits are often relative to the individual decision-maker. Differences emerge in the general likelihood to engage in risky behavior such that males tend to be more likely to engage in risky behaviors than their female counterparts (Chen & John, 2021; Desiderato & Crawford, 1995). Women tended to avoid risky situations except for social risks.

1.2 The present study

The present study sought to further our understanding of dominance, prestige, and leadership motivations in human decision-making. Furthering this, we seek to bridge the connection between risk-taking behaviors, from diverse domains, and the dominance, prestige, and leadership orientations. Following the literature, we predicted that participants that were high in dominance orientation would be more likely to not only engage in risky behaviors but praise the benefits of participating in those behaviors. Individuals with prestige or leadership orientation. [@] # Experiment 1 ## Methods

Participants were a convenience sample of 111 individuals from Prolific Academic’s crowdsourcing platform (www.prolific.io). Prolific Academic is an online crowdsourcing service that provides participants access to studies hosted on third-party websites. Participants were required to be 18 years of age or older and be able to read and understand English. Participants received £4.00, which is above the current minimum wage pro-rata in the United Kingdom, as compensation for completing the survey. The Psychology Research Ethics Committee at the University of Edinburgh approved all study procedures [ref: 212-2021/1]. The present study was pre-registered along with a copy of anonymized data along with a copy of the R code and supplemental materials are available at (<https://osf.io/s4j7y>).

1.3 Materials

1.3.1 Demographic Questionnaire

In a demographic questionnaire administered prior to the main survey, participants were invited to respond to a series of questions about their self-identified demographic characteristics such as age, gender, ethnicity, and ethnic origin.

1.3.2 Dominance, Prestige, and Leadership Orientation

The 18-item Dominance, Prestige, and Leadership scale, DoPL (Suessenbach et al., 2019), is used to measure dominance, prestige, and leadership orien-

189 tation. Each question corresponds to one of the three domains. Each domain is
 190 scored across six unique items related to those domains (e.g., “I relish opportuni-
 191 ties in which I can lead others” for leadership) rated on a scale from 0 (Strongly
 192 disagree) to 5 (Strongly agree). Internal consistency reliability for the current
 193 sample is $\alpha = 0.86$.

194 **1.3.3 Domain Specific Risk-taking Scale**

195 The 40-item Domain-Specific Risk-taking Scale, DOSPERT (Weber et al.,
 196 2002) is a scale assessing individuals’ likelihood of engaging in risky behaviors
 197 within 5 domain-specific risky situations: financial (“Gambling a week’s income
 198 at a casino.”), social (“Admitting that your tastes are different from those of your
 199 friends”), recreational (“Trying out bungee jumping at least once”), health and
 200 safety (“Engaging in unprotected sex”), and ethical (“Cheating on an exam”)
 201 situations. Each risky situation is then rated on a five-point Likert scale (1 being
 202 very unlikely and 5 being very likely). Two additional five-point Likert scales
 203 assess risk perception and expected benefits (1 being not at all risky and 5 being
 204 extremely risky; 1 being no benefits at all and 5 being great benefits) respectively.
 205 Example risky situations are “Admitting that your tastes are different from those
 206 of a friend” and “Drinking heavily at a social function.” Internal consistency
 207 reliability for the current samples for the 3 sub-domains are $\alpha = 0.85$, $\alpha = 0.90$,
 208 $\alpha = 0.92$ respectively.

209 **1.4 Procedure**

210 Participants were recruited via a study landing page on Prolific’s web-
 211 site or via a direct e-mail to eligible participants (Prolific Academic, 2018). The
 212 study landing page included a brief description of the study including any risks
 213 and benefits along with expected compensation for successful completion. Par-
 214 ticipants accepted participation in the experiment and were directed to the main
 215 survey (Qualtrics, Inc; Provo, UT) where they were shown a brief message on
 216 study consent.

217 Once participants consented to participate in the experiment they an-
 218 swered a series of demographic questions. Once completed, participants com-
 219 pleted the Dominance, Prestige, and Leadership Scale and the Domain Specific
 220 Risk-taking scale. The two scales were counterbalanced to account for order ef-
 221 fects. After completion of the main survey, participants were shown a debriefing
 222 statement that briefly mentions the purpose of the experiment along with the
 223 contact information of the main researcher (AI). Participants were compensated
 224 £4.00 via Prolific Academic.

225 1.5 Data analysis

226 Demographic characteristics were analyzed using multiple regression for
 227 continuous variables (age) and Chi-square tests for categorical variables (gender,
 228 race, ethnicity, ethnic origin, and education). Means and standard deviations
 229 were calculated for the relevant scales (i.e., DoPL and DOSPERT). All analyses
 230 were done using (R Core Team, 2021) along with (Bürkner, 2017) package.

231 The use of bayesian statistics has a multitude of benefits to statistical
 232 analysis and research design. One important benefit is through the use of prior
 233 data in future analyses. Termed as priors, is the use of prior distributions for
 234 future analysis. This allows for the separation of how the data might have been
 235 collected or what the intention was. In essence, the data is the data without the
 236 interpretation of the scientist.

237 All relevant analyses were conducted in a Bayesian framework using the
 238 brms package (Bürkner, 2018) along with the cmdstanr packages notes (Gabry &
 239 Cesnovar, 2021). In addition to the aforementioned packages, we used bayestestR,
 240 rstan, and papaja (Aust & Barth, 2020; Makowski et al., 2019; Stan Development
 241 Team, 2020).

242 1.6 Results

243 One hundred and eleven individuals completed the main survey. Of these
 244 individuals, 111 completed all sections without incomplete data and were there-
 245 fore retained in most data analyses. In later analyses to account for outliers two
 246 participants had to be excluded from the dataset. Table 1 shows the demographic
 247 information for the participants. The average completion time for participants
 248 was 20M 58s ($SD = 10M\ 43s$).

249 1.6.1 Preregistered Analyses

250 We first investigated DoPL orientation on general risk preference (Figure
 251 1). General risk preference was anecdotally explained by dominance orientation,
 252 participant gender, and participant age (see table 2).

253 1.6.2 Demographic and DoPL

254 All participants completed the dominance, leadership, and prestige
 255 scale (Suessenbach et al., 2019). Empirically, men have generally been more
 256 dominance-oriented in their behavior (Rosenthal et al., 2012). Following the lit-
 257 erature, men tended to be more dominance orientated than women. The marginal
 258 posterior distribution of each parameter is summarized in Table #. Interestingly,
 259 older individuals tended to be more dominance-oriented than younger individuals.

Table 1*Participant demographic information (Experiment 1)*

Variables	*n* = 111
Age	
Mean (SD)	26.84 (9.21)
Median [Min, Max]	24 [18,61]
Gender	
Female	54 (48.6%)
Gender Non-Binary	2 (1.8%)
Male	55 (49.5%)
Education	
Primary School	4 (3.6%)
GCSEs or Equivalent	8 (7.2%)
A-Levels or Equivalent	32 (28.8%)
University Post-Graduate Program	21 (18.9%)
University Undergraduate Program	44 (39.6%)
Doctoral Degree	1 (0.9%)
Prefer not to answer	1 (0.9%)
Ethnicity	
African	8 (7.2%)
Asian	6 (5.4%)
English	10 (9.0%)
European	77 (69.4%)
Latin American	2 (1.8%)
Scottish	2 (1.8%)
Other	6 (5.4%)

Table 2

Parameter	CI	CI_low	CI_high
b_Intercept	0.95	1.37	5.81
b_dominanceSum	0.95	1.07	4.91
b_leadershipSum	0.95	-3.88	-0.02
b_Gender1	0.95	-4.95	-1.09
b_Age	0.95	-4.80	-0.96

260 1.7 Domain-Specific Risk-Taking

261 As predicted individuals that identified as male were more likely

262 1.8 Interactions

263 When investigating dominance, prestige, and leadership motivations with
 264 domain-specific risk-taking findings supported the common expectations in the
 265 literature. Table 5 shows the interactions with like CI values. Dominance overall
 266 explained the relationship of DoPL orientation and preference, specifically for eth-
 267 ical, financial, social, health and safety, and recreational preference. Participant
 268 age and gender also appeared to affect recreational preference.

269 Following these findings, we investigated the effect of DoPL on general
 270 risk preference and found that dominance overall affected risk preference along
 271 with gender and age of the participant (Table 5).

272 1.9 Discussion

273 2 Experiment 2

274 2.1 Methods

275 Materials remain the same in terms of the (1) Demographic Questionnaire,
 276 (2) Dominance, Prestige, and Leadership Questionnaire, and (3) DOSPERT
 277 Questionnaire. However, we added the Brief-Pathological Narcissism Inventory to
 278 assess possible interactions of dominance and narcissism in risky decision-making.
 279 Materials and methods were approved by the University of ## Participants

280 Following experiment 1, participants were a convenience sample of 111
 281 individuals from Prolific Academic’s crowdsourcing platform (www.prolific.io).
 282 Prolific Academic is an online crowdsourcing service that provides participants
 283 access to studies hosted on third-party websites. Participants were required to be
 284 18 years of age or older and be able to read and understand English. Participants
 285 received £4.00, which is above the current minimum wage pro-rata in the United
 286 Kingdom, as compensation for completing the survey. The Psychology Research
 287 Ethics Committee at the University of Edinburgh approved all study procedures
 288 [ref: 212-2021/2]. The present study was pre-registered along with a copy of
 289 anonymized data and a copy of the R code is available at ([https://osf.io/](https://osf.io/s4j7y)
 290 s4j7y).

2.2 Materials

2.2.1 Brief-Pathological Narcissism Inventory

The 28 item Brief Pathological Narcissism Inventory (B-PNI; Schoenleber et al., 2015) is a modified scale of the original 52-item Pathological Narcissism Inventory (PNI; Pincus et al., 2009). Like the PNI the B-PNI is a scale measuring individuals' pathological narcissism. Items in the B-PNI retained all 7 pathological narcissism facets from the original PNI (e.g., exploitativeness, self-sacrificing self-enhancement, grandiose fantasy, contingent self-esteem, hiding the self, devaluing, and entitlement rage). Each item is rated on a 5 point Likert scale ranging from 1 (not at all like me) to 5 (very much like me). Example items include "I find it easy to manipulate people" and "I can read people like a book."

2.3 Procedure

Participants were recruited via a study landing page on Prolific's website or via a direct e-mail to eligible participants (Prolific Academic, 2018). The study landing page included a brief description of the study including any risks and benefits along with expected compensation for successful completion. Participants accepted participation in the experiment and were directed to the main survey on pavlovia.org (an online JavaScript hosting website similar to Qualtrics) where they were shown a brief message on study consent.

Once participants consented to participate in the experiment they answered a series of demographic questions. Once completed, participants completed the Dominance, Prestige, and Leadership Scale and the Domain Specific Risk-taking scale. An additional survey was added (the novel aspect of experiment 2) where participants, in addition to the two previous surveys, were asked to complete the brief-pathological narcissism inventory. The three scales were counterbalanced to account for order effects. After completion of the main survey, participants were shown a debriefing statement that briefly mentions the purpose of the experiment along with the contact information of the main researcher (AI). Participants were compensated £4.00 via Prolific Academic.

2.4 Data analysis

Demographic characteristics were analyzed using multiple regression for continuous variables (age) and Chi-square tests for categorical variables (gender, race, ethnicity, ethnic origin, and education). Means and standard deviations were calculated for the relevant scales (i.e., DoPL and DOSPERT). All analyses were done using (R Core Team, 2021) along with (Bürkner, 2017) package.

326 The use of bayesian statistics has a multitude of benefits to statistical
327 analysis and research design. One important benefit is through the use of prior
328 data in future analyses. Termed as priors, is the use of prior distributions for
329 future analysis. This allows for the separation of how the data might have been
330 collected or what the intention was. In essence, the data is the data without the
331 interpretation of the scientist.

332 All relevant analyses were conducted in a Bayesian framework using the
333 brms package (Bürkner, 2018) along with the cmdstanr packages notes (Gabry &
334 Cesnovar, 2021). In addition to the aforementioned packages, we used bayestestR,
335 rstan, and papaja for analysis along with the creation of this manuscript (Aust
336 & Barth, 2020; Makowski et al., 2019; Stan Development Team, 2020).

337 **2.5 Results**

338 **2.6 Preregistered Analyses**

339 **2.6.1 Demographic and DoPL**

340 **2.7 Domain-Specific Risk-Taking**

341 **2.8 Interactions**

342 **2.9 Discussion**

343 **2.10 Limitations**

344 **2.11 Future Implications**

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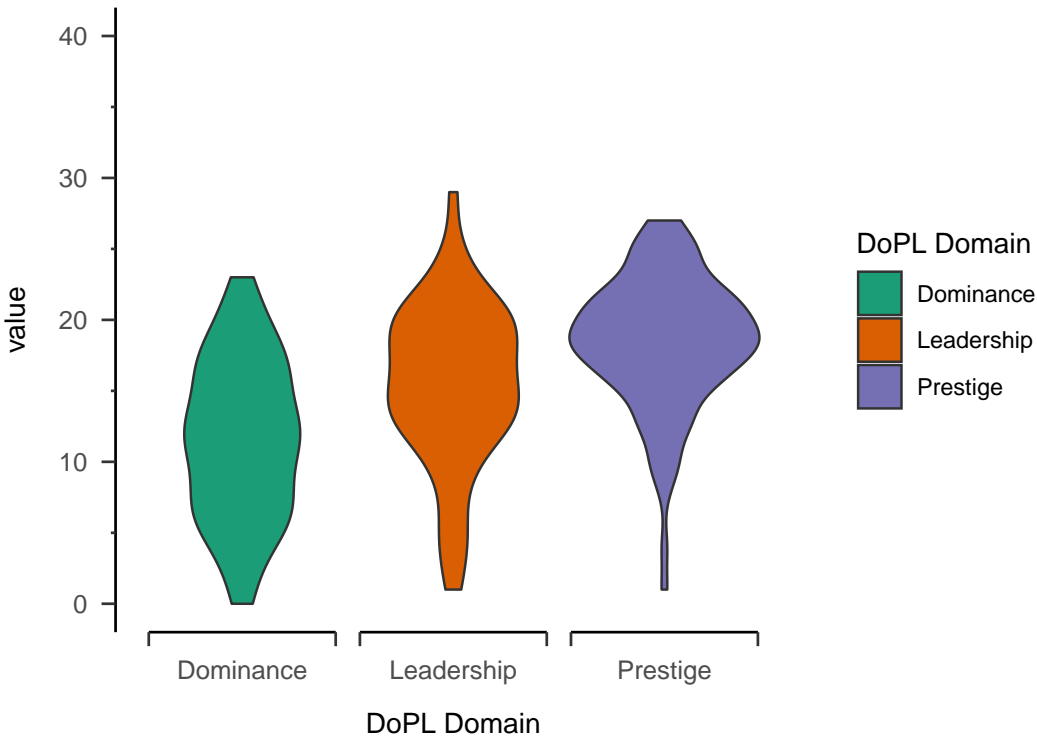
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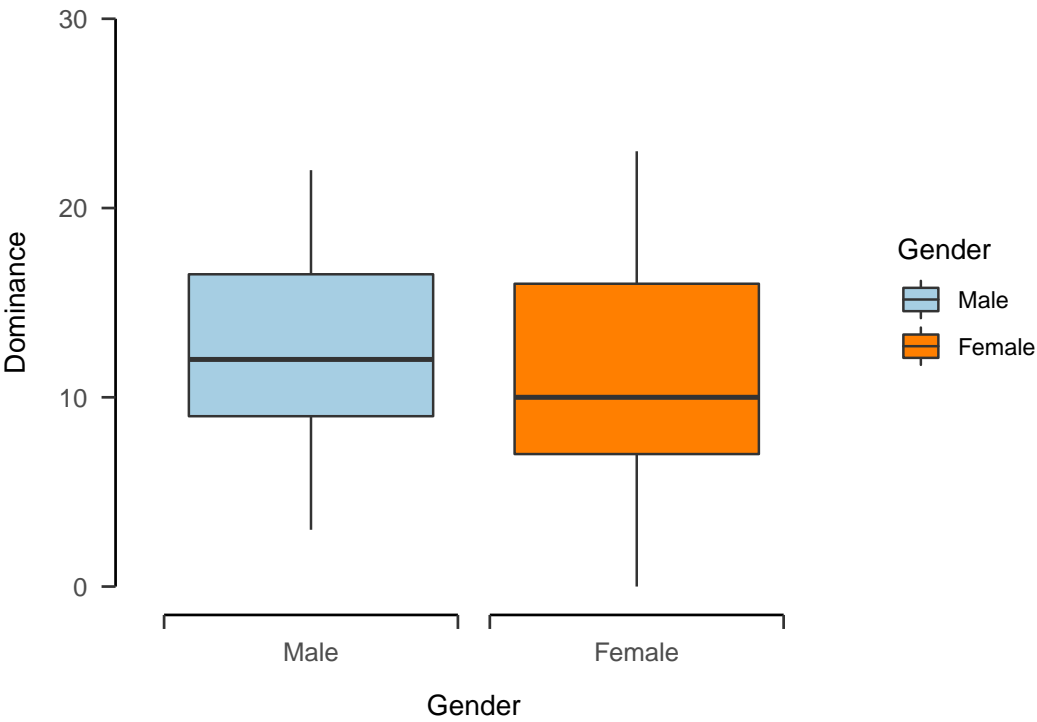
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456

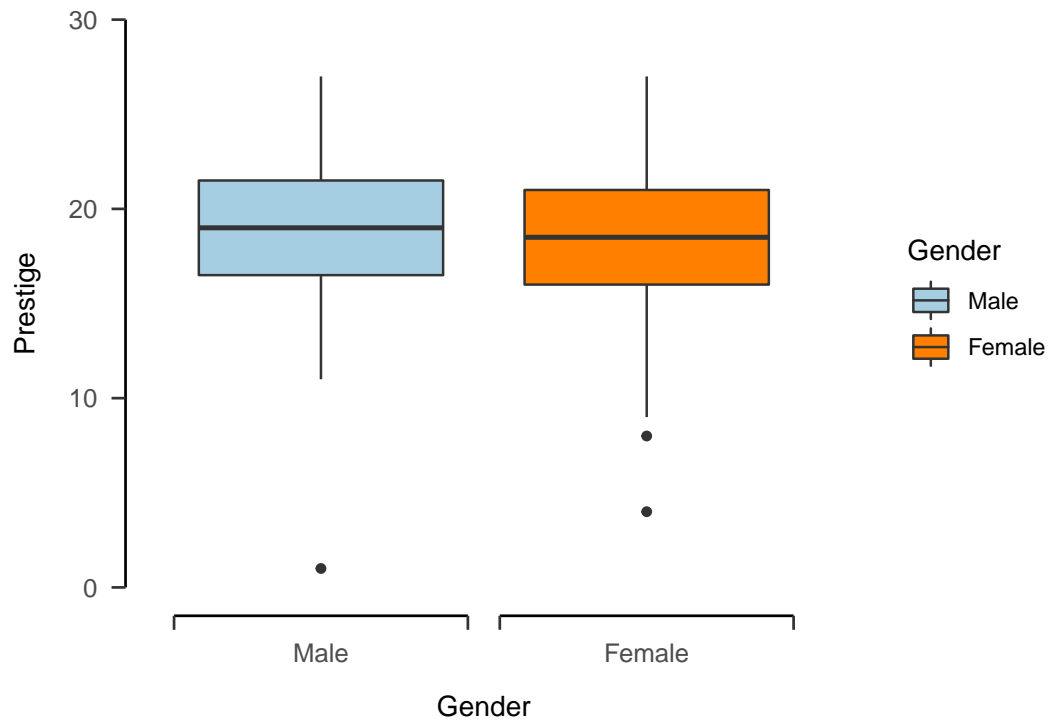
4 Figures and Tables



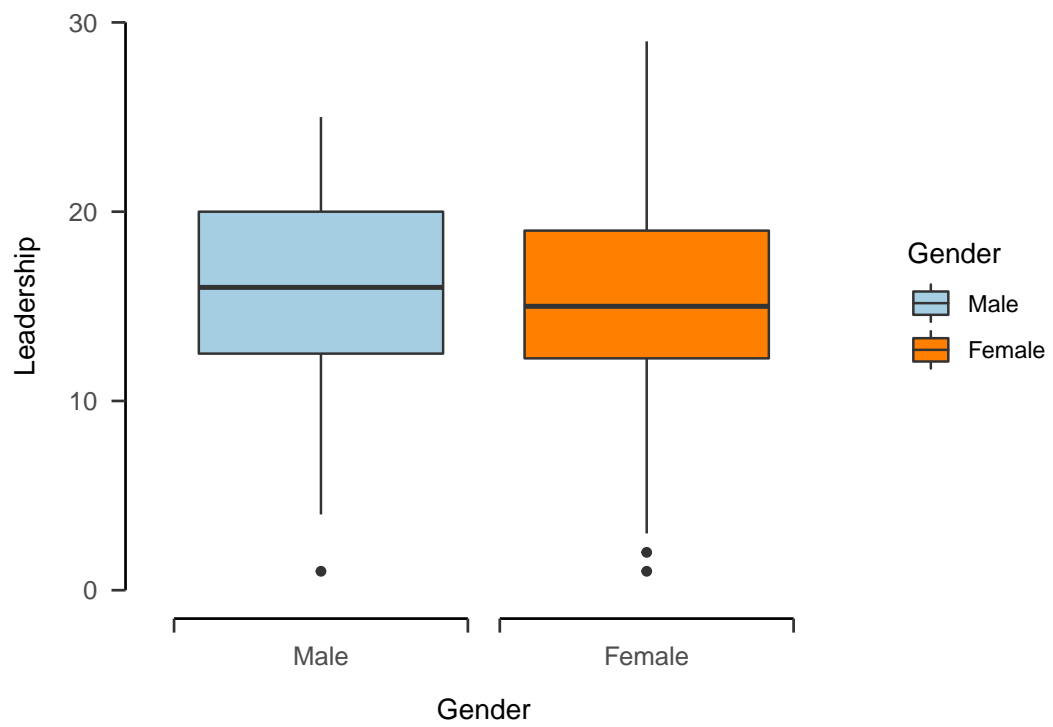
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458



459



460

Table 3

	Estimate	Est.Error	Q2.5	Q97.5
Intercept	3.62	1.13	1.41	5.86
dominanceSum	3.00	0.99	1.08	4.93
prestigeSum	0.09	0.99	-1.84	2.02
leadershipSum	-1.91	0.98	-3.85	0.02
Gender1	-3.02	0.99	-4.95	-1.08
Age	-2.86	0.99	-4.78	-0.93

Table 4

Parameter	CI	CI_low	CI_high
b_ethicalPreference_Intercept	0.95	2.85	4.42
b_ethicalPreference_dominanceSum	0.95	0.61	1.71
b_financialPreference_Intercept	0.95	7.50	9.67
b_financialPreference_dominanceSum	0.95	0.14	1.59
b_socialPreference_Intercept	0.95	8.34	11.67
b_socialPreference_dominanceSum	0.95	0.60	2.87
b_healthAndSafetyPreference_Intercept	0.95	4.65	6.59
b_healthAndSafetyPreference_dominanceSum	0.95	0.41	1.77
b_recreationalPreference_Intercept	0.95	0.95	2.48
b_recreationalPreference_dominanceSum	0.95	0.66	1.74
b_recreationalPreference_Gender1	0.95	-1.83	-0.47
b_recreationalPreference_Age	0.95	0.06	0.87