



## What determines feelings of belonging and majoring in an academic field? Isolating factors by comparing psychology and philosophy<sup>☆</sup>

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### ABSTRACT

Feelings of belonging are integral in people's choice of what career to pursue. Women and men are disproportionately represented across careers, starting with academic training. The present research focuses on two fields that are similar in their history and subject matter but feature inverse gender gaps—psychology (more women than men) and philosophy (more men than women)—to investigate how theorized explanations for academic gender gaps contribute to feelings of belonging. Specifically, we simultaneously model the relative contribution of theoretically relevant individual differences (empathizing, systematizing, and intellectual combativeness) as well as life goals (prioritization of family, money, and status) to feelings of belonging and majoring in psychology or philosophy. We find that men report higher intellectual combativeness than women, and intellectual combativeness predicts feelings of belonging and majoring in philosophy over psychology. Although systematizing and empathizing are predictive of belonging and, in turn, majoring in psychology and philosophy, respectively, when other factors are taken into account, women and men do not differ in empathizing and systematizing. Women, more than men, report prioritizing having a family, wealth, and status in choosing a career, and these directly or indirectly feed into feelings of belonging and majoring in psychology, in contrast to prior theory. Together, these findings suggest that students' perceptions of their own combativeness and the extent to which they desire money and status play essential roles in women's feeling they belong in psychology and men's feeling they belong in philosophy.

Women represent the majority of students in higher education, but they are disproportionately represented across disciplines. Compared to men, women are overrepresented in fields such as humanities and psychology and underrepresented in others such as STEM (Science, Technology, Engineering, Math) and philosophy. These gender disparities are problematic both because they limit the perspectives, talents, and diverse skills brought to bear on the work and because these disparities emerge despite women and men's equal capabilities across various types of work. Not only can this inequity preclude productivity and innovation (e.g., [Deszö and Ross, 2012](#)), but the lack of parity itself is unjust. To better understand the factors that drive individuals towards or away from different fields, and control for many of the typical confounds such as history and topic, we investigate the inverse gender gaps across two fields that are similar in history (i.e., were once one field) and subject matter (e.g., human nature, the mind, ethics, group interactions, knowledge, perceptions of

reality, morality): Psychology and Philosophy. This comparison is particularly illuminating because both pipelines leak early, with women not enrolling in or leaving philosophy and men not enrolling in or leaving psychology after introductory classes (e.g., [Paxton et al., 2012](#); [Yu et al., 2020](#)).

The extent to which people feel that they belong within a particular field (i.e., the extent to which individuals feel accepted by and similar to their group) has a strong influence on whether they pursue a particular career path (e.g., [Cheryan and Plaut, 2010](#); [Good et al., 2012](#); [Holland and Gottfredson, 1976](#); [Walton & Cohen, 2011](#)). Yet, to date, little work has investigated which factors contribute to belonging in psychology versus philosophy (but see [Thompson et al., 2016](#)). This is an important limitation, and the focus of the current work, because a better understanding of such factors has the potential to benefit academia broadly by informing interventions that would increase diversity — the goal of many universities, professional societies, and social organizations.

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Humans are universally motivated to connect, form interpersonal relationships, seek group membership, and attain social acceptance by others (i.e., they need to belong; VandenBos, 2007/APA dictionary, 2021; Baumeister and Leary, 1995). These connections are facilitated by perceptions that one is similar to others or has the traits and priorities necessary to succeed in a group or context (e.g., in terms of demographics, personality, interest, priorities, or ability). Evidence from STEM fields suggests that satisfaction of the need to belong encourages students to participate and persist in an academic field, whereas students are discouraged from continuing when the need to belong is not met (e.g., Cheryan and Plaut, 2010; Good et al., 2012; Walton & Cohen, 2011). For instance, compared to men, women, who make up the minority of philosophy students, tend not to believe that people “like me” could succeed in philosophy and perceive themselves as having little in common with their philosophy instructors, tutors, or the “typical philosophy major”, and are less likely to enroll in additional philosophy courses (Thompson et al., 2016; for similar results, see Baron et al., 2015).

Feelings of belonging emerge from perceiving fit between oneself and the field (e.g., Morganson et al., 2010; Päßler and Hell, 2012; Prediger, 1982), yet relatively little is known about the factors that determine students’ sense of belonging. We draw from two related domains of influences that have been theorized as explanations for gender gaps in academic disciplines. The first domain of influences relates to *individual differences*, including students’ levels of empathizing, systematizing, and intellectual combativeness. The second domain of influences relates to *life goals*, including prioritization of having a family, having wealth, and gaining social status. Specifically, we tested the extent to which individual difference and life goal factors contribute to feelings of belonging and, in turn, to major choice in the academic disciplines of psychology and philosophy in the population where the gender gaps emerge (i.e., undergraduates) while modeling the two domains of factors simultaneously.

### The inverse gender gaps

Women outnumber men in psychology. At North American universities, women constitute over 70% of psychology graduates at each level of schooling — Bachelor’s (79%), Master’s (80%), and Doctorate (74%) (averaged across 2017–18 and 18–19; National Center for Education Statistics, 2019) — and 57% of faculty (Zippia Career Data, 2021). In contrast, in philosophy, women are in the minority; constituting less than 40% of philosophy students at each level—Bachelor’s (39%), Master’s (35%), and Doctorate (33%) (American Academy of Arts and Sciences Humanities Indicators, 2016; Paxton et al., 2012) — and 21% of faculty (Zippia Career Data, 2021). These gaps first emerge at the undergraduate level, both for initial enrolment and after introductory classes (e.g., Paxton et al., 2012; Yu et al., 2020). We confirmed this early gender gap with data from Concordia University in Canada, which allowed for sampling from a more diverse population,<sup>1</sup> across four academic years (2014/15 to 2017/18; see Supplemental Materials, henceforth SM, for detailed analyses and results): Women make up 81% of psychology majors, whereas men make up only 19%. In contrast, men make up 66% of philosophy majors, whereas women make up only 34%. However, adding some nuance to when the training pipeline leaks, we find the gap appears to widen most for philosophy after the first year (i.e., average dropout of women of 32%; largely replicating past findings) and after the second year for psychology (i.e., average dropout of men of 12%). The inverse gender gaps of psychology and philosophy are striking given that the two fields were once one, sharing historical roots, and focused on similar topics. Determining what makes students feel they belong is likely central to understanding why students enroll and major in psychology versus philosophy.

### Theoretical accounts of the inverse gender gaps

One domain of explanations for the inverse gender gaps across academic fields relates to individual differences. Specifically, gender differences in the tendency towards empathizing (i.e., motivation and ability to identify and respond to others’ emotions) versus systematizing (i.e., engaging with abstract ideas, logic, and interested in systems<sup>2</sup>) (Baron-Cohen et al., 2003) and the combative nature of male-dominated fields (e.g., Moulton, 1983; Beebe, 2013) have been explored. According to this individual difference perspective, women and men fit with and choose fields stereotyped as feminine (e.g., psychology) or masculine (e.g., philosophy) because on average, women score higher on empathizing and men score higher on systematizing (e.g., Focquaert et al., 2007; Greenberg et al., 2018). Although there is empirical support for this argument (e.g., Focquaert et al., 2007; Greenberg et al., 2018; see also Päßler and Hell, 2012; Zell et al., 2015), it has received criticism for ignoring the differential socialization of women and men, conceptual issues surrounding the measure, and questions regarding the predictive power of the measures over other factors (e.g., Leslie et al., 2015; Maranges et al., 2021). Moreover, the gender divide in constructs related to empathizing vs. systematizing shrinks when the constructs are measured in more naturalistic contexts (e.g., Eisenberg and Lennon, 1983; see Fine, 2010).

Importantly, whether there is a real-world difference between women and men on these individual difference dimensions (and if so, whether that difference is the result of nature or nurture) might be less important than the question of whether people *believe* that there is a difference. That is, even if women and men do not differ on empathizing and systematizing in a nonsexist society, there is no doubt that both are useful measures insofar as they capture current perceptions, expectations, and internalized stereotypes. For example, philosophy undergraduates, including women, explicitly associate philosophy with someone who is “intelligent”, “intellectual”, “logical”, “curious”, and who is “male” (Di Bella et al. 2016). Similarly, when students are instructed to think about someone who is logical, they think of a man (Beebe, 2013). In contrast, psychology is perceived as a field that does not require brilliance (Leslie et al., 2015) or systematizing (e.g., Amsel et al., 2014; Pettijohn et al., 2015) and is associated with stereotypically feminine traits (e.g., emotional, empathetic) and motivations (e.g., altruism, intimacy) (Boysen et al., 2021). Given the related associations between these two individual differences, gender, and academic fields, we include empathizing and systematizing as candidate mediators in the link between gender and feelings of belonging in psychology versus philosophy.

Another individual difference that may influence feelings of belonging relates to comfort with intellectual combativeness. Compared to psychology, work in philosophy is solitary rather than collaborative, and when scholars do come together to share their work, the discourse is typically argumentative and confrontational, which may be construed as better fitting for men than women based on gender stereotypes (Moulton, 1983; Beebe, 2013). Indeed, compared to men, women predicted they would feel less comfortable participating in introductory philosophy class discussions than men (Baron et al., 2015; but see Thompson et al., 2016). Hence, the extent to which gender influences students’ views of themselves as intellectually combative may be associated with feelings of belonging in philosophy, but not psychology.

A separate domain of explanations that vary with gender and may influence feelings of belonging in diverse academic disciplines relates to life goals. Traditionally aged undergraduates are identifying and navigating life goals, including those related to career and family. Careers may vary in the extent to which they facilitate (or are perceived to facilitate)

<sup>2</sup> According to Baron-Cohen et al. (2003), systems “take inputs, which can then be operated on in variable ways, to deliver different outputs in a rule-governed way.”

<sup>1</sup> Compared, e.g., to convenience samples (Gurven, 2018)

itate) the goals of having a family, financial security, and/or social status. Moreover, people vary in the extent to which they prioritize those factors. Accordingly, some scholars have suggested that people's prioritization of family, wealth, and status can help us understand why students choose to pursue one discipline over others (e.g., Kessels, 2005; Montmarquette et al., 2002; Morgan et al., 2013).

When it comes to balancing a career with family, men and women face considerably different challenges and social expectations. Though men are increasingly invested in coparenting and often praised for wanting to balance a career with family life, women still shoulder the majority of the child-care responsibilities (Craig, 2006; Kotila et al., 2013). Importantly, women are typically not praised for desiring work-life balance (Correll et al., 2007; see also Luhr, 2020) but rather are expected to provide the lion's share of childcare. As a result, women are more likely to expect work-family conflict across a variety of careers (Coyle et al., 2015). Although findings suggest that prioritization of a family does not directly predict the gender gap, research in STEM demonstrates that the perception that a field is less supportive of having a family may lower one's feelings of belongingness (Morgan et al., 2013). Because fields associated with women are perceived as allowing one to prioritize having a family (e.g., Weisgram et al., 2011), psychology may be viewed as being more family-friendly than philosophy. Moreover, many people may associate a degree in philosophy with an *academic* career (and academic careers are perceived as unfriendly to having a family; e.g., Tan-Wilson and Stamp, 2015), whereas a psychology degree is thought to offer flexible career options (e.g., counselor, assessor). To this end, we test whether psychology, compared to philosophy, is viewed as facilitating having a family.

Beyond whether one's career is considered compatible with family demands, students' career choices may be influenced by the extent to which a field is viewed as supportive of the goal of financial security. Young people tend to be attracted to and choose majors that they expect to provide them with wealth (e.g., National Longitudinal Survey of Youth data [1993] as assessed by Montmarquette et al., 2002), and this is especially true for men (for meta-analysis see Konrad et al., 2000; but see Montmarquette et al., 2002). There appears to be more economic opportunity for psychology majors than for philosophy majors (Carnevale et al., 2015), and even when new opportunities arise for philosophy majors, their perceptions lag behind (Weinberg, 2018). Based on such findings, we could expect that students perceive psychology versus philosophy as allowing one to prioritize money in one's career, and as a result, men would be more likely to choose psychology over philosophy. Yet this prediction opposes the observed gender gaps on average (i.e., that men are attracted to philosophy over psychology). Perhaps men are more likely to view academia overall (including both psychology and philosophy) as a viable, financially secure career path, which would help explain the violation of such predictions. Alternatively, it may be that men's prioritization of wealth from a career serves as a buffer against gendered perceptions for belonging in psychology—men may experience stronger feelings of belonging in psychology to the extent that it relates to money because they value money more than women. Here, we test whether men prioritize money more than women and whether such a priority serves to buffer men's feelings of belonging in psychology.

The last life goal we considered relates to having a prestigious reputation or position relative to others in society, an affordance which varies across fields and careers. Desire for social status is a universal human motivation (Anderson et al., 2015), and men are perceived as more attractive to the extent that they demonstrate this motivation (Buss, 1999; Buss et al., 2020; DeWall and Maner, 2008). Prioritization of status is a primary factor that drives choices about careers for university students (e.g., Haase and Lautenschlager, 2011). In particular, students appear driven to study in stereotype-consistent fields to acquire status (e.g., Kessels, 2005). Thus, it may be that women who strongly desire status feel a stronger sense of belonging in psychology (stereotyped as feminine) and men who strongly desire status feel a stronger

sense of belonging in philosophy (stereotyped as masculine), with major choices aligning with these feelings of belonging. Likewise, we expect that men will view philosophy, compared to psychology, as garnering more social status compared to women, and vice versa.<sup>3</sup>

**Summary of Hypotheses.** That more women than men study psychology and more men than women study philosophy is likely driven by the extent to which students feel they belong in and are therefore more inclined to major in a field. The current study assesses to what extent competing explanatory factors contribute to feelings of belonging in psychology and philosophy. Specifically, we aim to understand whether students' individual differences (i.e., empathizing, systematizing, and intellectual combativeness) as well as life goals (i.e., prioritization of family, money, and status) mediate the link between gender and belonging and, in turn, choice to major in psychology or philosophy. We hypothesize that women will view themselves as more empathizing, less systematizing and less combative, and will report greater prioritization of family and weaker prioritization of money, compared to men. We expect that, relative to women, men will perceive themselves as less empathizing, more systematizing and more combative, and report weaker prioritization of family and stronger prioritization of wealth. Moreover, we do not expect a gender difference in prioritization of status; rather, we expect that men who desire high status may feel more belonging in philosophy, whereas women who desire high status may feel more belonging in psychology. We also expect that higher perceptions of empathizing and prioritization of family and wealth will predict majoring in psychology over philosophy, and higher systematizing and combativeness will predict majoring in philosophy over psychology.

It is important to keep in mind that these factors are unlikely to be innate differences and are likely the result of both socialization and stereotypes (e.g., Bian et al., 2017, 2018a,b; Hentschel et al., 2019; Kite et al., 2008). Thus, the results of our model can inform practical interventions aimed at closing the gender gaps.

## Method

The present study was part of a preregistered empirical project on the Open Science Foundation (OSF, [https://osf.io/7yauq/?view\\_only=875a58705ca74c2b95204dbaf1ec69ed](https://osf.io/7yauq/?view_only=875a58705ca74c2b95204dbaf1ec69ed)).

**Participants.** Students enrolled in philosophy or psychology classes in diverse (e.g., large state, small liberal arts, and ivy league) universities across the United States and Canada were invited to respond to an online survey about career choices and their future.<sup>4</sup> We excluded people who began but did not complete the majority of the survey ( $n = 179$ ), failed the attention check (i.e., "I would say that I am paying attention, as evidenced by my choosing the most negative option now";  $n = 109$ ), asked to withdraw their data ( $n = 2$ ), and/or were not philosophy or psychology majors ( $n = 141$ )<sup>5</sup>. Our final sample included 241 psychology and philosophy majors (181 women, 62 men<sup>6</sup>;  $M_{\text{age}} = 21.63$ ,  $SD = 5.19$ ; 65.4% White, 16.9% Hispanic or Latino, 6.6% Chinese, 6.6% Black or African, 4.6% Indian, 1.6% Native or Indigenous, 5.8% Iranian, 3.3% Other). See SM for more details on recruitment of participants.

<sup>3</sup> There is also work that suggests women's participation in high-status fields has increased over time and that psychology is not the highest status field (e.g., Lippa et al., 2014), such that women who are highly status-prioritizing may be more likely to major in another field than psychology (or philosophy).

<sup>4</sup> Data were collected in a single wave in Fall 2020 via "Survey\_V4" (see OSF).

<sup>5</sup> We retain these participants for one test of a preregistered hypothesis: That women's level of prioritization of status would predict major such that women higher in prioritization of status elect to major in something other than psychology of philosophy.

<sup>6</sup> Without enough statistical power to analyze and make conclusions from data of participants who identify as non-cis men and women, we did not analyze data from people who identified as transgender men ( $n = 1$ ), postgender ( $n = 2$ ), non-binary ( $n = 7$ ), genderqueer ( $n = 1$ ), genderfluid ( $n = 1$ ), demifemale ( $n = 1$ ).

**Procedure and materials.** After participants provided consent, they reported their major ( $N_{\text{psych}} = 167$ ,  $N_{\text{philo}} = 74$ ) and demographic details. Participants then responded to measures of belonging in psychology and philosophy, and reported on their own empathizing, systematizing, and combativeness, as well as the extent to which they prioritize family, financial resources, and status in choosing a career. Participants also reported on which of the two fields they believe better facilitates prioritization of family, money, and status. Items were presented in a random order. See SM for all additional items and details related to scale development.

### Feelings of belonging

Participants responded to 3 items that captured their feelings of belonging in psychology and 3 nearly identical items that captured their feelings of belonging in philosophy, e.g., “*I feel comfortable in the academic environment of psychology (philosophy)*” on a 1 (*strongly disagree*) to 7 (*strongly agree*) scale (psychology:  $M = 4.85$ ,  $SD = 1.41$ ;  $\alpha = 0.83$ ; philosophy:  $M = 3.64$ ,  $SD = 1.73$ ;  $\alpha = 0.89$ ). We adapted these items from Walton & Cohen (2007). For all items, see SM.

### Individual difference factors

**Empathizing.** Participants responded to 7 items that measured to what extent they are motivated to identify and respond to other people’s emotions (Baron-Cohen et al., 2003), such as “*I can tune into how someone feels*” on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*) ( $M = 5.07$ ,  $SD = 0.83$ ;  $\alpha = 0.71$ ).

**Systematizing.** Participants responded to 9 items that measured to what extent they are motivated to analyze or construct systems (i.e., that which takes and operates on inputs to deliver outputs according to some particular rules; Baron-Cohen et al., 2003), such as “*I like to think about abstract ideas*” on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*) ( $M = 4.53$ ,  $SD = 0.89$ ;  $\alpha = 0.77$ ).

**Intellectual combativeness.** Participants responded to 7 items that captured the extent to which they enjoy and engage in intellectual debates/confrontation at the cost of social comfort on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). For example, items include “*In defending my ideas, I can sometimes frustrate other people*” and “*If a debate or a theoretical discussion gets heated, I feel uncomfortable*” (reversed) ( $M = 4.71$ ,  $SD = 1.11$ ;  $\alpha = 0.81$ ).

### Life goal factors

**Prioritization of family.** Participants responded to 4 items that captured the extent to which they personally desire a career that facilitates having and time with a family, using a 1 (*strongly disagree*) to 7 (*strongly agree*) scale: e.g., “*I prefer a job that would allow for flexible work hours for family and children*” ( $M = 4.72$ ,  $SD = 1.65$ ;  $\alpha = 0.88$ ).

**Prioritization of money.** Participants responded to 3 items that reflected their personal desire for wealth on a 1 (*strongly disagree*) to 7 (*strongly agree*) scale, e.g., “*I want to make a lot of money in my career*” ( $M = 4.87$ ,  $SD = 1.46$ ;  $\alpha = 0.87$ ).

**Prioritization of status.** Participants responded to 3 items that measured the extent to which they desire status and prestige via their career using a 1 (*strongly disagree*) to 7 (*strongly agree*) scale, e.g., “*I want a career that gets respect and admiration*” ( $M = 4.75$ ,  $SD = 1.24$ ;  $\alpha = 0.78$ ).

### Perceptions of the fields

**Prioritization of family.** Participants responded to 5 items that captured the extent to which they believe a field facilitates having a family, by choosing between *Psychology* and *Philosophy*: e.g., “*A career in \_\_\_ facilitates the work-life balance essential for having a family.*” We calculated perceptions of fit between prioritization of family and psychology (as compared to philosophy) by dividing the number

of times psychology was chosen over philosophy by the total number of items (i.e., 5) and vice versa to calculate perceptions of philosophy (as compared to psychology), such that these values are inversely related.

**Prioritization of money.** Participants responded to 3 items that captured the extent to which they believe a field facilitates making money, by choosing between *Psychology* and *Philosophy*: e.g., “*\_\_\_ is well-suited to those who want to make a lot of money in their career.*” Perceptions of fit between prioritization of money and psychology (as compared to philosophy) was calculated by dividing the number of times psychology was chosen over philosophy by the total number of items (i.e., 3) and vice versa to calculate perceptions of philosophy (as compared to psychology), such that these values are inversely related.

**Prioritization of status.** Participants responded to 5 items that captured the extent to which they believe a field facilitates gaining social status, by choosing between *Psychology* and *Philosophy*: e.g., “*Working in \_\_\_ would allow a person to build a name and reputation for him/herself.*” We calculated perceptions that status can be gained in psychology (as compared to philosophy) by dividing the number of times psychology was chosen over philosophy by the total number of items (i.e., 5) and vice versa to calculate perceptions of philosophy (as compared to psychology), such that these values are inversely related.

## Results and discussion

To assess the relations between gender, field of study, feelings of belonging, and factors related to individual differences (i.e., empathizing, sympathizing, and combativeness) as well as life goals (i.e., prioritization of family, wealth, and status) we examined the bivariate, zero-order associations between our variables (Table 1). We then examined participants’ views as to how psychology versus philosophy facilitate said goals (paired t-tests), how such factors predict feelings of belonging and majoring in psychology versus philosophy, and how these relations vary by gender (i.e., interaction effects, see SM). We test whether gender and the different factors predict feelings of belonging and major choice using a series of regressions (i.e., linear regression for feelings of belonging as outcome and binomial logistic regression for major as outcome).

Finally, a structural equation model (SEM, namely, a path analysis) was used to simultaneously assess how individual difference and life goal factors contribute to the gender gaps in psychology and philosophy (i.e., partially explain variance in the link between gender and belonging in philosophy and psychology, which in turn predict major). We employ SEM instead of basic mediation because SEM allows for complex sequential mediation and moderation and simultaneous assessment of the associations among gender, individual difference factors (i.e., empathizing, systematizing, combativeness), life goal factors (i.e., prioritization of family, prioritization of money and status), and feelings of belonging in psychology and philosophy as well as their relative contributions to major (see Fig. 1).

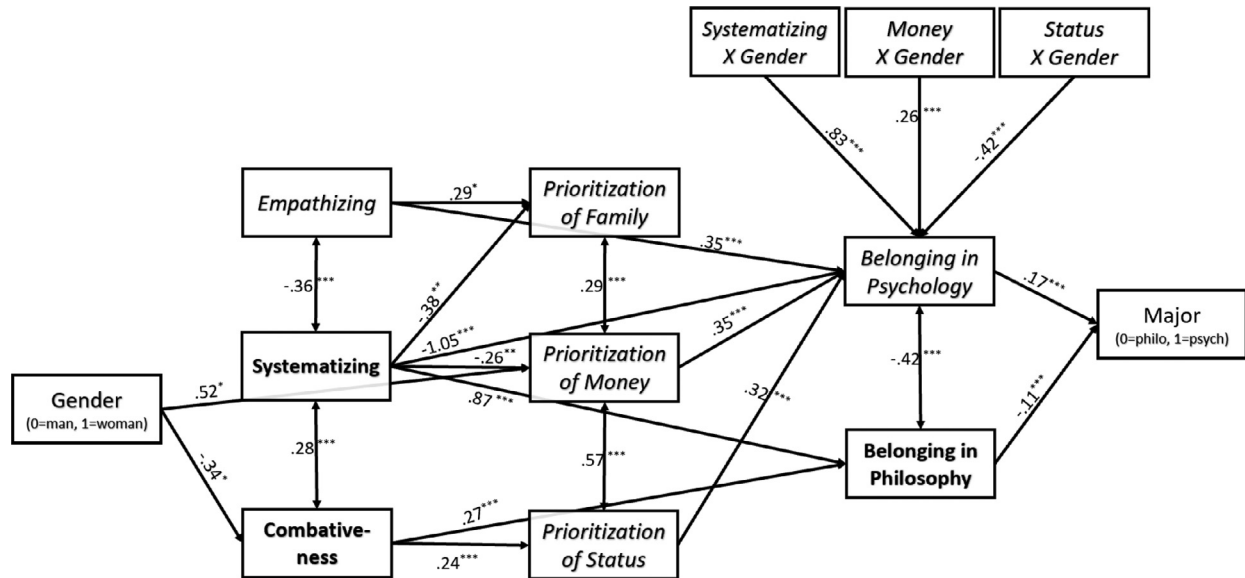
### Gender and field of study

There was a positive correlation between majoring in psychology vs. philosophy and identifying as a woman vs. man (see Table 1), such that women were more likely to major in psychology and men in philosophy. Of psychology majors, 83% were women. However, perhaps because women were overall more willing to respond to our survey, we collected more data from women (56%) than men (44%) in philosophy. Nonetheless, our pilot study of aggregated enrollment data from 2014/15, 2015/16, 2016/17, and 2017/1 at our institution replicates this pattern: More women than men enroll in classes in psychology when beginning university, and more men than women enroll in philosophy classes when beginning university (see Figs. 1S – 4S).

**Table 1**  
Correlations among primary variables.

	1	2	3	4	5	6	7	8	9
1. Major (0=philosophy, 1=psychology)	–								
2. Gender (0=man, 1=woman)	.29***	–							
3. Belonging in Psychology	.72***	.26***	–						
4. Belonging in Philosophy	–0.65***	–0.25***	–0.46***	–					
5. Empathizing	.26***	.17**	.35***	–0.10	–				
6. Systematizing	–0.43***	–0.26***	–0.38***	.55***	–0.95***	–			
7. Intellectual Combativeveness	–0.33***	–0.19**	–0.11†	.33***	–0.01	–0.26***	–		
8. Prioritization of Family	.11†	–0.04	.20**	–0.14*	.22***	–0.26***	.01	–	
9. Prioritization of Money	.36***	.13*	.35***	–0.35***	.08	–0.21***	.08	.27***	–
10. Prioritization of Status	.01	–0.02	.08	.02	.02	.07	–0.21***	.01	.47***

Note: † $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .



**Fig. 1.** Belonging in Psychology and Philosophy Path Model. Note: Contributors to feelings of belonging in psychology are represented in italics, and contributors to feelings of belonging in philosophy are represented in bold. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

**Feelings of belonging**

Feelings of belonging in psychology were negatively associated with feelings of belonging in philosophy (see Table 1), suggesting that the more students feel they belong in psychology, the less they feel they belong in philosophy and vice versa. Gender was also positively associated with belonging in psychology and negatively with belonging in philosophy: women, compared to men, report feeling more belonging in psychology and men, compared to women, report feeling more belonging in philosophy.

**Gender and individual difference factors**

For each individual difference factor, we first describe significant bivariate associations with gender and belonging in psychology and philosophy (see Table 1 for correlations) and then describe interaction analyses (i.e., between gender and individual differences in predicting belonging and majoring; see SM).

*Empathizing.* Women, compared to men, perceived themselves as more empathizing, per the positive association between gender and empathizing (see Table 1 for correlations and Table 2 for means and standard deviations). Moreover, empathizing was positively associated with belonging and majoring in psychology (Table 1), such that the more empathizing people perceive themselves to be, the more they feel they belong in psychology and the more likely they are to major in that field.

**Table 2**  
Means and Standard Deviations for Individual Difference factors.

Individual differences	Major	
	Philosophy	Psychology
Empathizing	4.76 [1.01] <sup>a</sup>	5.21 [0.70]
Men	4.50 [0.95]	5.20 [0.56]
Women	4.96 [1.03]	5.21 [0.73]
Systematizing	5.10 [0.67]	4.28 [0.86]
Men	5.30 [0.60]	4.50 [0.56]
Women	4.94 [0.69]	4.23 [0.90]
Combativeveness	5.24 [1.02]	4.47 [1.07]
Men	5.13 [0.90]	4.98 [1.13]
women	5.33 [1.11]	4.37 [1.03]

Note. <sup>a</sup>Mean [SD]. Responses were on a 7-point scale (1 = “strongly disagree” to 7 = “strongly agree”).

Empathizing and gender interacted to predict feelings of belonging in philosophy but did not interact to predict feelings of belonging in psychology (see analyses in SM, starting on page 10). At low, not high, levels of empathizing, there is an effect of gender on feelings of belonging in philosophy. For people who report higher empathizing tendencies, men and women are no different in how much they feel they belong in philosophy; but for people low in empathizing, men feel like they belong in philosophy more than women, who feel they belong in psychology. Examining the interaction between gender and empathizing another way, within gender, we see that among men, there is an effect of empathiz-

ing, such that men who reported higher self-perceptions of empathizing felt less belonging in philosophy compared to men who reported lower empathizing, whereas there was no difference among women. In other words, perceptions of empathizing predicted feelings of belonging in philosophy for men, but not women. Finally, gender and empathizing did not interact to predict in majoring in either psychology or philosophy.

**Systematizing.** Men, compared to women, perceived themselves as more systematizing (see positive correlation between gender and systematizing in Tables 1 and 2 for means and standard deviations). Systematizing was associated negatively with feelings of belonging in psychology, positively with feelings of belonging in philosophy, and negatively with majoring in psychology over philosophy (or positively with majoring in philosophy over psychology; Table 1).

Systematizing and gender interacted to predict feelings of belonging in psychology, but not feelings of belonging in philosophy (see SM starting on page 14). At high, but not low, levels of systematizing, gender predicts feelings of belonging in psychology. That is, for people low in systematizing, men and women do not differ in their feelings of belonging in psychology; but, for people who are high in systematizing, men feel less belonging and women feel more belonging in psychology. For both women and men, there is an effect of systematizing, such that the more systematizing a student perceives themselves to be, the less they feel they belong in psychology, but this effect appears larger for men.

**Combativeness.** Men self-reported more intellectual combativeness than did women (per negative correlation between gender and combativeness, Tables 1; see 2 for means and standard deviations). Moreover, combativeness was positively associated with feelings of belonging and majoring in philosophy (Table 1).

Combativeness interacted with gender to predict feelings of belonging and majoring in philosophy, but not psychology (see SM starting on page 17). At low, not high levels, of combativeness gender predicts feelings of belonging and majoring in philosophy. That is, for people who perceive themselves as being low in combativeness, men feel more belonging and are more likely to major in philosophy, compared to women. However, this gender difference disappears for people high in combativeness, such that women high in combativeness are just as likely to feel like they belong or go into philosophy as men high in combativeness. Probed another way, women who perceive themselves as more combative are more likely to feel they belong and major in philosophy, but combativeness is not predictive for men.

In sum, compared to men, women view themselves as more empathizing and less systematizing and combative. Higher empathizing and lower combativeness and systematizing were associated with majoring in psychology over philosophy; inversely, lower empathizing and higher combativeness and systematizing were associated with majoring in philosophy over psychology. Students felt stronger feelings of belonging in psychology when they perceived themselves to be more empathizing and less systematizing (and to a nonsignificant extent, less combative), while feelings of belonging in philosophy were associated with higher systematizing and combativeness.

## Gender and factors related to life goals

**Prioritization of Family.** As predicted, psychology ( $M = 0.65$ ,  $SD = 0.36$ ) was seen as facilitating having a family more than was philosophy ( $M = 0.34$ ,  $SD = 0.35$ ),  $t(240) = -6.88$ ,  $p < .001$ . Men and women did not differ in the extent to which they prioritize family in choosing a career, as evidenced by no significant association between gender and prioritization of family (see Table 1 for correlations and Table 3 for means and standard deviations). Prioritization of family predicted feelings of belonging in psychology positively but in philosophy negatively; however, prioritization of family was not significantly directly associated with majoring in psychology over philosophy (i.e., this association was marginal; Table 1).

**Table 3**  
Means and Standard Deviations for Life Goals factors.

Life Goals	Major	
	Philosophy	Psychology
Prioritization of Family	4.47 [1.68] <sup>a</sup>	4.84 [1.64]
men	4.34 [1.52]	5.38 [1.00]
women	4.57 [1.80]	4.72 [1.73]
Prioritization of Money	4.08 [1.71]	5.20 [1.20]
men	3.70 [1.53]	5.46 [1.07]
women	4.37 [1.80]	5.15 [1.22]
Prioritization of Status	4.69 [1.43]	4.75 [1.14]
men	4.41 [1.28]	5.19 [0.93]
women	4.92 [1.51]	4.67 [1.17]

Note. <sup>a</sup>Mean [SD]. Responses were on a 7-point scale (1 = “strongly disagree” to 7 = “strongly agree”).

Moreover, prioritization of family interacted with gender to predict belonging in psychology, but not philosophy (see SM starting on page 22). At low, but not high, levels of prioritization of family, there is an effect of gender. For people who highly value having a family, men and women do not differ in their feelings of belonging in psychology; the more people prioritized family, the more they felt they belonged in psychology. For people who prioritize family in their career choice to a comparatively low extent, women are more likely than men to feel they belong in psychology.

Similarly, prioritization of family interacted with gender to predict major. At low, but not high, levels of prioritizing a family in career choice, women are more likely than men to major in psychology over philosophy and vice versa. No such difference was found among people who highly value having a family. Probing this another way, prioritization of family predicts major for men but not women; men who strongly prioritize being able to have a family in a career are more likely to major in psychology over philosophy compared to men who do not prioritize having a family in a career.

**Prioritization of Money.** As predicted, psychology ( $M = 0.89$ ,  $SD = 0.27$ ) was seen as the career that provides financial resources, rather than philosophy ( $M = 0.11$ ,  $SD = 0.27$ ),  $t(238) = -22.42$ ,  $p < .001$ . Unexpectedly, women, more than men, prioritized gaining wealth from a career, and that prioritization of money was associated with feelings of belonging and majoring in psychology (see Table 1 for correlations and Table 3 for means and standard deviations).

In moderation analyses (see SM starting on page 27), prioritization of money interacted with gender to predict belonging in psychology but did not predict belonging in philosophy. Specifically, at low, but not high, levels of prioritization of money in one’s career, women more than men feel they belong in psychology. There is no gender difference in feelings of belonging in psychology among people who highly prioritize making a lot of money from their career. That is, for both men and women, prioritizing making a lot of money in their career predicts belonging in psychology, but this effect is stronger for men according to analyses probing the interaction by gender.

Prioritization of money and gender also interacted to predict major in a similar pattern: for people who highly prioritize gaining wealth from their career, there is no gender difference in choice of major. However, for people who prioritize making money from their career to a lower degree, women are more likely than men to major in psychology over philosophy. Probing the interaction another way (i.e., by gender), the more students prioritize making a lot of money in a career, the more likely they are to major in psychology over philosophy, but this effect is stronger for men than women.

**Prioritization of Status.** In contrast to predictions, overall, psychology ( $M = 0.62$ ,  $SD = 0.27$ ) was seen as providing more social status than philosophy ( $M = 0.37$ ,  $SD = 0.27$ ),  $t(240) = -7.33$ ,  $p < .001$ . Both men ( $t(59) = -4.31$ ,  $p < .001$ ) and women ( $t(179) = -6.21$ ,  $p < .001$ ) evinced

the same differential perceptions of the fields.<sup>7</sup> Men and women did not differ with respect to prioritizing status from their career, nor did prioritization of status predict feelings of belonging or majoring in either field (see Table 1 for correlations and Table 3 for means and standard deviations).

Prioritization of status and gender interacted to predict belonging and majoring in psychology over philosophy, but they did not interact to predict feelings of belonging in philosophy (see SM starting on page 32). At low, but not high, levels of prioritizing status in choosing a career, there is an effect of gender, with lower status seeking women having stronger feelings of belonging in psychology compared to lower status seeking men. In contrast, for people who highly prioritize gaining status via their careers, there is no gender difference in belonging in psychology. Probing this another way, for men but not women, there is an effect of prioritizing status from a career, such that the more they desire status, the more men feel they belong in psychology. Prioritization of status and gender interacted to predict majoring in psychology over philosophy in a similar way: at low levels of prioritization of status, women are more likely to major in psychology than men, but there is no effect of gender for higher status seekers. Though, probing the interaction another way, status is more predictive of major for men than for women, with higher prioritization of status predicting majoring in psychology over philosophy for men but not women.

In sum, across all life goals by gender (i.e., prioritization of family, money, and status) interaction analyses, a similar pattern emerges—at high levels, men and women do not differ in belonging or major, but at low levels, they do. This pattern suggests that when people's prioritization of family or money or status is relatively low, and therefore not guiding their belonging and major, they seem to feel a stronger sense of belonging and are more likely to major in stereotype-consistent majors, with women favoring psychology and men favoring philosophy.

### Structural equation model (SEM)

**Method and Model.** We built an SEM in order to assess whether and how the relevant individual difference and life goal factors mediate or moderate the association between gender and belonging and, in turn, majoring in psychology or philosophy when simultaneously modelled. The model contained all significant bivariate associations (see Table 1) and significant interactions (see moderation analyses, SM) between gender and the six explanatory factors. Based on theory, we modelled individual differences (i.e., empathizing, systematizing, and intellectual combativeness) as preceding life goals (i.e., prioritization of family, money, and status) in contributing to feelings of belonging and subsequently major. We then removed all non-significant interactions (i.e., Empathizing X Gender → Belonging in Philosophy, Combativeness X Gender → Belonging in Psychology, Prioritization of Family X Gender → Belonging in Psychology) and re-calculated pathway estimates. We then removed nonsignificant pathways from the streamlined model (i.e., Gender → Major, Gender → Empathizing, Combativeness → Belonging in Psychology, Prioritization of Family → Belonging in Psychology, Prioritization of Family → Belonging in Philosophy; see SM, page 37), which yielded our final model, displayed in Fig. 1.

All variables were measured (i.e., none were latent factors); our analyses can hence be described as a path analysis. The path analysis was computed using AMOS (Arbuckle, 2014) and a Markov chain Monte Carlo (MCMC) Bayesian technique because the model included dichotomous variables (i.e., gender, major) which disallows normally

<sup>7</sup> These patterns of results for perceptions of the fields replicated when including non-psychology and -philosophy majors to ensure our results were not an artifact of having more psychology student participants: prioritization of family,  $t(384) = -9.52, p < .001$ ; prioritization of money,  $t(382) = -25.30, p < .001$ ; prioritization of status,  $t(384) = -8.07, p < .001$ .

distributed outcome variables (see Choi and Levy, 2017). MCMC is a simulation-based estimation method; it empirically samples from the current data. Monte Carlo methods build on random simulation, and Markov chain methods build on samples that are independent from each other. Our MCMC model was specified in the following way. Burn-in observations were set to 500, the random walk tuning parameter to 0.7, the number of batches for bath means to 20, and the convergence criterion to 1.00.

**Interpreting Model.** See Fig. 1. We interpret the model from left to right (and top to bottom within columns of mediators), i.e., from gender to major. Importantly, the direct association between gender and major was no longer significant when taking individual differences (i.e., empathizing, systematizing, and combativeness) and life goals (i.e., prioritization of family, money, and status) into account. Such factors account for significant variance in the relationship between gender and major and help explain gendered feelings of belonging and subsequent gender gaps in psychology and philosophy.

When all factors were taken into account, gender was no longer uniquely associated with empathizing and systematizing. Still, empathizing plays an important role: the more people report being empathizing, the more they prioritize family and the more they feel they belong in psychology, which predicts majoring in psychology over philosophy. Empathizing and systematizing were inversely related, such that the more empathizing people were, the less systematizing they were.

Systematizing contributed negatively to prioritization of family and of money, and therefore indirectly to lower feelings of belonging in psychology. Systematizing also directly negatively predicted feelings of belonging in psychology and positively predicted feelings of belonging in philosophy, which were in turn associated with higher likelihood of majoring in philosophy over psychology. These were the two strongest effects in our model. Put another way, people who perceive themselves as highly systematizing do not highly value having a family or making a lot of money in a career and strongly feel that they belong in philosophy but not in psychology; consequently, they tend to major in philosophy, not psychology. Although gender did not directly predict systematizing such that men or women were more systematizing (when taking all other factors into account), gender interacted with systematizing to predict belonging in psychology. Specifically, men who are high in systematizing feel especially low belonging in psychology compared to women who are equally high in systematizing. This suggests that for women high in systematizing, aspects of the culture of psychology are still welcoming to them, but less so for men. Systematizing is moderately related to intellectual combativeness.

Intellectual combativeness differs by gender, such that men appear more combative than women, and positively predicts the prioritization of status from one's career as well as higher feelings of belonging in philosophy. Although higher prioritization of status is associated with stronger feelings of belonging in psychology and subsequently majoring in psychology, the higher feelings of belonging in philosophy associated with high combativeness predicts majoring in philosophy.

Prioritization of family in choosing a career is related to more empathizing, less systematizing, and more prioritization of money, but it is not predicted or moderated by gender and does not predict feelings of belonging. This is to say, men and women do not differ in the extent to which they want to have a family, and the desire to have a family-friendly career does not directly feed into feelings of belonging in one field over the other. Instead, our model suggests that the desire to have a family contributes to the desire to make a lot of money in one's career, which in turn contributes to feelings of belonging in and therefore majoring in psychology over philosophy. Prioritization of money also interacted with gender to predict belonging in psychology. Namely, whereas women and men who highly prioritize money feel equal belonging in psychology, women who de-prioritize money feel they belong in psychology more than do men who de-prioritize money from their careers. Without a desire to have wealth, which is more easily accomplished via

psychology than philosophy, men do not experience the same strong feelings of belonging that women experience, again suggesting that the culture of psychology may be friendlier to women.

Prioritization of money was also associated with prioritization of status, which positively predicted feelings of belonging in psychology, which predict majoring in psychology over philosophy. Notably, prioritization of status interacted with gender also. As with the prioritization of money, women are more likely than men to feel they belong in psychology when they do not value garnering status via their career. But also, probing this another way, for men but not women, the more they desire status, the more men feel they belong in psychology. High feelings of belonging in psychology, in turn, predict majoring in that subject

Feelings of belonging in psychology and feelings of belonging in philosophy were inversely related, such that being high in one tended to predict low levels of the other. And, of course, feelings of belonging in psychology predicted majoring in that field, and feelings of belonging in philosophy predicted majoring in that field.

*Summary of findings.* Our model highlights individual difference factors and life goals that account for feelings of belonging in academic psychology and philosophy, in turn influencing the likelihood of majoring in either field. Students are likely to feel they belong and major in psychology to the extent that they perceive themselves as highly empathizing, less systematizing, and highly prioritizing family, money, and status in their career. These students tend to be women. Students tend to feel they belong and major in philosophy to the extent that they perceive themselves as highly systematizing and intellectually combative. These students tend to be men. Adding some nuance, the interaction effects appear to reflect what we might think of as buffers against the gendered culture of psychology for men: men who were highly oriented toward systematizing, relatively unconcerned about making money in their careers, or did not value gaining status via their careers felt that they do not belong in psychology to the same extent that women with comparable traits and priorities did.

## General discussion

Women and men are disproportionately represented across academic fields. Psychology and philosophy share history and topical interests yet feature inverse gender gaps: more women than men study psychology and more men than women study philosophy. Data from our own institution confirm that pattern and further finds that the pipelines leak early, in introductory undergraduate courses. It is important to understand contributors to the feelings of belonging in these fields, which are likely a proximate and powerful driver of people's decisions about what to study given the importance of (perceived) fit between person and field (e.g., Cheryan and Plaut, 2010; Good et al., 2012; Holland and Gottfredson, 1976; Morganson et al., 2010; Päßler and Hell, 2012; Prediger, 1982; Walton & Cohen, 2011). The present research examined factors that likely play a role in the maintaining the gender disparities across psychology vs. philosophy—i.e., hypotheses that women are more empathizing and prioritizing of family; and that men are more systematizing, intellectually combative, and prioritizing of money and status—and, importantly, how these factors contribute to feelings of belonging.

We examined whether and how gender predicts major through perceptions of one's individual difference traits (empathizing, systematizing, and combativeness), life goals (prioritization of family, money, and status), and in turn feelings of belonging in psychology and philosophy in undergraduate students across North America. Critically, when these factors are considered, gender no longer directly predicts major, suggesting that individual differences and life goals that vary with gender may be the proximal cause of the gender gap in psychology and philosophy.

## Individual differences and life goal profiles for psychology and philosophy

In choosing what career to pursue, people compare their personal characteristics to those that appear to dominate the field to assess fit. Past work casts people's perceptions of psychology as an empathetic, communal field (e.g., Holland and Gottfredson, 1976), and, as we find in the present work, supportive of having a family, wealth, and social status. Philosophy, in contrast, is seen as the intellectually combative field, and, as our results suggest, unhelpful in pursuing the goals of family, wealth, and social status. We empirically examine the individual difference and life goal profiles of students who feel they belong in and therefore major in psychology versus philosophy.

The picture is complex. Although perceptions of their own levels of empathizing, systematizing, and intellectual combativeness played important roles in feelings of belonging and major, they were not merely gendered differences as past work might suggest (e.g., Baron-Cohen et al., 2003). When evaluated in light of other factors, like combativeness and life goals, men and women did not differ in empathizing and systematizing.

Still, empathizing and systematizing play important, though not simply gendered, roles in explaining the gender gap. People who view themselves as high in empathizing feel they fit in psychology, consistent with theory, and also more strongly desire a career that facilitates having a family. Prioritization of family in a career is likewise not gendered. This takes concerns about family-work balance off the table as a direct explanation of the gender gaps in psychology and philosophy; instead, prioritization of family might motivate prioritization of money, which more directly contributes to feelings of belonging in psychology.

Systematizing does a lot of work in explaining students' feelings of belonging and majoring in psychology vs. philosophy (i.e., it is statistically associated with many of the contributing factors, and these associations are of relatively large magnitude). Students who perceive themselves as highly systematizing feel particularly low belonging in psychology and particularly high belonging in philosophy. Perceiving oneself as highly systematizing does have different implications for men and women's feelings of fit, though: Compared to highly systemizing women, highly systemizing men felt alienated (i.e., lower feelings of belonging) in psychology. That is, it is not that men tend to be more systematizing than women (when other factors are considered), rather women who are highly systematizing may feel buffered against the incompatibility between their nature and that of psychology (i.e., perceived as empathizing) compared to men who are highly systematizing. It is unclear what that buffer is; it could be gender on its own, providing the feeling psychology is for people "like them" given women feel more comfortable in environments where women are represented (e.g., Dasgupta et al., 2015).

Crucially, we saw gender differences in intellectual combativeness, with men, more than women, perceiving themselves as highly motivated and willing to engage in intellectual debate, even at the cost of social coherence and comfort. Combativeness predicted strong feelings of belonging, and in turn, majoring in philosophy. An important theoretical insight arises when considering that intellectual combativeness is associated with high levels of systematizing, which is related to more belonging in philosophy and inversely related to empathizing, which predicts belonging in psychology. If combativeness both (a) drives the gender divide in psychology vs. philosophy and (b) covaries with high systematizing / low empathizing which drive the gender divide in philosophy vs. psychology, then without operationalizing combativeness, we might find that systematizing and empathizing are partially responsible for the gender gaps, which prior work might suggest, by virtue of limited measurement. Put another way, intellectual combativeness appears to be an integral piece to the puzzle in understanding why men are attracted to and women are deterred from philosophy compared to psychology.



Our model is also consistent with the possibility that people who perceive themselves as more combative and therefore systematizing feel less belonging in psychology because they also prioritize having a family and money, which fosters feelings of fit with psychology. Notably, prioritization of money and status contribute to feelings of belonging in psychology, but are unrelated to feelings of belonging in philosophy, both of which contribute to major choice. This pattern suggests that people who desire a career that provides them with wealth and status feel more at home in psychology, but such concerns may not be weighed in considering philosophy as an academic home and major. It may be that philosophy does not attract people who desire wealth and social status, and that may be inherent to the sort of work philosophers do, which we have argued entails abstract work and building knowledge for its own sake (Maranges et al., 2021). However, we also found that intellectual combativeness fed into prioritization of status, which suggests that those who feel they belong in philosophy also desire to be known for their work. Perhaps this is a different sort of status than what psychology is perceived to provide. All in all, our findings suggest that the picture is complex, but they also add clarity.

### Implications for interventions

Our findings can inform interventions aimed at closing the gender gaps by increasing women's feelings of belonging in philosophy and men's feelings of belonging in psychology. Intellectual combativeness is one of the most powerful predictors of feelings of belonging in our model, both directly and through associations with systematizing and empathizing. Accordingly, it will be essential to target (a) expectations that men should be, but women should not be intellectually combative and (b) the combative style of intellectual debate in academic philosophy. Successful interventions on women's beliefs that they cannot grow their intelligence and are not brilliant (e.g., Blackwell et al., 2007)—which may be perceived a requisite to engagement in intellectual combativeness, as its link with systematizing could suggest—can be adapted to also address stereotypes about combativeness. For example, women may benefit from learning that just as many women lawyers engage in intense styles of debate as men (e.g., Burton et al., 1991) or about successful debaters who are women, as role models in particular contexts help women feel they belong in those contexts (e.g., Young et al., 2013). Addressing this at its core, though, entails that the stereotype that combativeness indicates intellectual prowess should itself be broken, especially for men. Additionally, philosophy departments, organizations, and conferences, should encourage a respectful discussion and discourage confrontational debate styles. This can begin in undergraduate classrooms, with instructors explicitly discussing this issue. But also, this culture change should be at the level of faculty and graduate students, who interact with more junior philosophy students.

Recall that people who highly prioritized money (who tended to be women) and status felt more belonging in psychology, whereas those priorities were unrelated to philosophy. Hence, attracting more diverse students into philosophy may be accomplished by highlighting how philosophers often also engage in and inform discussions, such as about political or social issues, in the public spotlight. Moreover, our results suggest that the prioritization of money may in part emerge from people's desire to have a family, which can be expensive. Accordingly, making philosophy a more family-friendly environment, such as by allowing flexible hours, work from home, and funding of child-care, may trickle down to undergraduates' perceptions.

Finally, the gender imbalances themselves likely self-perpetuate: Students feel less belonging in an academic group where they are in the gender minority (e.g., Inzlicht and Ben-Zeev, 2003; Sekaquaptewa and Thompson, 2002). Although broader interventions are necessary to increase the number of women in philosophy, for example, pairing the women who are already studying philosophy to work together may buffer their feelings of belonging. Indeed, research in STEM finds that when they work in groups with other women (vs. men; Dasgupta et al.,

2015) or receive tutoring from or with other women (vs. men; for review, see Robinson et al., 2005), women experience heightened feelings of belonging and are more likely to persevere. Men may also benefit from working with other men in psychology.

### Limitations and future directions

Notwithstanding its strength in terms of relevant sample and outcome, preregistration, and simultaneous modeling of important factors, this work is limited in a few ways worth mentioning. First, although 35% of our sample is non-White, we did not have enough participants of color to examine other problematic gaps, lack of diversity, or issues of intersectionality. For example, Black students are underrepresented in philosophy (i.e., Black PhD students and graduates combined make up 1.32% of philosophers, but 13.4% of the population in the United States; Botts et al., 2014; US Census, 2021), with a pipeline that also leaks during undergraduate training (Bright et al., forthcoming; Schwitzgebel et al., 2021a). It is likely that gender identity interacts with ethnicity / race in creating unique, aggregating challenges to one's feelings of belonging in psychology and philosophy (i.e., intersectionality; Crenshaw, 2018/1989). We also did not collect detailed data that allowed us to test our hypotheses for students from other underrepresented groups, including LGBTQ+, working class and low socioeconomic status, and people with disabilities. Moreover, in building on past work and being able to make sufficiently powered, generalizable conclusions about people who report their gender as man or woman only, we were unable to systematically examine the perceptions and priorities of non-binary gendered students in psychology and philosophy. Future work should aim for more inclusivity in research on gender gaps.

Second, and relatedly, our sample was limited in diversity insofar as student participants attend universities in WEIRD places (i.e., United States and Canada), where the hegemonic culture is WEIRD (i.e., Western, Educated, Industrial, Rich, Democratic; Henrich et al., 2010). Future research should aim to understand which and how perceptions of personality and priorities combine and contribute to feelings of belonging and majoring in psychology and philosophy for students from minoritized groups and non-WEIRD samples. Finally, the correlational nature of our data and analyses means that we cannot make claims about causality; rather, our findings are consistent with a mechanistic view of particular factors linking gender and major.

### Conclusion

More women than men study psychology, and more men than women study philosophy. This is striking given the two fields share history and overlapping subject matter. Feelings of fitting in are essential to understanding undergraduate major choice and therefore these gender gaps in academia. We empirically delineate the nuanced perceived personality and priority profiles of undergraduate students who feel they belong in and chose to major in psychology vs. philosophy. Women were less intellectually combative than men and prioritized money more. People who perceive themselves to be very empathizing but not systematizing and who prioritize money and status from their career feel they belong in psychology, which predicts majoring in that field. People who perceive themselves to be highly systematizing and intellectually combative feel they belong in philosophy. These findings not only advance theory but also inform development of efficacious interventions by underscoring the essential role perceptions, especially individual differences in combative approaches to dialog, and priorities, especially with respect to garnering wealth from a career, play in explaining this academic gender gap.

### Data statement

Preregistration, materials, and data are available on the Open Science Foundation (OSF) website. Preregistration: <https://osf.io/7yauq/>

?view\_only=875a58705ca74c2b95204dbaf1ec69ed; Data & Syntax: [https://osf.io/tv7px/?view\\_only=44fca07583e94dc7803e6edd2aa7f36f](https://osf.io/tv7px/?view_only=44fca07583e94dc7803e6edd2aa7f36f)

## Declaration of Competing Interest

The authors of this work have no conflicts of interest to declare.

## Data availability

Data is available on OSF, as specified in Data Statement

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