Online Appendices for "Evaluating Claims of Intersectionality." *Journal of Politics*. Ray Block, Matt Golder, & Sona Golder

Online Appendix A: Fifteen Possible Intersectional Relationships Involving Gender and Race

In the main text, we made the claim that "there are fifteen theoretically possible ways in which gender and race could interact to affect some outcome of interest." We now demonstrate the basis for this claim.

There are ten possible ways in which gender can affect some outcome of interest in an intersectional theory positing an interaction between gender and race. Why? Recall that scholars can always make three predictions about the conditional effect of gender, or some other category of difference, on an outcome of interest. In our example, where race takes on the value of White or Black, these predictions relate to (1) the direction of intersectionality between gender and race, (2) the effect of gender among White people, and (3) the effect of gender among Black people. Scholars must make and evaluate all three predictions if they wish to fully corroborate an intersectional claim about the conditional effect of gender and distinguish it from alternative competing stories.

To see this, note that our proposed predictions can be represented as a set with three elements: $\{\text{P}_{\textit{Gender}\times\textit{Race}}, \text{P}_{\textit{Gender}|\textit{Race=White}}, \text{P}_{\textit{Gender}|\textit{Race=Black}}\}$. For example, our *Female Hypothesis* from the main text can be represented by the prediction set $P = \{$Negative, Negative, Negative$\}$. This set indicates that we expect to see a negative interaction effect between *Female* and *Black*, and that the effect of *Female* is expected to be negative among both White and Black people. Different elements in the prediction set describe different possible intersectional relationships between a category of difference such as gender and an outcome of interest. There are eighteen possible combinations of the elements in the set of predictions when we have an intersectional theory positing interaction between two categories of difference, each of which take on two values. However, only ten of these combinations are logically consistent.[1] For example, the set {Positive, Positive, Negative} is contradictory. This is because if we predict that there's a positive interaction effect between gender and race, as the first element in the set indicates, then it is impossible for the predicted effect of gender to be positive among White people (*Black* $= 0$) and negative among Black people (*Black* $= 1$). We saw three of the possible intersectional relationships for the conditional effect of

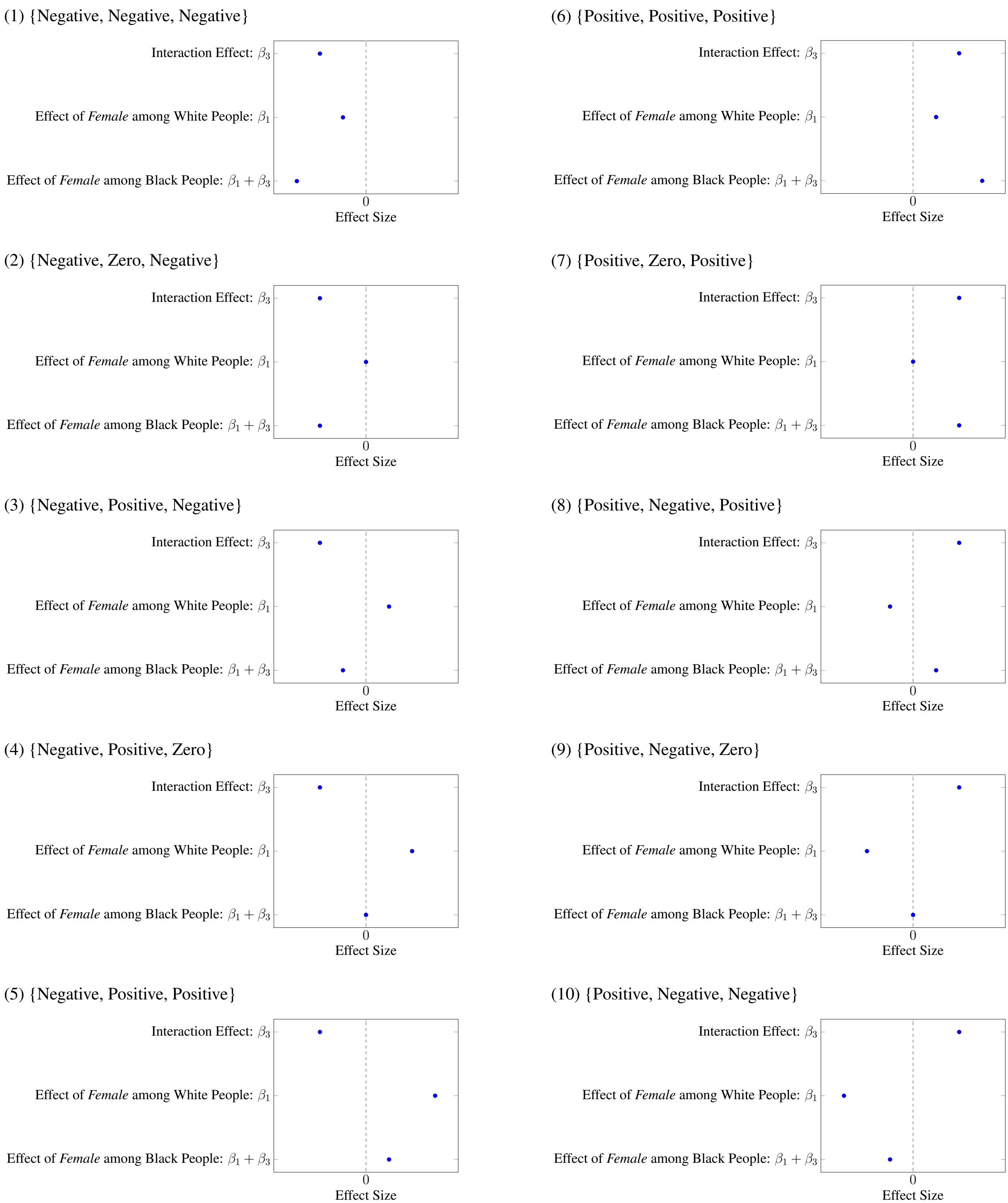
[1] In an intersectional theory, the element $\text{P}_{\textit{Gender}\times\textit{Race}}$ can take on two possible values (positive and negative), the element $\text{P}_{\textit{Gender}|\textit{Race=White}}$ can take on three possible values (positive, negative, zero), and the element $\text{P}_{\textit{Gender}|\textit{Race=Black}}$ can take on three possible values (positive, negative, zero). This means that there are $2 \times 3 \times 3 = 18$ possible combinations. Eight combinations, though, are logically inconsistent: {Positive, Positive, Negative}, {Positive, Positive, Zero}, {Positive, Zero, Zero}, {Positive, Zero, Negative}, {Negative, Negative, Positive}, {Negative, Negative, Zero}, {Negative, Zero, Zero}, and {Negative, Zero, Positive}.

gender earlier in Figure 3. In Figure A.1, we show all ten of the possible intersectional relationships for the effect of gender. The panels on the left show the possible conditional effects of gender that involve a negative interaction effect, while the panels on the right show the possible conditional effects of gender that involve a positive interaction effect.

Looking at the left column in Figure A.1, panel (1) describes an intersectional relationship in which race 'reinforces' or 'exacerbates' the negative effect of gender on the outcome of interest, panel (2) describes an intersectional relationship in which race 'facilitates' or 'allows for' the negative effect of gender, panel (3) describes an intersectional relationship in which race 'transforms' the effect of gender from positive to negative, panel (4) describes an intersectional relationship in which race 'inhibits' the positive effect of gender, and panel (5) describes an intersectional relationship in which race 'limits' the positive effect of gender. Similar language can be used to describe the intersectional relationships shown in the right column. Each of the panels shown in Figure A.1 depicts a distinctly different intersectional relationship for the conditional effect of gender. Only by deriving and testing all three of the predictions we have suggested is it possible for us to know whether the data support a particular intersectional claim about the effect of gender as opposed to one of the possible alternative intersectional relationships shown in Figure A.1.

While we have focused here on the possible intersectional effects of gender, our argument applies equally well to the intersectional effects of race. Just as scholars can make three predictions about the conditional effect of gender on an outcome of interest, they can also make three predictions about the conditional effect of race. As before, these predictions relate to (1) the direction of intersectionality between gender and race, (2) the effect of race among men, and (3) the effect of race among women. This means that there are also ten possible relationships for the intersectional effects of race on some outcome of interest just as there was with gender. Note, though, that the three predictions that scholars can make about gender and the three predictions that scholars can make about race share one prediction in common — the one about the interaction effect. As we have mentioned previously, this follows from the inherent symmetry of interactions (Kam and Franzese, 2007; Berry, Golder and Milton, 2012; Clark and Golder, 2023). In other words, the way that race modifies the effect of gender is identical to the way that gender modifies the effect of race. This is why we encourage scholars who wish to evaluate an intersectional theory positing interaction between two categories of difference, say gender and race, to make five, and not six, key predictions: (1) the interaction effect between gender and race, (2) the effect of gender among White people, (3) the effect of

Figure A.1: Ten Possible Intersectional Relationships for the Conditional Effect of Gender in a Theory Positing Interaction between Gender and Race



gender among Black people, (4) the effect of race among men, and (5) the effect of race among women. Since the sign (and magnitude) of the interaction effect is identical whether we are thinking about the modifying effect of race or the modifying effect of gender, it follows that there are fifteen, and not twenty, theoretically possible ways in which gender and race could interact to affect some outcome of interest. Only by making all five of our key predictions about the intersectional effects of gender and race can scholars know whether the data support their particular intersectional theory as opposed to one of the other fourteen possible intersectional relationships.

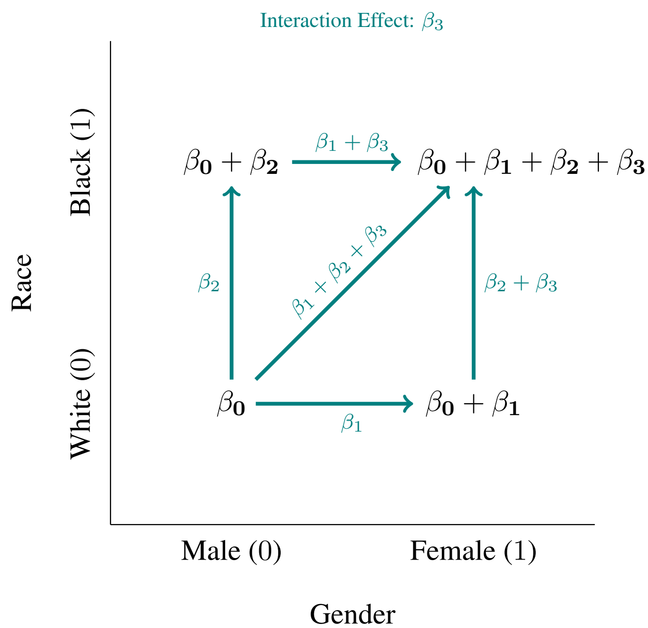
Online Appendix B: Comparing the Standard and Alternative Interaction Models

In the main text, we provided a very brief comparison of the standard interaction model in Eq. 3 and the alternative interaction model in Eq. 2. As we indicated, the two models are algebraically equivalent and, as a result, the exact same quantities of interest can be calculated from both models. However, each model makes it easier to see particular quantities of interest directly from the regression output. The key advantage of the standard model is that we can directly identify whether there is a significant interaction effect and hence whether there is any evidence of intersectionality. There is no way of identifying this directly from the regression output with the alternative model. This is important because evidence of intersectionality is a necessary condition for concluding that an intersectional theory is supported. We went on to note that one potential advantage of the alternative interaction model is that we can identify a *joint effect* of our categories of difference directly from the regression output. However, it is important to remember that this joint effect does not speak to whether the categories of difference are separable or not.

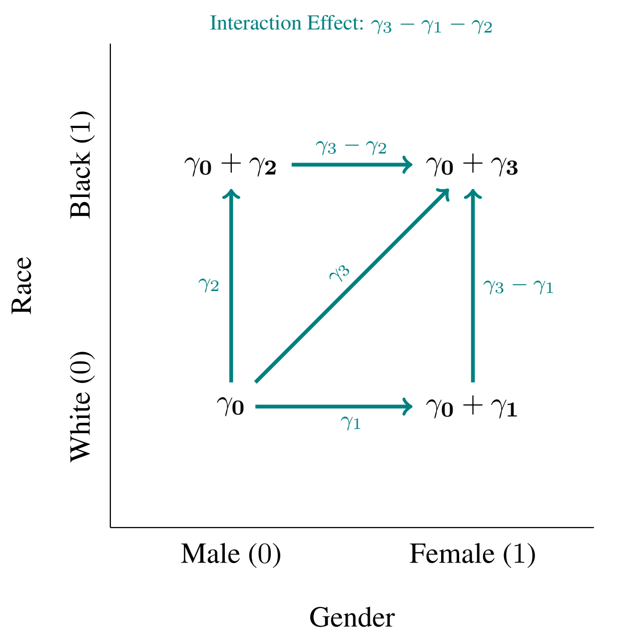
In this appendix, we take a closer look at exactly what we can read directly from the regression output when we estimate the standard and alternative interaction models. To focus our discussion, consider the predicted values and conditional effects from the two models shown in panels (a) and (b) of Figure B.2. The predicted values for the four identity groups are shown in black, while the conditional effects of changing gender and race, as well as the interaction effect between gender and race, are shown in teal. Both models allow us to see directly from the regression output the effect of being female instead of male among White people and the effect of being Black instead of White among men. These effects are captured by the coefficients $\gamma_1 = \beta_1$ and $\gamma_2 = \beta_2$. Both models, though, require that we move beyond the regression output to examine the effect of being female instead of male among Black people and the effect of being Black instead of White among women. To determine whether the effect of being female among Black people is statistically significant in the alternative model, we must formally test whether $\gamma_3 = \gamma_2$ or, equivalently, whether $\gamma_3 - \gamma_2 = 0$. To determine the same thing in the standard model, we must formally test whether $\beta_1 + \beta_3 = 0$. To determine whether the effect of being Black among women is statistically significant in the alternative model, we must formally test whether $\gamma_3 = \gamma_1$ or, equivalently, whether $\gamma_3 - \gamma_1 = 0$. To deter-

Figure B.2: Predicted Values and Conditional Effects from the Standard and Alternative Interaction Models

(a) Standard Interaction Model



(b) Alternative Interaction Model



Note: Panel (a) shows the predicted values (in black) and conditional effects (in teal) from the standard interactive model shown in Eq. 3. Panel (b) shows the same quantities from the alternative interactive model shown in Eq. 2.

mine the same thing in the standard model, we must formally test whether $\beta_2 + \beta_3 = 0$.[2]

In the previous paragraph, we framed our discussion in terms of evaluating the conditional *effects* of gender and race. We did so because intersectional theories typically focus on the 'effects' of various categories of difference. However, it is easy to reframe our discussion in terms of whether the various identity groups are significantly different. In our gender and race example, for instance, we might be interested in whether the predicted level of Republican support is different for White men, White women, Black men, and Black women. It is easy to reframe our discussion in this way because evaluating the *differences* in predicted values across identity groups is exactly equivalent to examining the *effects* of gender and/or race.

In the alternative interaction model, we can immediately see whether the included identity groups are significantly different from the baseline category by looking at γ_1, γ_2, and γ_3. In effect, we can immediately see whether White women, Black men, and Black women are significantly different from White men. However, we cannot necessarily determine directly from the regression output whether the predicted values for the included identity groups are significantly different from each other. In other words, we cannot necessarily tell whether White women, Black men, and Black women are significantly different from each other. If the confidence intervals for γ_1, γ_2, and γ_3 overlap, we need to formally test $\gamma_3 - \gamma_1 = 0$ (Black women versus White women), $\gamma_3 - \gamma_2 = 0$ (Black women versus Black men), and $\gamma_2 - \gamma_1 = 0$ (Black men versus White women). In the standard interaction model, we can immediately see whether White women are significantly different from White men and whether Black men are significantly different from White men by looking at β_1 and β_2. To compare other groups, though, we have to formally test $\beta_2 + \beta_3 = 0$ (Black women versus White women), $\beta_1 + \beta_3 = 0$ (Black women versus Black men), $\beta_1 + \beta_2 + \beta_3 = 0$ (Black women versus White men), and $\beta_2 - \beta_1 = 0$ (Black men versus White women).

By now, it should be clear that the standard and alternative interaction models differ in how easy they make it to see particular quantities of interest. No matter which model we employ, though, we have to make some post-estimation calculations to fully evaluate the hypotheses from an intersectional theory. The regression output provided by either model is not sufficient on its own to fully evaluate an intersectional theory. Given this, the choice of model when testing an intersectional theory is largely a matter of taste.

[2] A different approach to calculating these quantities of interest in the case of the alternative interaction model would be to simply re-estimate the model with a different baseline category. We would then be able to read off the desired quantity directly from the regression output. For example, if we omitted the dichotomous variable *Black Male* instead of *White Male*, then the coefficient on *Black Female* would tell us the effect of being female instead of male among Blacks.

Online Appendix C: Key Quantities of Interest and the Five Key Predictions

In the main text, we encouraged scholars to make five key predictions whenever they have an intersectional theory positing interaction between two dichotomous categories of difference. If we let these categories of difference refer to gender and race, then these five predictions refer to (1) the interaction/intersectional effect between gender and race, (2) the effect of gender among White people, (3) the effect of gender among Black people, (4) the effect of race among men, and (5) the effect of race among women. In Table C.1, we indicate the quantities of interest from the standard interaction model shown in Eq. 3 and the alternative interaction model shown in Eq. 2 that are necessary for evaluating each of these five predictions. Whether these quantities should be positive, negative, or zero will depend on the particular intersectional theory under consideration.

Table C.1: Five Key Predictions: Comparing the Standard and Alternative Interaction Models

Key Prediction	Standard Interaction Model	Alternative Interaction Model
1. $P_{Gender \times Race}$	β_3	$\gamma_3 - \gamma_1 - \gamma_2$
2. $P_{Gender \mid Race=White}$	β_1	γ_1
3. $P_{Gender \mid Race=Black}$	$\beta_1 + \beta_3$	$\gamma_3 - \gamma_2$
4. $P_{Race \mid Gender=Male}$	β_2	γ_2
5. $P_{Race \mid Gender=Female}$	$\beta_2 + \beta_3$	$\gamma_3 - \gamma_1$

Online Appendix D: Measures of Uncertainty

When discussing quantities of interest in the main text, such as the effect of gender or the effect of race on the outcome of interest, we focused on how to calculate point estimates. However, scholars will also want to provide measures of uncertainty to go along with these point estimates. These measures of uncertainty will typically involve calculating a variance. In this appendix, we first provide some basic properties of variances. We then go on to show the measures of uncertainty that accompany the point estimates for the quantities of interest mentioned in the main text in the context of both a 'standard' and 'alternative' interaction model.

Basic Properties of Variances

The variance of a constant is zero,

$$\text{var}(a) = 0. \tag{D.1}$$

Adding a constant to all values of a random variable does not change its variance,

$$\text{var}(X + a) = \text{var}(X). \tag{D.2}$$

Scaling all values of a random variable by a constant scales the variance by the square of the constant,

$$\text{var}(aX) = a^2\text{var}(X). \tag{D.3}$$

The variance of a sum of two random variables is

$$\text{var}(aX + bY) = a^2\text{var}(X) + b^2\text{var}(Y) + 2ab \times \text{cov}(X, Y). \tag{D.4}$$

and

$$\text{var}(aX - bY) = a^2\text{var}(X) + b^2\text{var}(Y) - 2ab \times \text{cov}(X, Y). \tag{D.5}$$

The variance of a linear combination of random variables is

$$\begin{aligned}\text{var}\left(\sum_{i=1}^{N} a_i X_i\right) &= \sum_{i,j=1}^{N} a_i a_j \times \text{cov}\left(X_i, X_j\right) \\ &= \sum_{i=1}^{N} a_i^2 \text{var}\left(X_i\right) + \sum_{i \neq j} a_i a_j \times \text{cov}\left(X_i, X_j\right) \\ &= \sum_{i=1}^{N} a_i^2 \text{var}\left(X_i\right) + 2 \sum_{1<i<j \leq N} a_i a_j \times \text{cov}\left(X_i, X_j\right). \end{aligned} \tag{D.6}$$

When applying these properties to calculate variances for quantities of interest derived from an interaction model, we treat the coefficients as the random variables and the independent variables as the constants.

Standard Interaction Model

In the main text, we focused on the following standard interaction model,

$$\textit{Republican Support} = \beta_0 + \beta_1 \textit{Female} + \beta_2 \textit{Black} + \beta_3 \textit{Female} \times \textit{Black} + \epsilon. \tag{D.7}$$

The effect of being female on *Republican Support* is

$$\frac{\partial \textit{Republican Support}}{\partial \textit{Female}} = \beta_1 + \beta_3 \times \textit{Black}. \tag{D.8}$$

To determine whether our point estimate for the effect of being female is statistically significant, we must calculate the appropriate standard error. Using the property of variances shown in Eq. D.4 with $a = 1$, $b = \textit{Black}$, $X = \beta_1$, and $Y = \beta_3$, we see that the variance of the effect of being female is

$$\text{var}\left(\beta_1 + \beta_3 \times \textit{Black}\right) = \text{var}\left(\beta_1\right) + \text{Black}^2 \times \text{var}\left(\beta_3\right) + 2 \times \text{Black} \times \text{cov}\left(\beta_1, \beta_3\right). \tag{D.9}$$

As always, the standard error is just the square root of this variance,

$$\text{se}\left(\beta_1 + \beta_3 \times \textit{Black}\right) = \sqrt{\text{var}\left(\beta_1\right) + \text{Black}^2 \times \text{var}\left(\beta_3\right) + 2 \times \text{Black} \times \text{cov}\left(\beta_1, \beta_3\right)}. \tag{D.10}$$

If we wish, we can use this standard error in the usual way to construct an appropriate confidence interval. From Eq. D.10, we see that just as the effect of being female shown in Eq. D.8 varies with someone's race, so does its standard error. This means that there is a different standard error for the effect of being female for White people and Black people. Among White people (*Black* $= 0$), the effect is β_1 and the associated standard error is $\sqrt{\text{var}(\beta_1)}$ or, more simply, $\text{se}(\beta_1)$. In other words, the standard error associated with the coefficient on *Female* is just the standard error for the effect of being female among White people; it is not the standard error for the effect of being female in some unconditional or average sense. Among Black people (*Black* $= 1$), the effect of being female is $\beta_1 + \beta_3$ and the standard error is $\sqrt{\text{var}(\beta_1) + \text{var}(\beta_3) + 2 \times \text{cov}(\beta_1, \beta_3)}$.

The effect of being Black on *Republican Support* is

$$\frac{\partial \textit{Republican Support}}{\partial \textit{Female}} = \beta_2 + \beta_3 \times \textit{Female}. \tag{D.11}$$

To determine whether our point estimate for the effect of being Black is statistically significant, we must calculate the appropriate standard error. Again using the property of variances shown in Eq. D.4 with $a = 1$, $b =$ *Female*, $X = \beta_2$, and $Y = \beta_3$, we see that the variance of the effect of being Black is

$$\text{var}(\beta_2 + \beta_3 \times \textit{Female}) = \text{var}(\beta_2) + \text{Female}^2 \times \text{var}(\beta_3) + 2 \times \text{Female} \times \text{cov}(\beta_2, \beta_3). \tag{D.12}$$

The standard error is just the square root of this variance,

$$\text{se}(\beta_2 + \beta_3 \times \textit{Female}) = \sqrt{\text{var}(\beta_2) + \text{Female}^2 \times \text{var}(\beta_3) + 2 \times \text{Female} \times \text{cov}(\beta_2, \beta_3)}. \tag{D.13}$$

As expected, we see that the standard error associated with the effect of being Black varies with someone's gender. Among Men (*Female* $= 0$), the effect of being Black is β_2 and the associated standard error is $\sqrt{\text{var}(\beta_2)}$ or, more simply, $\text{se}(\beta_2)$. In other words, the standard error associated with the coefficient on *Black* is just the standard error for men; it is not the standard error associated with being Black in some unconditional or average sense. Among women (*Female* $= 1$), the effect of being Black is $\beta_2 + \beta_3$ and the standard error is $\sqrt{\text{var}(\beta_2) + \text{var}(\beta_3) + 2 \times \text{cov}(\beta_2, \beta_3)}$.

The interaction effect between race and gender is

$$\frac{\partial(\beta_1 + \beta_3 \textit{Black})}{\partial \textit{Black}} = \frac{\partial(\beta_2 + \beta_3 \textit{Female})}{\partial \textit{Female}} = \beta_3. \tag{D.14}$$

Recall that this tells us both how gender modifies the effect of race on Republican support and how race modifies the effect of gender. This is the key piece of information indicating whether the effects of gender and race are separable and hence whether we have evidence of intersectionality. In this simple example where we have only two intersecting categories of difference, we see that the interaction effect is unconditional and does not vary with the value of any other variable. In Online Appendix G, we will examine a scenario where we have three categories of difference and the interaction effects are themselves conditional. The variance of the interaction effect shown in Eq. D.14 is just var(β_3) and the standard error is se(β_3).

Alternative Interaction Model

As the main text indicates, the equivalent alternative interaction model to the standard model in Eq. D.7 is

$$\textit{Republican Support} = \gamma_0 + \gamma_1 \textit{White Female} + \gamma_2 \textit{Black Male} + \gamma_3 \textit{Black Female} + \varepsilon. \tag{D.15}$$

The effect of being female among White people is γ_1. The variance of this effect is just var(γ_1) and the standard error is se(γ_1). As we see from Table C.1, the effect of begin female among Black people is $\gamma_3 - \gamma_2$. Using the property of variances shown in Eq. D.5 with $a = 1$, $b = 1$, $X = \gamma_3$, and $Y = \gamma_2$, we see that the variance of the effect of being female among Black people is

$$\text{var}\left(\gamma_3 - \gamma_2\right) = \text{var}\left(\gamma_3\right) + \text{var}\left(\gamma_2\right) - 2 \times \text{cov}\left(\gamma_3, \gamma_2\right) \tag{D.16}$$

and so the standard error is

$$\text{se}\left(\gamma_3 - \gamma_2\right) = \sqrt{\text{var}\left(\gamma_3\right) + \text{var}\left(\gamma_2\right) - 2 \times \text{cov}\left(\gamma_3, \gamma_2\right)}. \tag{D.17}$$

The effect of being Black among men is γ_2. The variance of this effect is just var(γ_2) and the standard error is se(γ_2). From Table C.1, the effect of begin Black among women is $\gamma_3 - \gamma_1$. Using the property of variances shown in Eq. D.5 with $a = 1$, $b = 1$, $X = \gamma_3$, and $Y = \gamma_1$, we see that the variance of the effect of being Black among women is

$$\text{var}\left(\gamma_3 - \gamma_1\right) = \text{var}\left(\gamma_3\right) + \text{var}\left(\gamma_1\right) - 2 \times \text{cov}\left(\gamma_3, \gamma_1\right) \tag{D.18}$$

and so the standard error is

$$\text{se}(\gamma_3 - \gamma_1) = \sqrt{\text{var}(\gamma_3) + \text{var}(\gamma_1) - 2 \times \text{cov}(\gamma_3, \gamma_1)}. \tag{D.19}$$

From Table C.1, the interaction effect between race and gender is $\gamma_3 - \gamma_1 - \gamma_2$. Using the property of variances shown in Eq. D.6 and being careful of the signs of the coefficients, the variance of the interaction effect is

$$\text{var}(\gamma_3 - \gamma_1 - \gamma_2) = \text{var}(\gamma_1) + \text{var}(\gamma_2) + \text{var}(\gamma_3) + 2 \times \text{cov}(\gamma_1, \gamma_2) - 2 \times \text{cov}(\gamma_1, \gamma_3) - 2 \times \text{cov}(\gamma_2, \gamma_3) \tag{D.20}$$

and the standard error is

$$\text{se}(\gamma_3 - \gamma_1 - \gamma_2) = \sqrt{\text{var}(\gamma_1) + \text{var}(\gamma_2) + \text{var}(\gamma_3) + 2 \times \text{cov}(\gamma_1, \gamma_2) - 2 \times \text{cov}(\gamma_1, \gamma_3) - 2 \times \text{cov}(\gamma_2, \gamma_3)}. \tag{D.21}$$

Overview

In Table C.1, we summarized the point estimates for the quantities of interest necessary for evaluating the five key predictions that can usually be derived from an intersectional theory with two dichotomous categories of difference for both the standard and alternative interaction model specifications. Recall that these predictions relate to the interaction effect between race and gender (1), the effects of being female among White people (2) and Black people (3), and the effects of being Black among men (4) and women (5). In Table D.2, we now add information about the associated variances for the point estimates.

Table D.2: Five Key Predictions: Comparing Point Estimates and Variances in the Standard and Alternative Interaction Models

Key Prediction		Standard Interaction Model	Alternative Interaction Model
1. $P_{Gender \times Race}$	Point Estimate	β_3	$\gamma_3 - \gamma_1 - \gamma_2$
	Variance	$\text{var}(\beta_3)$	$\text{var}(\gamma_1) + \text{var}(\gamma_2) + \text{var}(\gamma_3) + 2 \times \text{cov}(\gamma_1, \gamma_2) - 2 \times \text{cov}(\gamma_1, \gamma_3) - 2 \times \text{cov}(\gamma_2, \gamma_3)$
2. $P_{Gender\|Race=White}$	Point Estimate	β_1	γ_1
	Variance	$\text{var}(\beta_1)$	$\text{var}(\gamma_1)$
3. $P_{Gender\|Race=Black}$	Point Estimate	$\beta_1 + \beta_3$	$\gamma_3 - \gamma_2$
	Variance	$\text{var}(\beta_1) + \text{var}(\beta_3) + 2 \times \text{cov}(\beta_1, \beta_3)$	$\text{var}(\gamma_3) + \text{var}(\gamma_2) - 2 \times \text{cov}(\gamma_3, \gamma_2)$
4. $P_{Race\|Gender=Male}$	Point Estimate	β_2	γ_2
	Variance	$\text{var}(\beta_2)$	$\text{var}(\gamma_2)$
5. $P_{Race\|Gender=Female}$	Point Estimate	$\beta_2 + \beta_3$	$\gamma_3 - \gamma_1$
	Variance	$\text{var}(\beta_2) + \text{var}(\beta_3) + 2 \times \text{cov}(\beta_2, \beta_3)$	$\text{var}(\gamma_3) + \text{var}(\gamma_1) - 2 \times \text{cov}(\gamma_3, \gamma_1)$

Online Appendix E: Substantive Application with the Alternative Interaction Model

In the main text, we employed the standard interaction model to conduct the analysis for our substantive application. In order to provide a comparison and further highlight the connections between the two models, we now employ the following alternative interaction model to conduct the analysis,

$$\begin{aligned} \textit{Republican Support} &= \gamma_0 + \gamma_1 \textit{White Female} + \gamma_2 \textit{Black Male} + \gamma_3 \textit{Black Female} \\ &+ \gamma_4 \textit{Age} + \epsilon \end{aligned} \tag{E.1}$$

This alternative interaction model is exactly equivalent to the standard interaction model that we employed in the main text in that it produces the exact same quantities of interest.

The results from the alternative interaction model are shown in the second column of Table E.3. We show the results from the equivalent standard interaction model in the first column as a point of comparison. We start by discussing how to interpret the results from the alternative interaction model. The omitted identity category is *White Male*. As a result, White males become the 'baseline' or 'reference' category against which the other identity categories are compared. As an example, the coefficient on *White Female* indicates the effect of being a White woman as opposed to a White man. Recognizing this, the results in the second column of Table E.3 tell us that White women like the Republican Party 0.04 units less than White men but that this difference is not statistically significant. They also indicate that Black men like the Republican Party 1.50 units less than White men and that Black women like the Republican Party 2.57 units less than White men. Both of these differences are statistically significant.

As expected, the coefficients on *White Female* and *Black Male* from the alternative interaction model are identical to the coefficients on *Female* and *Black* from the standard interaction model. This is because the coefficients on *White Female* and *Female* both tell us the effect of 'changing' the value of gender from male to female among Whites (White women vs White men) and because the coefficients on *Black Male* and *Black* both tell us the effect of 'changing' the value of race from White to Black among men (Black men vs White men). As we noted in the main text, the coefficient on *Black Female* does not have a direct equivalent in the standard interaction model. Recall that the coefficient on *Black Female* tells us the effect

Table E.3: Gender, Race, and Support for the Republican Party in the 2016 U.S. Presidential Elections

Dependent Variable: *Republican Support,* $0 - 10$

	Standard Interaction Model	Alternative Interaction Model I	Alternative Interaction Model II
Female	-0.04 (0.12)		
Black	-1.50^{***} (0.27)		
Female×Black	-1.03^{***} (0.35)		
White Female		-0.04 (0.12)	2.53^{***} (0.22)
Black Male		-1.50^{***} (0.27)	1.07^{***} (0.33)
Black Female		-2.57^{***} (0.22)	
White Male			2.57^{***} (0.22)
Age	0.02^{***} (0.003)	0.02^{***} (0.003)	0.02^{***} (0.003)
Constant	4.47^{***} (0.18)	4.47^{***} (0.18)	1.90^{***} (0.25)
Observations	$2,858$	$2,858$	$2,858$
R^2	0.07	0.07	0.07

Standard errors in parentheses. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$ (two-tailed)

Note: The two alternative interaction models differ in terms of the group that acts as the omitted, and hence reference, category. In Alternative Interaction Model I, White men act as the reference category and in Alternative Interaction Model II, Black women act as the reference category. All three models shown in Table E.3 are equivalent and produce the exact same quantities of interest.

of *jointly* 'changing' the values of race and gender for the reference group. While this quantity of interest is not immediately available from the standard interaction model, it can be calculated by adding together the coefficients on *Female*, *Black*, and *Female*$\times$*Black*. In other words, $\gamma_3 = \beta_1 + \beta_2 + \beta_3$ or $-2.57 = -0.04 - 1.50 - 1.03$.

Just as we had to look beyond the individual coefficients in the standard interaction model to calculate the effect of being female among Black people (Black women vs Black men) and the effect of being Black among women (Black women vs White women), we have to do the same in the alternative model. The effect of being female among Black people in the alternative model is the coefficient on *Black Female* minus the coefficient on *Black Male*, or $\gamma_3 - \gamma_2 = -2.57 - (-1.50) = -1.07$. The effect of being Black among women in the alternative model is the coefficient on *Black Female* minus the coefficient on *White Female*, or $\gamma_3 - \gamma_1 = -2.57 - (-0.04) = -2.53$. As expected, these quantities of interest are identical to those we obtained earlier when we calculated the same effects using the results from the standard interaction model.

The main drawback of the alternative interaction model is that it does not directly show the 'interaction effect' in the regression output. While the coefficient on the interaction term, *Female*$\times$*Black*, in the standard interaction model tells us the interaction effect and therefore indicates whether there is any evidence of intersectionality, there is no equivalent coefficient in the alternative interaction model. We remind readers that the coefficient on *Black Female* tells us the *joint effect* of 'changing' the values of race and gender for White men and not the *interaction effect* of race and gender. It is important to remember that we need to actually calculate the interaction effect when using the alternative interaction model if we are to determine whether the differences we find between the various identity groups are the result of an *intersectional* relationship between gender and race. The coefficients on *White Female*, *Black Male*, and *Black Female* may all be different and statistically significant but this does not necessarily mean that we have evidence of interaction and hence intersectionality. Without explicitly calculating the interaction effect, it is not possible to know whether the results from the alternative model are consistent with a world in which the two categories of difference have separate effects on the outcome of interest or a world in which they have intersectional effects. As we noted in the main text, the interaction effect in the alternative model is calculated as $\gamma_3 - \gamma_1 - \gamma_2 = -2.57 - (-0.04) - (-1.50) = -1.03$. As expected, this is identical to the coefficient on the interaction term in the standard interaction model.

In addition to calculating the conditional 'effects' of the categories of difference, we can use the results from the alternative interaction model to calculate predicted values. As an example, the predicted level of support for the Republican Party is $\gamma_0 + \gamma_4 \times 40 = 4.47 + 0.02 \times 40 = 5.08$ for a forty year old White man, it is $\gamma_0 + \gamma_2 + \gamma_4 \times 40 = 4.47 - 1.50 + 0.02 \times 40 = 3.58$ for a forty year old Black man, it is $\gamma_0 + \gamma_1 + \gamma_4 \times 40 = 4.47 - 0.04 + 0.02 \times 40 = 5.04$ for a forty year old White woman, and it is $\gamma_0 + \gamma_3 + \gamma_4 \times 40 = 4.47 - 2.57 + 0.02 \times 40 = 2.51$ for a forty year old Black woman. As expected, these predicted values are identical to those that we calculated in the main text using the results from the standard interaction model.

The bottom line is that the estimated effects, predicted values, and measures of uncertainty calculated using the results from the alternative interaction model are identical to the same quantities of interest calculated using the results from the standard interaction model in the main text. This is because these two models, while they look different, are exactly equivalent to one another. This means that either type of interaction model can be used to create something like the marginal effect plot shown in Figure 4 in the main text or the table of predicted values and differences in Figure 5 in the main text.

Whether we use the standard or the alternative interaction model, we have to look beyond the individual coefficients directly reported in the regression output if we wish to fully evaluate all five of the key predictions that can be derived from an intersectional theory positing interaction between two categories of difference. Each model, though, differs in how easy it is to see or calculate particular quantities of interest. This means that we can usefully switch between estimating these different models when we want to 'see' particular quantities. For example, we might estimate the alternative interaction model if we want to easily see whether some particular category such as Black women differs in a significant way from some other category such as White men, but then switch to the standard interaction model if we want to easily see if there is any evidence of intersectionality.

Finally, does it matter what identity group we omit in the alternative model specification? As we noted in the main text, the answer is "no", in the sense that we always calculate the same quantities of interest no matter which identity group is omitted. The omitted identity group acts as the baseline or reference category against which the included groups are compared and this naturally affects how the coefficients should be interpreted. In the alternative interaction model shown in the second column of Table E.3, the omitted identity group is White men and so the coefficients tell us the effect of being a White woman, a Black man, and a Black woman *as opposed to a White man*. In the third column of Table E.3, we present the results from a different version of the alternative interaction model in which the omitted identity group is Black women. The coefficients in this column tell us the effect of being a White woman, Black man, and White man *as opposed to a Black woman*. The sets of coefficients differ across these two models because they make different comparisons. The important thing to note, though, is that when we use the coefficients from the two models to make the *same* comparison, they produce identical results.

To see this, consider the coefficient on *Black Female* in the first alternative interaction model. This coefficient is -2.57 and tells us the effect of being a Black woman instead of a White man. Now consider the coefficient on *White Male* in the second alternative specification. This coefficient is 2.57 and tells us the effect of being a White man instead of a Black woman. These two coefficients capture the same comparison but from opposite directions (Black woman vs. White man as opposed to White man vs. Black woman). This is why the two coefficients are identical except for the fact that they have the opposite sign. Now consider the coefficients on *White Female* and *Black Male* in the second alternative interaction model. These coefficients are 2.53 and 1.07 and tell us the effect of being a White woman instead of a Black woman and the effect of being a Black man instead of a Black woman. These specific comparisons are not directly made by the regression output from the first alternative interaction model. As we saw earlier, though, we can use the results from the first alternative interaction model to make these comparisons. When we did so, we found that the effect of being a Black woman instead of a White woman, or equivalently, the effect of being Black among women, was -2.53 and that the effect of being a Black woman instead of a Black man, or equivalently, the effect of being female among Black people, was -1.07. These quantities are identical to the coefficients on *White Female* and *Black Male* in the second alternative interaction model except that they have the opposite sign due to the fact that the comparisons are conducted from the opposite direction.

Online Appendix F: Examining the Split-Sample Strategy

Scholars sometimes claim that the implications of an intersectional theory should be tested with a 'split-sample' strategy rather than a 'pooled' interaction model. In the main text, we noted that "this claim is misconceived because a split-sample strategy that is appropriate for testing a claim of intersectionality is an implicit interactive research design and can always be written explicitly as a pooled interaction model. Ultimately, there's nothing that one can do with a split-sample strategy that one can't also do with a pooled interaction model. Significantly, there are intersectional claims that can easily be evaluated with a pooled interaction model that can't be so easily evaluated with the split-sample strategy and, as a result, a pooled interaction model is never worse and often better." We now provide the evidence for these assertions. To provide some substance, we continue to focus on the case where we have an intersectional theory predicting that gender and race interact to determine an individual's level of Republican support.

What is the Split-Sample Strategy?

In the main text, we described how scholars can employ two alternative, but equivalent, interactive model specifications to test the implications of our intersectional theory of Republican support,

1. $$\textit{Republican Support} = \beta_0 + \beta_1 \textit{Female} + \beta_2 \textit{Black} + \beta_3 \textit{Female} \times \textit{Black} + \epsilon, \tag{F.1}$$

2. $$\textit{Republican Support} = \gamma_0 + \gamma_1 \textit{White Female} + \gamma_2 \textit{Black Male} + \gamma_3 \textit{Black Female} + \varepsilon. \tag{F.2}$$

Both of these models are 'pooled' in the sense that we estimate them on a full sample of observations that includes White men, White women, Black men, and Black women. Rather than use a pooled model, scholars who employ a split-sample strategy 'split' their sample into different sub-samples that each correspond to a particular identity group. The nature of the identity groups can differ. For example, the identity group sub-samples might correspond to different gender groups (men and women), racial groups (White people and Black people), or groups that are defined by both gender and race (White men, White women, Black men, and Black women). These scholars then estimate models on each of these separate identity group sub-samples.

We remind readers of the important point that scholars who wish to evaluate a claim of intersectionality *must* include individuals who exhibit variation across all of the possible combinations of values for the relevant categories of difference, in this case race and gender. We realize that it is common for researchers to use a *type* of split-sample strategy when trying to identify divisions or cleavages within particular identity groups. For example, gender scholars often seek to evaluate the implications of their theories by estimating their model on a sub-sample of White women and a sub-sample of Black women. Observed differences across the two sub-samples are taken as evidence of a racial cleavage among women. Such analyses can be incredibly important as they call into question the uniformity of women's experiences and highlight how the experiences of White women (or Black women) should not be treated as universal for all women. As we demonstrated in the main text, though, it is not possible for this type of split-sample analysis to determine whether the observed differences between White women and Black women are the result of an *intersectional* relationship between gender and race. This is because divisions within an identity group such as women can be consistent with the absence of intersectionality and the lack of divisions can be consistent with the presence of intersectionality. By focusing only on women, the type of split-sample strategy used by the gender scholars described here leads to an inherently additive, rather than interactive, research design. The bottom line is that we can only identify evidence of intersectionality with an interactive research design.

In what follows, we address the split-sample strategy only in the context where the full sample we start with includes individuals who exhibit variation across all of the possible combinations of values for gender and race and we estimate our model on each of the component sub-samples that are defined by gender, race, or gender and race. As we will demonstrate, this 'appropriate' type of split-sample strategy is a fully-crossed or interactive research design and is equivalent to estimating a pooled interaction model. Two cases are worth considering: (1) the case where we have an intersectional theory in which gender and race interact and there is no need to control for any other variables and (2) the case where we have an intersectional theory in which gender and race interact and there is a need to control for other variables.

Case I: When there are No Control Variables

We start by considering the case where we have an intersectional theory involving gender and race and there is no need to control for other variables. This is perhaps an unlikely scenario but it provides a useful baseline for understanding the connection between the split-sample strategy and pooled interaction models. Researchers can choose to adopt one of three possible variants of the split-sample strategy in this context depending on how they wish to define the relevant identity group sub-samples. The key point to recognize, though, is that all of the quantities of interest estimated from these variants are identical to those we would estimate from either of the pooled interaction models in Eq. F.1 or Eq. F.2. In what follows, we focus on making comparisons with the 'standard' interaction model in Eq. F.1.

Split-Sample I

One variant of the split-sample strategy, which we will call *Split-Sample I*, involves defining the identity group sub-samples in terms of race,

1. White People Only: $$\textit{Republican Support}_{Black=0} = \gamma_0 + \gamma_1 \textit{Female} + \varepsilon, \quad \text{(F.3)}$$
2. Black People Only: $$\textit{Republican Support}_{Black=1} = \delta_0 + \delta_1 \textit{Female} + \varepsilon. \quad \text{(F.4)}$$

This particular variant likely appeals to gender scholars as it makes it easy to see how the effect of gender varies across different racial groups. In this setup, γ_1 tells us the effect of being female among White people and is identical to β_1 in the standard interaction model. The coefficient δ_1 tells us the effect of being female among Black people and is identical to $\beta_1 + \beta_3$ in the standard interaction model. The constant term from the model estimated on the 'White People Only' sub-sample, γ_0, indicates the mean level of Republican support among White men and is identical to β_0 in the standard interaction model. The constant term from the model estimated on the 'Black People Only' sub-sample, δ_0, indicates the mean level of Republican support among Black men and is identical to $\beta_0 + \beta_2$ in the standard interaction model. We can confirm these equivalencies by looking at the first three columns of Table F.4, where we report the results from a *Standard Interaction Model* and the *Split-Sample I* strategy using the same data as employed in the main text.

While the estimated effect of gender on Republican support for White people and Black people is identical irrespective of whether we employ one of the pooled interaction models or the split-sample strategy, this is not the case for the standard errors.[3] One reason for this is that the two regression models in the split-sample strategy necessarily use a smaller sample size than the full sample used in a pooled interaction model. A second reason is that the observed variation in Republican support and gender may differ across the two sub-samples. The bottom line is that the point estimates for the quantities of interest will be identical, but the measures of uncertainty are likely to differ slightly.

[3] The estimates for the related standard errors from our application in Table F.4 look very similar; however, they are not identical.

Table F.4: Gender, Race, and Republican Support in the 2016 U.S. Presidential Elections (without Controls)

Dependent Variable: *Republican Support,* $0 - 10$

	Standard	Split-Sample I		Alternative	Split Sample II		Split Sample III			
	Interaction Model	White	Black	Interaction Model II	Men	Women	White Men	White Women	Black Men	Black Women
Female	-0.036	-0.036	-1.025							
	(0.12)	(0.12)	(0.29)							
Black	-1.606^{***}			-1.606^{***}	-1.606^{***}	-2.595^{***}				
	(0.27)			(0.27)	(0.27)	(0.22)				
Female×Black	-0.989^{***}			-1.025						
	(0.35)			(0.33)						
Female×White				-0.036						
				(0.12)						
Constant	5.244^{***}	5.244^{***}	3.638^{***}	5.244^{***}	5.244^{***}	5.208^{***}	5.244^{***}	5.208^{***}	3.638^{***}	2.613^{***}
	(0.09)	(0.09)	(0.23)	(0.09)	(0.09)	(0.08)	(0.09)	(0.08)	(0.23)	(0.18)
Observations	$2,858$	$2,527$	331	$2,858$	$1,313$	$1,545$	$1,189$	$1,341$	127	204
R^2	0.06	0.00	0.04	0.06	0.03	0.08	—	—	—	—

Standard errors in parentheses. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$ (two-tailed)

Note: Table F.5 presents results from several different strategies for examining the intersectional impact of gender and race on Republican support. Although these strategies look different, they all estimate the exact same quantities of interest.

We suspect that the appeal of this variant of the split-sample strategy for gender scholars is that it makes it very easy to see the effect of being female on Republican support for both White people and Black people directly from the regression output. However, this is not really an advantage of the split-sample strategy as we can easily re-specify our pooled interaction model to show these same quantities of interest directly in the regression output as well,

$$\textit{Republican Support} = \tau_0 + \tau_1 \textit{Black} + \tau_2 \textit{Female} \times \textit{White} + \tau_3 \textit{Female} \times \textit{Black} + \varepsilon, \tag{F.5}$$

where *White* equals 1 when someone is White and 0 otherwise and *Black* equals 1 when someone is Black and 0 otherwise. Although this second 'alternative' interaction model looks different to either of the pooled interaction models we have seen previously, they are all, in fact, exactly equivalent in that they produce the same point estimates *and* measures of uncertainty for the various quantities of interest (Wright, 1976; Ferland, 2018; Clark and Golder, 2023). In this setup, τ_2 tells us the effect of being female among White people and τ_3 tells us the effect of being female among Black people. These coefficients are identical to γ_1 and δ_1 in the split-sample strategy. The coefficient τ_0 tells us the mean level of Republican support among White men and τ_1 tells us the effect of being Black among men. The exact equivalency between all three of the pooled interaction models that we have now seen (and with the split-sample strategy with respect to point estimates) is confirmed by looking at the results from the *Alternative Interaction Model II* in the fourth column of Table F.5. The point here is that there is no need to adopt a split-sample strategy and reduce the sample size in order to see the effect of gender for both racial groups directly from the regression output; we can see the same desired effects directly from an appropriately specified, and equivalent, pooled interaction model.

A significant drawback of the split-sample strategy is that we cannot usually determine directly from the regression output whether the effect of being female is statistically different across the two racial groups.[4] In other words, we cannot directly see from the split-sample strategy whether there is any evidence of intersectionality between gender and race. The same is true for the second alternative interaction model in Eq. F.5. This is important because evidence of intersectionality is a necessary condition for concluding that an intersectional theory is supported. There is little point further evaluating the empirical implications of an *intersectional* theory if there is no evidence of intersectionality. We note at this point that it is not uncommon

[4]We can only determine this directly from the regression output if the confidence interval for γ_1 in the White People Only model is completely separate from the confidence interval for δ_1 in the Black People Only model.

for scholars to claim evidence of intersectionality if the coefficient on *Female* in one of the racial group sub-samples is statistically significant and the coefficient on *Female* in the other racial group sub-sample is not statistically significant. However, this inference is never justified as the difference between 'significant' and 'not significant' may not itself be statistically significant (Gelman and Stern, 2006). In other words, a difference in significance levels does not necessarily indicate a statistically significant difference in the effect of being female across racial groups. To determine if there is any evidence of intersectionality with the split-sample strategy, we would need to test whether $\gamma_1 = \delta_1$. The fact that γ_1 and δ_1 come from different models (Eq. F.3 and Eq. F.4) means that this test, while possible, is not as straightforward as testing whether $\tau_2 = \tau_3$ in the second alternative interaction model in Eq. F.5. Recall that we can easily see whether there is any evidence of intersectionality in the regression output from the standard pooled interaction model simply by looking at the coefficient on the interaction term *Female* $\times$ *Black*.

A second drawback of the split-sample strategy is that it is easy to overlook the inherent symmetry of interactions that is built into an intersectional theory. As we noted in the main text, most theories positing intersectionality between two dichotomous categories of difference such as gender and race are strong enough to produce hypotheses about both the effect of gender on the dependent variable *and* the effect of race. While the split-sample strategy we have been looking at provides information about the effect of gender on Republican support, it is not well-designed to test claims about the effect of race. We suspect that in many cases, scholars who adopt this particular split-sample strategy are not even thinking about the effect of race on Republican support beyond the way that it modifies the effect of gender. This is because the setup of the split-sample strategy is explicitly designed to highlight the effect of gender for each racial group. To the extent that this is true, these scholars are putting their underlying intersectional theory to a weaker test than is possible given the available data. We note that it *is* possible to examine the effect of race in this variant of the split-sample strategy; however, it is not as straightforward as it is with one of the pooled interaction models. For example, the effect of being Black among men is equal to the difference in the constant terms across the two models, $\delta_0 - \gamma_0$, and the effect of being Black among women is equal to the difference in the summed parameters across the two models, $(\delta_0 + \delta_1) - (\gamma_0 + \gamma_1)$. We would want to know if each of these differences across the two models are statistically significantly different from 0.

To some extent, our discussion of what can easily be seen directly from the regression output with each of these strategies is besides the point. As we noted in the main text, scholars always have to make certain post-estimation calculations and look beyond their regression output if they wish to test all of the key predictions from an intersectional theory. In most cases, they will choose to present the quantities of interest necessary to fully evaluate the implications of an intersectional theory with some kind of plot like Figure 4 or Figure 5. At this point, it does not really matter whether the researchers obtained the underlying information for the reported quantities of interest, which will always be the same, from a pooled interaction model or an appropriate split-sample strategy. Our point here is simply that it is misconceived to say that scholars of intersectionality should employ a split-sample strategy rather than a pooled interaction model as they are both interactive research designs that produce the exact same information.

So far, we have focused in some detail on the case where our identity group sub-samples are defined in terms of race. However, the insights from our discussion all hold even when our identity group sub-samples are defined differently. We very briefly show this next, before moving on to a discussion of the split-sample strategy in the slightly more complicated context where we need to include control variables.

Split-Sample II

A second variant of the split-sample strategy, which we will call *Split-Sample II*, involves defining the identity group sub-samples in terms of gender,

1. Men Only: $\textit{Republican Support}_{\textit{Female}=0} = \lambda_0 + \lambda_1 \textit{Black} + \varepsilon,$
2. Women Only: $\textit{Republican Support}_{\textit{Female}=1} = \rho_0 + \rho_1 \textit{Black} + \varepsilon.$

This particular variant likely appeals to race scholars as it makes it easy to see how the effect of race varies across different gender groups. In this setup, λ_1 tells us the effect of being Black among men and is identical to β_2 in the standard interaction model. The coefficient ρ_1 tells us the effect of being Black among women and is identical to $\beta_2 + \beta_3$ in the standard interaction model. The constant term from the model estimated on the 'Men Only' sub-sample, λ_0, indicates the mean level of Republican support among White men and is identical to β_0 in the standard interaction model. The constant term from the model estimated on the 'Women Only' sub-sample, ρ_0, indicates the mean level of Republican support among White women and is identical to $\beta_0 + \beta_1$ in the standard interaction model. We can confirm these equivalencies by comparing the results from the standard interaction model in the first column of Table F.4 with the results from the *Split-Sample II* strategy in columns 5 and 6. This variant of the split-sample strategy is the reverse of the one we just examined and, as a result, everything we discussed before continues to hold.

Split-Sample III

A third variant of the split-sample strategy, which we will call *Split-Sample III*, involves defining the identity group sub-samples in terms of both gender and race,

$$\begin{aligned} \text{1. White Men Only:} \quad & \textit{Republican Support}_{Black=0,Female=0} = \alpha_0 + \varepsilon, \\ \text{2. White Women Only:} \quad & \textit{Republican Support}_{Black=0,Female=1} = \theta_0 + \varepsilon, \\ \text{3. Black Men Only:} \quad & \textit{Republican Support}_{Black=1,Female=0} = \kappa_0 + \varepsilon, \\ \text{4. Black Women Only:} \quad & \textit{Republican Support}_{Black=1,Female=1} = \eta_0 + \varepsilon. \end{aligned}$$

In this setup, we estimate four different constant-only regression models. As one would expect, the coefficients on the constant terms simply tell us the mean level of Republican support for each of the four gender-race identity groups. For example, α_0 tells us the mean level of Republican support among White men, θ_0 tells us the same quantity for White women, κ_0 tells us the same quantity for Black men, and η_0 tells the same quantity for Black women. This particular variant of the split-sample strategy is not that useful as it does not directly provide us with any of the quantities that we would need to test the five key predictions from our intersectional theory. To calculate each of the required quantities, we would need to engage in some post-estimation calculations across the models. The effect of being female among White people is the difference in the constant term coefficients in the White Women and White Men models, $\theta_0 - \alpha_0$; the effect of being female among Black people is the difference in the constant term coefficients in the Black Women and Black Men models, $\eta_0 - \kappa_0$; the effect of being Black among men is the difference in the constant term coefficients in the Black Men and White Men models, $\kappa_0 - \alpha_0$; the effect of being Black among women is the difference in the constant term coefficients in the Black Women and White Women models, $\eta_0 - \theta_0$; and the interaction effect between gender and race is $(\eta_0 - \kappa_0) - (\theta_0 - \alpha_0)$ or $(\eta_0 - \theta_0) - (\kappa_0 - \alpha_0)$. This variant of the split-sample strategy reminds us that the quantities of interest necessary for evaluating the implications of an intersectional theory where we do not need to control for other factors simply involves calculating differences in means across particular identity groups.

Case II: When there are Control Variables

What about when we need to add control variables? The main difference now is that the split-sample strategy allows the effects of *all* of our independent variables to vary across the different sub-samples. Some scholars seem unaware that this can have significant consequences for the implied theoretical effects of their categories of difference such as gender and race on the outcome of interest. As we will see, scholars should think carefully about whether the relationship between the relevant categories of difference implied by the split-sample strategy is consistent with their intersectional theory. The key point to recognize, though, is that the split-sample strategy remains an implicit interactive research design and that it is always possible to specify an equivalent pooled interaction model by including additional interaction terms for all of the independent variables. In other words, it continues to be the case that there is nothing we can do with the split-sample strategy that we cannot also do with a pooled interaction model. Indeed, a pooled interaction model is more flexible because it allows us, if our theory calls for it, to let the effect of some, but not all, of the independent variables vary across the different identity group sub-samples.

For illustrative purposes, we will assume in what follows that we need to control for someone's age and marital status when testing the implications of our intersectional theory related to gender and race. The standard pooled interaction model shown below will act as our initial point of comparison,

$$\textit{Republican Support} = \beta_0 + \beta_1 \textit{Female} + \beta_2 \textit{Black} + \beta_3 \textit{Female} \times \textit{Black} + \beta_4 \textit{Age} + \beta_5 \textit{Married} + \epsilon, \quad \text{(F.6)}$$

where *Age* indicates someone's age in years and *Married* is a dichotomous variable that equals 1 if an individual is married and 0 otherwise. We will refer to this is as the 'constrained' interaction model, the reason for which will become clear shortly.

Split-Sample (Race)

As before, we will focus most of our attention on the variant of the split-sample strategy where the identity group sub-samples are defined in terms of race,

1. White People Only: $$\textit{Republican Support}_{\textit{Black}=0} = \gamma_0 + \gamma_1 \textit{Female} + \gamma_2 \textit{Age} + \gamma_3 \textit{Married} + \varepsilon, \quad \text{(F.7)}$$
2. Black People Only: $$\textit{Republican Support}_{\textit{Black}=1} = \delta_0 + \delta_1 \textit{Female} + \delta_2 \textit{Age} + \delta_3 \textit{Married} + \varepsilon. \quad \text{(F.8)}$$

It remains the case that γ_1 tells us the effect of being female among White people and that δ_1 tells us the effect of being female among Black people. Unlike before, though, these estimated effects are almost certainly different to the estimated effects of being female among White people (β_1) and Black people ($\beta_1 + \beta_3$) from the (constrained) pooled interaction model in Eq. F.6. This is because the split-sample strategy allows the effects of the control variables, in this case *Age* and *Married*, to vary across the two different racial groups, whereas the pooled interaction model in Eq. F.6 'constrains' them to be the *same* for both White people and Black people.

All of the quantities that we calculate to evaluate our intersectional theory will be different depending on whether we employ the constrained pooled interaction model or the split-sample strategy. We can see this explicitly by comparing the results from the constrained interaction model and the two split-sample models in the first three columns of Table F.5. As indicated, the constrained interaction model estimates just one effect for *Age* (0.014) and one effect for *Married* (0.317). In contrast, the split-sample strategy estimates two effects for *Age*, one for White people (0.016) and one for Black people (0.002), and two effects for *Married*, one for White people (0.365) and one for Black people (-0.118). This leads to different estimates for the effect of gender across the two racial groups. To be specific, the effect of being female is -0.007 among White people and -1.058 among Black people in the split-sample models, but -0.011 among White people and $-0.011 - 1.026 = -1.038$ among Black people in the constrained interaction model. The interaction effect between gender and race is also different; it is -1.026 in the constrained interaction model but $-1.058 - (-0.007) = -1.050$ in the split-sample strategy. While these differences are quite small in this particular example, the point is that the constrained interaction model does not estimate the same quantities of interest as the split-sample strategy.

Whether it makes sense to let the effects of all the independent variables vary across the two racial group sub-samples, as is the case with the split-sample strategy, depends on one's theory. This is something we will return to in some detail shortly. First, though, we want to demonstrate that the desire to allow all of the effects of the independent variables to vary across the sub-samples is not a reason to prefer a split-sample strategy over a pooled interaction model. The reason for this is that we can always specify an 'unconstrained' pooled interaction model that also allows this. We obtain such a model by including additional interaction terms between the control variables and the dichotomous variable *Black* that determines membership in each of the racial groups,

Table F.5: Gender, Race, and Republican Support in the 2016 U.S. Presidential Elections (with Controls) I

Dependent Variable: *Republican Support,* $0 - 10$

	Constrained Interaction Model	Split-Sample White	Split-Sample Black	Unconstrained Interaction Model	Alternative Unconstrained Interaction Model
Female	-0.011	-0.007	-1.058^{***}	-0.007	
	(0.12)	(0.12)	(0.29)	(0.12)	
Black	-1.427^{***}			-0.627	-0.627
	(0.28)			(0.54)	(0.54)
Female×Black	-1.026^{***}			-1.050^{***}	-1.058^{***}
	(0.35)			(0.36)	(0.29)
Female×White					-0.007
					(0.12)
Age	0.014^{***}	0.016^{***}	0.002	0.016^{***}	0.016^{***}
	(0.003)	(0.003)	(0.01)	(0.003)	(0.003)
Black×Age				-0.014	-0.014
				(0.01)	(0.01)
Married	0.317^{***}	0.365^{***}	-0.118	0.365^{***}	0.365^{***}
	(0.11)	(0.12)	(0.33)	(0.12)	(0.12)
Black×Married				-0.484	-0.484
				(0.39)	(0.39)
Constant	4.333^{***}	4.228^{***}	3.601^{***}	4.228^{***}	4.228^{***}
	(0.19)	(0.20)	(0.44)	(0.20)	(0.20)
Observations	$2,854$	$2,524$	330	$2,854$	$2,854$
R^2	0.07	0.01	0.04	0.07	0.07

Standard errors in parentheses. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$ (two-tailed)

Note: Table F.5 presents results from several different strategies for examining the intersectional impact of gender and race on Republican support. The two split-sample models and the two unconstrained interaction models all estimate the exact same quantities of interest. The constrained interaction model estimates different quantities of interest because it constrains the effects of the control variables *Age* and *Married* to be the same across the two racial groups.

$$\begin{aligned} \textit{Republican Support} &= \beta_0 + \beta_1 \textit{Female} + \beta_2 \textit{Black} + \beta_3 \textit{Female} \times \textit{Black} \\ &\quad + \beta_4 \textit{Age} + \beta_5 \textit{Age} \times \textit{Black} + \beta_6 \textit{Married} + \beta_7 \textit{Married} \times \textit{Black} + \epsilon. \end{aligned} \quad \text{(F.9)}$$

This unconstrained interaction model will estimate identical quantities of interest to those obtained from the split-sample strategy. We can see this explicitly by comparing the results from the two *Split-Sample* models in Table F.5 with those from the *Unconstrained Interaction Model*. The effect of being female is -0.007 among White people and -1.058 among Black people in the split-sample models; it is also -0.007 among White people and $-0.007 - 1.050 = -1.058$ among Black people in the unconstrained interaction model. The interaction effect between gender and race is $-1.058 - (-0.007) = -1.050$ in the split-sample models; it is also -1.050 in the unconstrained interaction model. The effect of *Age* is 0.016 among White people and 0.002 among Black people in the split-sample model; it is also 0.016 and $0.016 - 0.014 = 0.002$ in the unconstrained interaction model. The effect of *Married* is 0.365 among White people and -0.118 among Black people in the split-sample model; it is also 0.365 and $0.365 - 0.484 = -0.118$ in the unconstrained interaction model. The constant term in the unconstrained interaction model is also the same as the constant term in the White People Only model. If we want, we can also re-specify the unconstrained interaction model in Eq. F.19 to tell us the effect of being female among White people and Black people directly from the regression output,

$$\begin{aligned} \textit{Republican Support} = \beta_0 + \beta_1 \textit{Black} + \beta_2 \textit{Female} \times \textit{White} + \beta_3 \textit{Female} \times \textit{Black} \\ + \beta_4 \textit{Age} + \beta_5 \textit{Age} \times \textit{Black} + \beta_6 \textit{Married} + \beta_7 \textit{Married} \times \textit{Black} + \epsilon. \end{aligned} \quad \text{(F.10)}$$

As before, the coefficient on *Female*×*White* tells us the effect of being female among White people and the coefficient on *Female*×*Black* tells us the effect of being female among Black people. We can confirm the equivalency of the two unconstrained interaction models and the split-sample strategy by looking at the results from the *Alternative Unconstrained Interaction Model* in Table F.5. Ultimately, we see that there is nothing that the split-sample strategy can do that we cannot also do with a pooled interaction model.

We remind readers that a significant drawback of the split-sample strategy is that we cannot usually determine directly from the regression output whether the effects of the independent variables vary across our two racial groups. This can lead to unfortunate inferential errors. As an example, note that the coefficient on *Married* is positive and statistically significant among White people but negative and statistically insignificant among Black people. It is our experience that many scholars infer from a result like this that marriage has a significantly different effect among Black people compared to among White people. As we noted previously, though, this inference is unjustified as the difference between 'significant' and 'not significant' may not itself be statistically significant (Gelman and Stern, 2006). Indeed, the coefficient on the interaction term *Black*×*Married* in the *Unconstrained Interaction Model* clearly reveals that this difference in the effect of *Married* across racial groups is not, in fact, statistically significant. In line with our intersectional theory, though, the coefficient on the interaction term *Female*×*Black* indicates that the differences in the effect of being female across the two split-sample models are significantly different. This provides us with our evidence of intersectionality.

As we also noted previously, a second drawback of the split-sample strategy is that it is easy to overlook the inherent symmetry of interactions that is built into an intersectional theory. We need to make predictions about the intersectional effect of both gender *and* race on Republican support in order to distinguish our particular intersectional story from all of the different possible intersectional relationships we might find between these two categories of difference in the data. This is why we presented two hypotheses in the main text, one that spoke to the effect of being female for White and Black people (*Female Hypothesis*) and one that spoke to the effect of being Black for men and women (*Black Hypothesis*). As we saw in the 'no controls' case, the split-sample strategy we have adopted here makes it easy to evaluate the *Female Hypothesis*, but it is not well-designed to evaluate the *Black Hypothesis*. We will discuss this in more detail shortly. A more important point, though, that we first wish to emphasize is that the adoption of the split-sample strategy (or an equivalent unconstrained pooled interaction model) implies a possibly more complex theoretical effect of race on Republican support than we have currently envisaged. It also implies a theoretical asymmetry in the effect of gender and race on Republican support. This highlights that we need to think carefully about whether the split-sample strategy is actually appropriate given our theory.

When we adopt the split-sample strategy, we allow the effect of all the independent variables to vary across the two racial groups. At first glance, this might seem relatively inconsequential. What does it matter if we let the effect of the control variables such as age and marital status differ for White people and Black people? As the additional interaction terms in the unconstrained interaction model indicate, though, the fact that the effects of the control variables are allowed to vary across the two racial groups logically implies that the effect of race on Republican support is also allowed to vary with the control variables due to the inherent symmetry of interactions. In other words, the split-sample strategy not only allows the effect of race to vary with someone's gender, it also allows it to vary with someone's age and marital status. We can see this explicitly by taking the derivative of *Republican Support* in the unconstrained interaction model in

Eq. F.19 with respect to *Black*,

$$\frac{\partial Republican\ Support}{\partial Black} = \beta_2 + \beta_3 Female + \beta_5 Age + \beta_7 Married. \quad \text{(F.11)}$$

We can now clearly see that the effect of being Black depends on the value of *Female*, *Age*, and *Married* and that the coefficient on *Black*, β_2, only tells us the effect of race for unmarried men who have no age. Before adopting the split-sample strategy, scholars should think theoretically about whether and how the effect of race on Republican support varies with the control variables such as age and marital status. This theoretical reasoning should be explicitly incorporated into the *Black Hypothesis* about the effect of race on Republican support. Notably, the adoption of the split-sample strategy also implies a theoretical asymmetry between the effect of gender and race on Republican support. This is because the split-sample strategy assumes that the effect of gender, or being female, only varies with someone's race. Scholars should ask themselves whether this asymmetry is theoretically justified as it is built into the split-sample strategy as it is currently written.[5]

Even if we decide that the split-sample strategy is theoretically appropriate and that we do not want, for some reason, to estimate an equivalent pooled interaction model, we still need to find a way to use the results from the two split-sample models to evaluate the effect of race on Republican support in order to test all of the key predictions from our intersectional theory. While this is possible, it is not as straightforward as it is with one of the pooled interaction models. The effect of being Black from the unconstrained interaction model was shown earlier in Eq. F.11. Calculating this effect, along with any standard error or confidence interval, is relatively easy as all of the necessary coefficients come from the same model. In contrast, the effect of being Black in the split-sample strategy is

$$\text{Effect of being Black} = (\delta_0 - \gamma_0) + (\delta_1 - \gamma_1)\,Female + (\delta_2 - \gamma_2)\,Age + (\delta_3 - \gamma_3)\,Married. \quad \text{(F.12)}$$

Calculating this effect, along with any standard error or confidence interval, is less straightforward as the necessary coefficients come from the different split-sample models.

Note that it does not make sense to estimate the split-sample models in Eq. F.7 and Eq. F.8 to evaluate

[5]We could, of course, allow the effect of gender in the split-sample strategy to also vary with age and marital status by including yet more interaction terms.

the *Female Hypothesis* and the following split-sample models to evaluate the *Black Hypothesis*,

$$\text{1. Men Only:} \quad \textit{Republican Support}_{\textit{Female}=0} = \gamma_0 + \gamma_1 \textit{Black} + \gamma_2 \textit{Age} + \gamma_3 \textit{Married} + \varepsilon, \tag{F.13}$$

$$\text{2. Women Only:} \quad \textit{Republican Support}_{\textit{Female}=1} = \delta_0 + \delta_1 \textit{Black} + \delta_2 \textit{Age} + \delta_3 \textit{Married} + \varepsilon. \tag{F.14}$$

This is because these two pairs of split-sample models assume different theoretical stories about how gender and race intersect to determine Republican support. For example, the two split-sample models in Eq. F.7 and Eq. F.8 assume that the effect of gender varies with race but that the effect of race varies with gender, age, and marital status. In contrast, the two split-sample models in Eq. F.13 and Eq. F.14 assume that the effect of race varies with just gender but that the effect of gender now varies with race, age, and marital status.

The bottom line is that there is no reason to prefer a split-sample strategy over a pooled interaction model. There is nothing that one can do with the split-sample strategy that one cannot also do with a pooled interaction model. In addition to the greater ease with which we can calculate all of the quantities of interest necessary to fully evaluate an intersectional theory, a pooled interaction model also has the advantage that we can allow the effect of some, but not all, of the independent variables to vary across the sub-samples if this is what our theory calls for. All of this suggests that using a pooled interaction model is never worse and often better than employing a split-sample strategy.

Our discussion here has focused on the variant of the split-sample strategy where the sub-samples are defined in terms of race. However, it generalizes easily to all of the variants of the split-sample strategy. It is important to recognize, though, that the different variants of the split-sample strategy no longer produce the same results now that we have control variables. This is because the different variants imply different things with respect to the theoretical conditional effects of the categories of difference on the outcome of interest. Scholars should be aware of this when selecting a split-sample strategy to test their intersectional theory.

Split-Sample (Race and Gender)

To further illustrate this, we briefly discuss the variant of the split-sample strategy with controls where the identity group sub-samples are defined in terms of race and gender,

1. White Men Only: $$\textit{Republican Support}_{Black=0,Female=0} = \alpha_0 + \alpha_1 Age + \alpha_2 Married + \varepsilon, \quad \text{(F.15)}$$
2. White Women Only: $$\textit{Republican Support}_{Black=0,Female=1} = \theta_0 + \theta_1 Age + \theta_2 Married + \varepsilon, \quad \text{(F.16)}$$
3. Black Men Only: $$\textit{Republican Support}_{Black=1,Female=0} = \kappa_0 + \kappa_1 Age + \kappa_2 Married + \varepsilon, \quad \text{(F.17)}$$
4. Black Women Only: $$\textit{Republican Support}_{Black=1,Female=1} = \eta_0 + \eta_1 Age + \eta_2 Married + \varepsilon. \quad \text{(F.18)}$$

The results for this variant of the split-sample strategy are shown in the first four columns of Table F.6. We see that the effects of *Age* and *Married* are allowed to vary across each of the four identity groups. In our opinion, this particular split-sample strategy is not that useful as it does not directly provide us with any of the quantities regarding the conditional effects of gender and race that we would need to test the key predictions from our intersectional theory. Indeed, we might say that the split-sample strategy 'hides' the conditional effects of gender and race as *Female* and *Black* do not feature as independent variables. It remains the case that it is possible to calculate these effects, but it is not straightforward.

As before, we can write the split-sample strategy as an equivalent pooled interaction model,

$$\begin{aligned} \textit{Republican Support} = \beta_0 &+ \beta_1 Female + \beta_2 Black + \beta_3 Female \times Black \\ &+ \beta_4 Age + \beta_5 Female \times Age + \beta_6 Black \times Age \\ &+ \beta_7 Female \times Black \times Age \\ &+ \beta_8 Married + \beta_9 Female \times Married + \beta_{10} Black \times Married \\ &+ \beta_{11} Female \times Black \times Married + \epsilon. \end{aligned} \quad \text{(F.19)}$$

This unconstrained interaction model estimates the exact same quantities of interest as the new split-sample strategy. We can see this by comparing the results from the four split-sample models in Table F.6 and those from the *Unconstrained Interaction Model*. As expected, the coefficients on *Age*, *Married*, and the constant term in the interaction model are the same as the equivalent coefficients in the White Men only model. The effect of *Age* for White women is $\beta_4 + \beta_5 = 0.014 + 0.002 = 0.017$, which is the same as the coefficient on

Table F.6: Gender, Race, and Republican Support in the 2016 U.S. Presidential Elections (with Controls) II

Dependent Variable: *Republican Support,* $0-10$

	Split Sample				Unconstrained
	White Men	White Women	Black Men	Black Women	Interaction Model
Female					-0.115
					(0.37)
Black					-0.671
					(0.82)
Female×Black					-1.012
					(1.06)
Age	0.014^{***}	0.017^{***}	0.005	0.001	0.014^{***}
	(0.005)	(0.005)	(0.02)	(0.01)	(0.005)
Female×Age					0.002
					(0.01)
Black×Age					-0.009
					(0.02)
Female×Black×Age					-0.006
					(0.02)
Married	0.383^{**}	0.359^{**}	-0.560	0.221	0.383^{**}
	(0.18)	(0.16)	(0.51)	(0.43)	(0.18)
Female×Married					-0.023
					(0.24)
Black×Married					-0.942
					(0.60)
Female×Black×Married					0.804
					(0.80)
Constant	4.284^{***}	4.169^{***}	3.613^{***}	2.486^{***}	4.284^{***}
	(0.27)	(0.27)	(0.69)	(0.53)	(0.27)
Observations	$1,184$	$1,340$	127	203	$2,854$
R^2	0.01	0.01	0.01	0.002	0.07

Standard errors in parentheses. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$ (two-tailed)

Note: Table F.6 presents results from a split-sample strategy where identity groups are defined by gender and race and an equivalent unconstrained interaction model.

Age in the White Women only model. The effect of *Age* for Black men is $\beta_4+\beta_6 = 0.014-0.009 = 0.005$, which is the same as the coefficient on *Age* in the Black men only model. The effect of *Age* for Black women is $\beta_4 + \beta_5 + \beta_6 + \beta_7 = 0.014 + 0.002 - 0.009 - 0.006 = 0.001$, which is the same as the coefficient on

Age in the Black Women only model. Similar calculations confirm that the unconstrained interaction model also produces the same results for *Married* across each of the four split-sample models.

The specification of the equivalent unconstrained interaction model helps to make it clear exactly what implicit theoretical assumptions scholars are making about the effects of gender and race on Republican support when they adopt this seemingly simple split-sample strategy. The effect of being female is

$$\begin{aligned}\frac{\partial \textit{Republican Support}}{\partial \textit{Female}} &= \beta_1 + \beta_3 \textit{Black} + \beta_5 Age + \beta_7 \textit{Black} \times Age \\ &\quad + \beta_9 \textit{Married} + \beta_{11} \textit{Black} \times \textit{Married}. \end{aligned} \tag{F.20}$$

From this, we see that the implied theoretical effect of gender is quite complex in that it is allowed to vary with the specific *combination* of someone's race, age, and marital status. This is clearly different from what we had with the split-sample strategy discussed earlier, which allowed gender to vary only with respect to race. Before adopting this split-sample strategy, we encourage scholars to think theoretically about whether and how the effect of gender on Republican support varies with different combinations of values for race, age, and marital status. Indeed, scholars should think carefully about what specific variant of the split-sample strategy is most appropriate given their theory.

The implied intersectional relationship between gender and race is also different from, and much more complex than, what we have seen previously. To see how race modifies the effect of gender on Republican support, we take the derivative of Eq. F.20 with respect to *Black*,

$$\frac{\partial \left(\frac{\partial \textit{Republican Support}}{\partial \textit{Female}}\right)}{\partial Black} = \beta_3 + \beta_7 Age + \beta_{11} \textit{Married}. \tag{F.21}$$

We now see that there is no longer a single interaction or intersectional effect of gender and race. Instead, the interaction effect between gender and race changes with, or depends on, someone's age and marital status. This is something that is built into this variant of the split-sample strategy and is something that should be explicitly recognized by scholars who adopt this empirical research design.

Unlike with the previous variant of the split-sample strategy, there is no longer any asymmetry in how gender and race affects Republican support. Like with the effect of gender, the effect of race is allowed to vary with the specific combination of someone's gender, age, and marital status,

$$\frac{\partial \textit{Republican Support}}{\partial \textit{Black}} = \beta_2 + \beta_3 \textit{Female} + \beta_6 \textit{Age} + \beta_7 \textit{Female} \times \textit{Age} + \beta_{10} \textit{Married} + \beta_{11} \textit{Female} \times \textit{Married}. \tag{F.22}$$

It is worth noting, though, that this effect of race is different to the effect of race assumed in the previous variant of the split-sample strategy that we discussed. This is because the modifying effect of gender on the effect of race now depends on someone's age and marital status; this was not the case previously.

Even if scholars decide that this new split-sample strategy is theoretically appropriate and that they do not want, for some reason, to estimate an equivalent pooled interaction model, they still need to find a way to use the results from the four split-sample models to evaluate the intersectional effects of gender and race on Republican support to test the key predictions from their intersectional theory. Rather than go through this complicated process here, we simply note that it is much easier to calculate the necessary quantities of interest and measures of uncertainty from an equivalent pooled interaction model.

But What if the Determinants of the Outcome of Interest are Different for Each Identity Group?

We finish by discussing one final argument we sometimes hear for adopting a split-sample strategy rather than a pooled interaction model. The first step in the argument is the claim that the determinants of the outcome of interest, such as Republican support, may differ across different identity groups. Sometimes this claim is framed in terms of processes rather than determinants. In other words, the claim is that the process by which, say, Republican support is determined may vary across different identity groups. Irrespective of whether we are talking about determinants or processes, the second step of the argument involves claiming that this theoretical setup requires the adoption of a split-sample strategy because this allows us to include different sets of independent variables for the different identity group sub-samples. The problem with this argument comes in the second step because a pooled interaction model also allows the determinants of the outcome of interest to vary across the different identity groups. Indeed, a pooled interaction model has the advantage that it tests, rather than simply assumes, that there are cross-group differences in the determinants of the outcome of interest.

The idea that an intersectional theory could imply that the determinants of the outcome of interest might differ across different identity groups is eminently plausible. Indeed, the intersectional theory that we presented in the main text implied precisely this. Recall that our theory implied that being female increases Republican support but that this positive effect is larger among Blacks than Whites. As we have seen, we can certainly test an intersectional claim like this with an appropriate split-sample strategy. However, we have also clearly seen that we can test it with a variety of equivalent pooled interaction models. In other words, we have already demonstrated that a pooled interaction model allows us to examine if and how the effects of the determinants of Republican support such as gender exhibit cross-group differences. The example that we have examined here is one where we expect the effect of some determinant such as gender to be larger (or smaller) for one identity group than another. However, there is nothing special about this example.

The same logic easily applies to a situation where our theory implies that a determinant such as gender matters for Republican support among some identity groups but not others. Indeed, we make such a claim in Online Appendix G when we extend the intersectional theory from the main text to incorporate class as a third category of difference. To be specific, our extended theory implies that gender does not matter for, or has no effect on, Republican support among poor White people but that it does matter for Black people and rich White people. As we demonstrate in Online Appendix G, we can easily test an implication like this with an interaction model. An appealing feature of the interaction model is that it actually tests the claim that gender does not matter for poor White people. In contrast, omitting gender as a variable in a model estimated on a sub-sample that includes only poor White people but including it in the models estimated on the sub-samples that include rich White people, poor Black people, and rich Black people *assumes* this claim rather than tests it, making it impossible to know whether gender actually works differently among poor White people compared to the other groups.

We can always write a pooled interaction model that 'nests' a split-sample strategy where possibly different independent variables are included when estimating each of the separate models on the different sub-sample identity groups. The idea with the split-sample strategy is that the determinants that matter for the outcome of interest may vary across the different identity groups. The key point to recognize is that this is simply equivalent to assuming that one or more (combinations) of the coefficients in the pooled interaction model are 0. The pooled interaction model is more flexible than this in that it allows, but does not require, these (combinations of) coefficients to be 0. As a result, the pooled interaction model tests whether the determinants of the outcome of interest actually vary across the different identity groups.

Online Appendix G: Intersectional Theories with Three Categories of Difference

Throughout the main text, we looked at how to evaluate claims of intersectionality with respect to two categories of difference or axes of structural inequality. While we could have focused our substantive discussion on any two categories of difference, we chose to address claims of intersectionality as they related to gender and race. As we stated at the time, our discussion and recommendations easily generalize to evaluating claims of intersectionality that deal with more than two categories of difference. We now provide evidence for this by looking at claims of intersectionality that involve three categories of difference. Without any loss of generality, and in line with much of the existing intersectional literature, we focus our substantive discussion on claims of intersectionality with respect to the "holy trinity" (Davis and Zarkov, 2017, 319) or "triptych" (Beckwith and Baldez, 2007, 231) of gender, race, and class.

Thinking about Intersectionality with Three Categories of Difference

As noted in the main text, intersectionality denies the separability of categories of difference. When we were just considering gender and race, evidence of intersectionality required that we could not explain some outcome solely by gender, solely by race, or separately by both race and gender. In effect, claims of intersectionality require that the effect of gender varies depending on someone's race and that the effect of race varies depending on someone's gender. Things are more complicated when we have three categories of difference: gender, race, and class. This is because there are two possible theoretical cases to think about.

Two Possible Theoretical Stories: 'Partial' or 'Full' Intersectionality?

Suppose we are interested in evaluating a claim about the effect of gender and how this effect varies depending on someone's race and class. The first theoretical case occurs when the modifying effects of race and class on gender are predicted to be *independent* or *unconditional*. In this case, while the effect of gender is expected to vary depending on someone's race and class, *how* the effect of gender varies with race is not expected to depend on someone's class and *how* the effect of gender varies with someone's class is not expected to depend on someone's race. Put differently, the first case posits an interactive or intersectional relationship between gender and race that is separable from class and an interactive or intersectional relationship between gender and class that is separable from race. In this sense, we might say that it predicts a 'partially interactive' or 'partially intersectional' relationship between gender, race, and class.

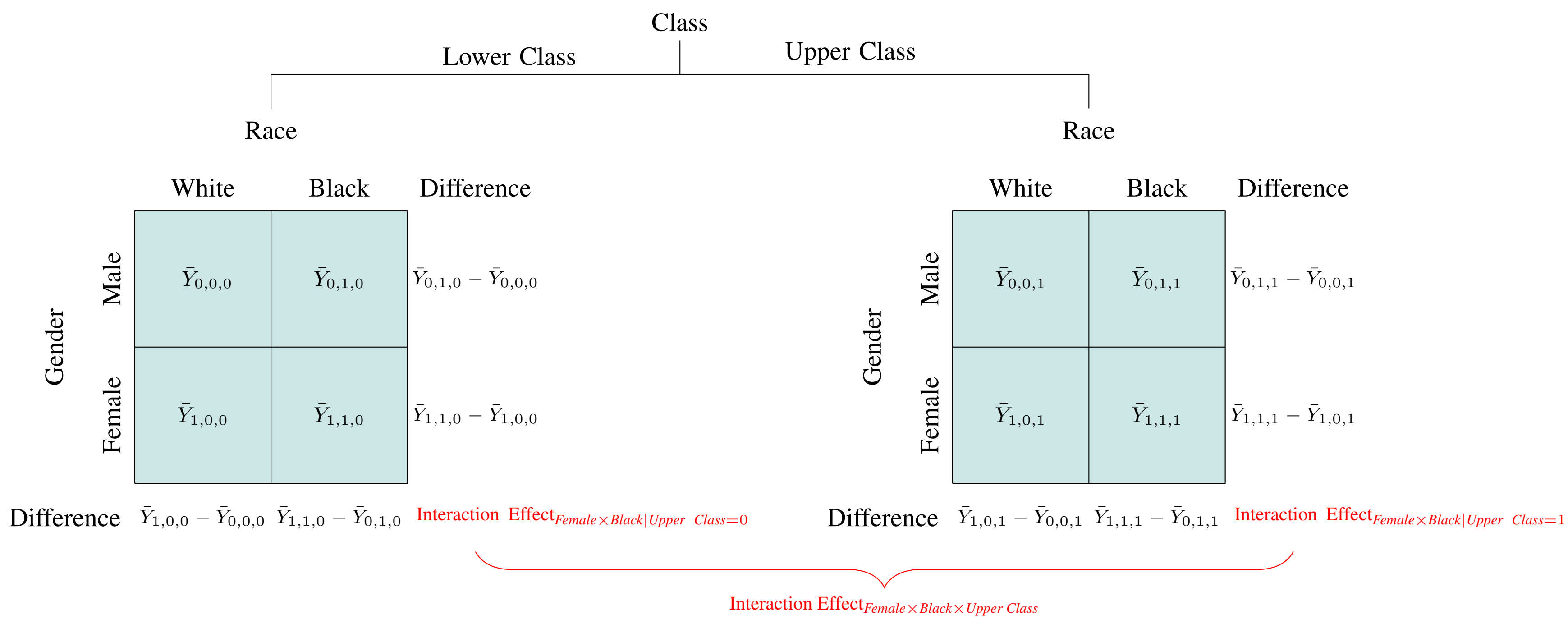
The second theoretical case occurs when the modifying effects of race and class are *dependent* or *conditional*. In this case, the effect of gender not only varies depending on someone's race and class, but also *how* the effect of gender varies with race depends on someone's class and *how* the effect of gender varies with class depends on someone's race. In effect, the second case posits an interactive or intersectional relationship between gender and race that varies with class and an interactive or intersectional relationship between gender and class that varies with race. In this sense, we might say that it predicts a 'fully interactive' or 'fully intersectional' relationship between gender, race, and class.

Both of these possible theoretical stories deny the separability of gender, race, and class; they just differ over the precise nature, or levels, of the intersectional relationship between the three categories of difference. On this point, we encourage scholars to be as explicit as possible about the intersectional relationship between gender, race, and class predicted by their theory. In what follows, we focus on arguments predicting that the relationship between gender, race, and class is 'fully interactive' or 'fully intersectional'. We do so because we believe that this is the most common type of argument in the literature and because the interactive research design necessary to evaluate its implications also allows us to evaluate claims that the relationship between gender, race, and class is only 'partially interactive' or 'partially intersectional'.

Visualizing a Fully Interactive Relationship between Gender, Race, and Class

To help guide our discussion, Figure G.3 provides a visualization of a fully interactive (or fully intersectional) relationship between gender, race, and class. To keep things simple, we have assumed that gender, race, and class are all dichotomous variables, where *Female* equals 1 when an individual is female and 0 when they are male, *Black* equals 1 when an individual is Black and 0 when they are White, and *Upper Class* equals 1 when an individual is upper class and 0 when they are lower class. The different possible combinations of values for our three dichotomous variables *Female*, *Black*, and *Upper Class* define $2^3 = 8$ types of distinct identity groups. Each of the colored cells in Figure G.3 corresponds to one of these eight groups and indicates the mean level of some outcome variable Y, such as Republican support, for that category. We have adopted the convention $\bar{Y}_{x,z,w}$ to indicate the mean level of Y when *Female* $= x$, *Black* $= z$, and *Upper Class* $= w$. This means, for example, that $\bar{Y}_{1,0,0}$ indicates the mean level of Y when *Female* $= 1$, *Black* $= 0$, and *Upper Class* $= 0$; that is, the mean level of Y for a lower class White female. We have seen

Figure G.3: Visualizing a Fully Interactive or Intersectional Relationship between Gender, Race, and Class



Note: Figure G.3 visualizes a fully interactive or intersectional relationship between gender, race, and class. We have adopted the convention $\bar{Y}_{x,z,w}$ to indicate the mean level of Y when *Female* $= x$, *Black* $= z$, and *Upper Class* $= w$. The 'Difference' column to the right of each colored square indicates the difference between the values in the right colored column and the values in the left colored column. The 'Difference' row below each colored square indicates the difference between the values in the bottom colored row and the values in the top colored row. The 'Interaction Effect' to the bottom right of each colored square indicates both the difference in the values in the 'Difference' column (bottom versus top) and the difference in the values in the 'Difference' row (right versus left). The 'Interaction Effect' at the very bottom of Figure G.3 indicates the difference in the value of the interaction effect associated with the colored square on the right and the value of the interaction effect associated with the colored square on the left.

these types of colored 2×2 'squares' before when we used one to illustrate the interactive impact of gender and race on support for the Republican Party in Figure 5 of the main text. Then, we needed only one of these squares to capture the intersectional relationship between gender and race. Here, though, we need two to capture the intersectional relationship between gender and race, one for the case when *Upper Class* $= 0$ and one for the case where *Upper Class* $= 1$. The research design depicted in Figure G.3 clearly allows the intersectional relationship between gender and race to vary with the value of a third category of difference, in this case class. As we will see, it also allows the intersectional relationship between gender and class to vary with race and the intersectional relationship between class and race to vary with gender. Indeed, the way that each of these intersectional relationships between two categories of difference vary with a third category of difference will be identical due to the inherent symmetry of interaction.

Note that for each 2×2 square, we can identify the effect of gender or race in various scenarios by calculating differences in the means for our identity groups; that is, by making comparisons across the cells. The 'Difference' row at the bottom of the left square indicates the effect of being female instead of male among White people (left cell) and among Black people (right cell) for the lower class. Put differently, it indicates the difference between lower class White women and lower class White men and the difference between lower class Black women and lower class Black men. The 'Difference' row at the bottom of the right square indicates the same quantities but for individuals who are upper class. The 'Difference' column to the right of the left square indicates the effect of being Black instead of White among men (top cell) and among women (bottom cell) for the lower class. In other words, it indicates the difference between lower class Black men and lower class White men and the difference between lower class Black women and lower class White women. The 'Difference' column to the right of the right square indicates the same quantities but for individuals who are upper class. We can immediately see how this type of research design allows the effect of gender to vary with both someone's race and class and the effect of race to vary with both someone's gender and class.

For each 2×2 square, we can also identify whether there is any evidence of intersectionality between gender and race for lower class individuals (left square) and for upper class individuals (right square) by looking at the associated interaction effects. Recall that the interaction effects reported in red toward the bottom right of each square are just differences in differences and tell us both how the effect of gender varies depending on someone's race *and* how the effect of race varies depending on someone's gender for individuals of a particular class. For example, the interaction effect toward the bottom right of the left square tells us both how race modifies the effect of gender for lower class individuals,

$$\begin{aligned}\text{Interaction Effect}_{\textit{Female}\times\textit{Black}|\textit{Upper Class}=0} &= \left(\bar{Y}_{1,1,0} - \bar{Y}_{0,1,0}\right) - \left(\bar{Y}_{1,0,0} - \bar{Y}_{0,0,0}\right) \\ &= \bar{Y}_{1,1,0} - \bar{Y}_{0,1,0} - \bar{Y}_{1,0,0} + \bar{Y}_{0,0,0}, \end{aligned} \tag{G.1}$$

and how gender modifies the effect of race for lower class individuals,

$$\begin{aligned}\text{Interaction Effect}_{\textit{Female}\times\textit{Black}|\textit{Upper Class}=0} &= \left(\bar{Y}_{1,1,0} - \bar{Y}_{1,0,0}\right) - \left(\bar{Y}_{0,1,0} - \bar{Y}_{0,0,0}\right) \\ &= \bar{Y}_{1,1,0} - \bar{Y}_{0,1,0} - \bar{Y}_{1,0,0} + \bar{Y}_{0,0,0}. \end{aligned} \tag{G.2}$$

These quantities are identical due to the symmetry of interactions. The interaction effect towards the bottom right of the right square tells us the same quantities for upper class individuals.

We can determine whether an individual's class modifies the intersectional relationship between gender and race by seeing whether the interaction effects associated with each of the 2×2 squares are different,

$$\begin{aligned}\text{Interaction Effect}_{\textit{Female}\times\textit{Black}\times\textit{Upper Class}} &= \text{Interaction Effect}_{\textit{Female}\times\textit{Black}|\textit{Upper Class}=1} - \text{Interaction Effect}_{\textit{Female}\times\textit{Black}|\textit{Upper Class}=0} \\ &= \left(\bar{Y}_{1,1,1} - \bar{Y}_{0,1,1} - \bar{Y}_{1,0,1} + \bar{Y}_{0,0,1}\right) - \left(\bar{Y}_{1,1,0} - \bar{Y}_{0,1,0} - \bar{Y}_{1,0,0} + \bar{Y}_{0,0,0}\right) \\ &= \bar{Y}_{1,1,1} - \bar{Y}_{0,1,1} - \bar{Y}_{1,0,1} + \bar{Y}_{0,0,1} - \bar{Y}_{1,1,0} + \bar{Y}_{0,1,0} + \bar{Y}_{1,0,0} - \bar{Y}_{0,0,0}. \end{aligned} \tag{G.3}$$

Since it represents a modifying effect, we can think of this difference as a *second-order* interaction effect and hence a second-order level of intersectionality. It is this quantity, and only this quantity, that indicates whether our empirical results are consistent with a theoretical claim that there is a fully interactive or fully intersectional relationship between gender, race, and class. That class modifies both (1) the modifying effect of race on the effect of gender and (2) the modifying effect of gender on the effect of race in exactly the same way arises due to the inherent symmetry of interactions that continues to work at this higher level.

Although it is slightly less easy to see, we can glean more information from Figure G.3 about the intersectional relationship between gender, race, and class. Just as we calculated the effect of gender and race for various scenarios by calculating differences in the means of our identity categories, we can do the same for the effect of class. Rather than calculating differences between cells *within* the same 2×2 square as we have done previously, this requires calculating differences between similarly-situated cells *across* the two 2×2 squares. For example, we can calculate the effect of being upper class rather than lower class for White men by taking the difference between the value in the top left cell in the 2×2 square on the right and the value in the top left cell in the 2×2 square on the left, $\bar{Y}_{0,0,1} - \bar{Y}_{0,0,0}$. The effect of being upper class rather than lower class for White women is the difference between the value in the bottom left cell in the 2×2 square on the right and the value in the bottom left cell in the 2×2 square on the left, $\bar{Y}_{1,0,1} - \bar{Y}_{1,0,0}$. The difference between these two differences tells us how gender modifies the effect of class for White individuals,

$$\begin{aligned} \text{Interaction Effect}_{\textit{Female} \times \textit{Upper Class} | \textit{Black}=0} &= \left(\bar{Y}_{1,0,1} - \bar{Y}_{1,0,0}\right) - \left(\bar{Y}_{0,0,1} - \bar{Y}_{0,0,0}\right) \\ &= \bar{Y}_{1,0,1} - \bar{Y}_{1,0,0} - \bar{Y}_{0,0,1} + \bar{Y}_{0,0,0}, \end{aligned} \tag{G.4}$$

and hence whether we have any evidence of intersectionality between gender and class among Whites.

We can make similar calculations to examine evidence of intersectionality between gender and class among Black people. The effect of being upper class rather than lower class for Black men is the difference between the value in the top right cell in the square on the right and the value in the top right cell in the square on the left, $\bar{Y}_{0,1,1} - \bar{Y}_{0,1,0}$. The effect of being upper class rather than lower class for Black women is the difference between the value in the bottom right cell in the right square and the value in the bottom right cell in the left square, $\bar{Y}_{1,1,1} - \bar{Y}_{1,1,0}$. The difference between these two differences indicates if we have evidence of intersectionality between gender and class among Black people because it tells us how gender modifies the effect of class for Black individuals,

$$\begin{aligned} \text{Interaction Effect}_{\textit{Female} \times \textit{Upper Class} | \textit{Black}=1} &= \left(\bar{Y}_{1,1,1} - \bar{Y}_{1,1,0}\right) - \left(\bar{Y}_{0,1,1} - \bar{Y}_{0,1,0}\right) \\ &= \bar{Y}_{1,1,1} - \bar{Y}_{1,1,0} - \bar{Y}_{0,1,1} + \bar{Y}_{0,1,0}. \end{aligned} \tag{G.5}$$

The difference between these two interaction effects tells us how race modifies the intersectional relationship between gender and class,

$$\begin{aligned} \text{Interaction Effect}_{\textit{Female} \times \textit{Black} \times \textit{Upper Class}} &= \text{Interaction Effect}_{\textit{Female} \times \textit{Upper Class} | \textit{Black}=1} - \text{Interaction Effect}_{\textit{Female} \times \textit{Upper Class} | \textit{Black}=0} \\ &= \left(\bar{Y}_{1,1,1} - \bar{Y}_{1,1,0} - \bar{Y}_{0,1,1} + \bar{Y}_{0,1,0}\right) - \left(\bar{Y}_{1,0,1} - \bar{Y}_{1,0,0} - \bar{Y}_{0,0,1} + \bar{Y}_{0,0,0}\right) \\ &= \bar{Y}_{1,1,1} - \bar{Y}_{1,1,0} - \bar{Y}_{0,1,1} + \bar{Y}_{0,1,0} - \bar{Y}_{1,0,1} + \bar{Y}_{1,0,0} + \bar{Y}_{0,0,1} - \bar{Y}_{0,0,0} \\ &= \bar{Y}_{1,1,1} - \bar{Y}_{0,1,1} - \bar{Y}_{1,0,1} + \bar{Y}_{0,0,1} - \bar{Y}_{1,1,0} + \bar{Y}_{0,1,0} + \bar{Y}_{1,0,0} - \bar{Y}_{0,0,0}, \end{aligned} \tag{G.6}$$

and is therefore evidence of a second-order ‘interaction effect’ or a second-order level of intersectionality.

As expected, the symmetry of interactions means that this interaction effect is identical to the second-order interaction effect shown in Eq. G.3. The way that race modifies the intersectional relationship between gender and class, the way that class modifies the intersectional relationship between gender and race, and the way that gender modifies the intersectional relationship between race and class are necessarily identical.

Some Insights and Key Predictions

Our discussion of the research design shown in Figure G.3 highlights several points worth emphasizing when evaluating a claim of intersectionality. First, we need to compare *eight* distinct identity groups when our intersectional theory focuses on gender, race, and class and when each of these categories of difference are treated as dichotomous: (1) lower class White men, (2) lower class White women, (3) lower class Black men, (4) lower class Black women, (5) upper class White men, (6) upper class White women, (7) upper class Black men, and (8) upper class Black women. Speaking more generally, we need to compare groups that exhibit variation across *all* of the possible combinations of discrete values for the theoretically-relevant categories of difference when evaluating a claim of intersectionality. If we compare fewer groups than this, we will be unable to calculate quantities such as Interaction $\text{Effect}_{Female \times Black \times Upper\ Class}$ and hence we will have no way to determine whether there is evidence for the intersectionality predicted by a 'fully interactive' theory. Among other things, this means that evaluating claims of intersectionality necessarily requires including both marginalized and non-marginalized groups in our analyses. It also means that our sample size needs to be quite large so that we have enough observations in each identity category to know if all of the differences across groups that we need to evaluate are statistically significant.

Second, the research design shown in Figure G.3, which cross-classifies individuals based on their gender, race, and class, is an explicitly interactive framework. As we noted in the main text, one cannot evaluate a claim of intersectionality without adopting an interactive framework. Those familiar with experiments will recognize the research design in Figure G.3 as a fully-crossed factorial (interactive) design with three factors (gender, race, class) and $2 \times 2 \times 2 = 8$ treatment arms.

Third, it should be clear that our discussion here applies equally well irrespective of whether a scholar is using qualitative or quantitative methods to examine a claim of intersectionality. As we have seen, determining if there is intersectionality, whether this is lower-level or higher-level intersectionality, simply requires making certain types of comparisons across identity categories. Whether one uses quantitative or qualitative methods to make these comparisons is irrelevant. All scholars who wish to identify evidence of intersectionality have to adopt an interactive research design.[6]

Finally, by indicating the information we are able to glean from a research design like the one shown in Figure G.3, our discussion throws light on the possible predictions we can make from a 'fully intersectional' theory involving gender, race, and class. In the main text, we encouraged scholars, where possible, to make five key predictions when examining the implications from an intersectional theory positing interaction between two categories of difference. If we focus on gender and race, these five predictions relate to (1) the interaction effect between gender and race, (2) the effect of gender among White people, (3) the effect of gender among Black people, (4) the effect of race among men, and (5) the effect of gender among women. Only by making all five of these predictions can scholars know whether the data support their particular intersectional theory as opposed to one of the other fourteen possible intersectional stories shown in Online Appendix B. These five predictions can be incorporated into a single hypothesis about the effect of gender and how it varies by race and a single hypothesis about the effect of race and how it varies with gender.

As our discussion has indicated, things are more complicated when we have an intersectional theory positing interaction between *three* categories of difference. Suppose we want to make a hypothesis about the conditional effect of gender. The research design in Figure G.3 allows us to identify the effect of gender for all four possible combinations of values for race and class, the interaction effect between gender and race for both values of class, the interaction effect between gender and class for both values of race, and the second-order interaction effect of class on the intersectional relationship between gender and race or equivalently the second-order interaction effect of race on the intersectional relationship between gender and class. This amounts to *nine* distinct effects. Different combinations of signs for these nine effects correspond to different possible claims about the intersectional effect of gender on the outcome of interest. Following our advice in the main text, we recommend that scholars make predictions about the signs of all nine of these effects when making a hypothesis about the intersectional effect of gender from a theory positing 'full interaction' between gender, race, and class.

Equivalent predictions can be made for the conditional effects of race and class. Due to the symmetry of interactions, some of the predictions regarding interaction effects will be common across our claims about

[6] We understand that not all scholars conducting research that falls under the broad umbrella of intersectionality research are focused on identifying the presence of intersectionality. As we noted in the main text, for example, scholars who adopt an intracategorical approach to intersectionality are often primarily interested in highlighting the inequalities felt by particular groups who live at the intersections of 'traditional' identity categories and whose lived experiences have been historically neglected, marginalized, or erased. Our point is simply that those who wish to go on and argue that these types of inequalities and lived experiences result from the intersectionality of different categories of difference must adopt an interactive research design.

the effects of gender, race, and class. As a result, the total number of effects that can be identified from the interactive research design in Figure G.3 is 19 and not $3 \times 9 = 27$. All nineteen key predictions are shown in Table G.7 a little later in this appendix.[7] Following the logic outlined in Online Appendix B, different signs for these key predictions (positive, negative, zero) lead to *thousands* of theoretically possible ways in which gender, race, and class can interact to affect some outcome of interest such as Republican support. Only by making all nineteen of these predictions can scholars know whether the data support their particular intersectional theory as opposed to one of the other thousands of possible intersectional relationships. As a result, we encourage scholars, where their theory allows, to make as many predictions about the signs of these effects as possible. These predictions can easily be incorporated into a hypothesis about the effect of gender and how it varies with race and class, a hypothesis about the effect of race and how it varies with gender and class, and a hypothesis about the effect of class and how it varies with gender and race.

Two Equivalent Interactive Model Specifications

Many scholars evaluate the implications of their intersectional theories using quantitative methods. Given that we are dealing with *discrete* categories of difference, there are two different, but exactly equivalent, ways to specify an interaction model to evaluate a claim of intersectionality involving gender, race, and class. In keeping with the main text, we will focus on how gender, race, and class interact to influence political orientation, in particular support for the Republican Party.

One way involves including $K - 1$ dichotomous independent variables that each capture someone's membership in one of the K identity groups that can be formed by all of the possible combinations of an individual's gender, race, and class. As Figure G.3 shows, we have $K = 8$ identity groups in our current example and so our model specification is

$$\begin{aligned}
\textit{Republican Support} = \gamma_0 &+ \gamma_1 \textit{Upper Class White Male} + \gamma_2 \textit{Lower Class Black Male} \\
&+ \gamma_3 \textit{Upper Class Black Male} + \gamma_4 \textit{Lower Class White Female} \\
&+ \gamma_5 \textit{Upper Class White Female} + \gamma_6 \textit{Lower Class Black Female} \\
&+ \gamma_7 \textit{Upper Class Black Female} + \varepsilon, \qquad \text{(G.7)}
\end{aligned}$$

[7] Scholars can actually make more predictions than this if their intersectional theory is strong enough to also make predictions about the relative sizes of the modifying effects of gender, race, and class.

where each dichotomous independent variable equals 1 if an individual falls into the named identity group and 0 otherwise, and *Lower Class White Male* is the omitted identity group. In this setup, lower class White men act as the 'baseline' or 'reference' category against which the other groups are compared. This means, for example, that the coefficient on *Upper Class Black Female*, γ_7, indicates the effect of being an upper class Black woman instead of a lower class White man, or equivalently, the difference in Republican support between an upper class Black woman and a lower class White man. It should be clear from this that the coefficients from this model each match up with a 'difference' that can be identified from the information found in Figure G.3. For example, the coefficient γ_7 is identical to the difference $\bar{Y}_{1,1,1} - \bar{Y}_{0,0,0}$.

The second way to evaluate the implications of an intersectional theory positing interaction between gender, race, and class involves estimating a 'standard' interaction model in which we explicitly specify the interactions between our three categories of difference,

$$\begin{aligned} \textit{Republican Support} = \beta_0 &+ \beta_1 \textit{Female} + \beta_2 \textit{Black} + \beta_3 \textit{Upper Class} \\ &+ \beta_4 \textit{Female} \times \textit{Black} + \beta_5 \textit{Female} \times \textit{Upper Class} + \beta_6 \textit{Black} \times \textit{Upper Class} \\ &+ \beta_7 \textit{Female} \times \textit{Black} \times \textit{Upper Class} + \epsilon. \end{aligned} \tag{G.8}$$

While the two models shown in Eq. G.7 and Eq. G.8 look quite different, they are, in fact, exactly equivalent. To see why, we again start by recognizing that all of the dichotomous independent variables capturing identity groups in Eq. G.7 are interaction terms. We can rewrite the 'alternative' interaction model shown in Eq. G.7 to explicitly display this,

$$\begin{aligned} \textit{Republican Support} = \gamma_0 &+ \gamma_1 \underbrace{\textit{Female}_0 \times \textit{Black}_0 \times \textit{Upper Class}_1}_{\text{Upper Class White Male}} + \gamma_2 \underbrace{\textit{Female}_0 \times \textit{Black}_1 \times \textit{Upper Class}_0}_{\text{Lower Class Black Male}} \\ &+ \gamma_3 \underbrace{\textit{Female}_0 \times \textit{Black}_1 \times \textit{Upper Class}_1}_{\text{Upper Class Black Male}} + \gamma_4 \underbrace{\textit{Female}_1 \times \textit{Black}_0 \times \textit{Upper Class}_0}_{\text{Lower Class White Female}} \\ &+ \gamma_5 \underbrace{\textit{Female}_1 \times \textit{Black}_0 \times \textit{Upper Class}_1}_{\text{Upper Class White Female}} + \gamma_6 \underbrace{\textit{Female}_1 \times \textit{Black}_1 \times \textit{Upper Class}_0}_{\text{Lower Class Black Female}} \\ &+ \gamma_7 \underbrace{\textit{Female}_1 \times \textit{Black}_1 \times \textit{Upper Class}_1}_{\text{Upper Class Black Female}} + \varepsilon, \end{aligned} \tag{G.9}$$

where $\textit{Female}_0$ is a dichotomous variable that equals 1 when $\textit{Female} = 0$ and 0 otherwise, $\textit{Female}_1$ is a dichotomous variable that equals 1 when $\textit{Female} = 1$ and 0 otherwise, $\textit{Black}_0$ is a dichotomous variable that equals 1 when $\textit{Black} = 0$ and 0 otherwise, $\textit{Black}_1$ is a dichotomous variable that equals 1 when *Black*

$= 1$ and 0 otherwise, *Upper Class*$_0$ is a dichotomous variable that equals 1 when *Upper Class* $= 0$ and 0 otherwise, *Upper Class*$_1$ is a dichotomous variable that equals 1 when *Upper Class* $= 1$ and 0 otherwise, and $Female_0 \times Black_0 \times Upper\ Class_0$ is the omitted interaction term.

It should be immediately obvious that *Female*$_1$ is the same as *Female*, that *Black*$_1$ is the same as *Black*, and that *Upper Class*$_1$ is the same as *Upper Class*. This means that we can rewrite Eq. G.9 as

$$\begin{aligned}
Republican\ Support = \gamma_0 &+ \gamma_1 \underbrace{Female_0 \times Black_0 \times Upper\ Class}_{\text{Upper Class White Male}} + \gamma_2 \underbrace{Female_0 \times Black \times Upper\ Class_0}_{\text{Lower Class Black Male}} \\
&+ \gamma_3 \underbrace{Female_0 \times Black \times Upper\ Class}_{\text{Upper Class Black Male}} + \gamma_4 \underbrace{Female \times Black_0 \times Upper\ Class_0}_{\text{Lower Class White Female}} \\
&+ \gamma_5 \underbrace{Female \times Black_0 \times Upper\ Class}_{\text{Upper Class White Female}} + \gamma_6 \underbrace{Female \times Black \times Upper\ Class_0}_{\text{Low Class Black Female}} \\
&+ \gamma_7 \underbrace{Female \times Black \times Upper\ Class}_{\text{Upper Class Black Female}} + \varepsilon. \qquad \text{(G.10)}
\end{aligned}$$

Note also that *Female*$_0$ is just the opposite of *Female*, *Black*$_0$ is just the opposite of *Black*, and *Upper Class*$_0$ is just the opposite of *Upper Class*. In other words, *Female*$_0 = 1-$ *Female*, *Black*$_0 = 1-$ *Black*, and *Upper Class*$_0 = 1-$ *Upper Class*. This means that we can rewrite Eq. G.10 as

$$\begin{aligned}
Republican\ Support = \gamma_0 &+ \gamma_1 \underbrace{(1 - Female) \times (1 - Black) \times Upper\ Class}_{\text{Upper Class White Male}} \\
&+ \gamma_2 \underbrace{(1 - Female) \times Black \times (1 - Upper\ Class)}_{\text{Lower Class Black Male}} \\
&+ \gamma_3 \underbrace{(1 - Female) \times Black \times Upper\ Class}_{\text{Upper Class Black Male}} \\
&+ \gamma_4 \underbrace{Female \times (1 - Black) \times (1 - Upper\ Class)}_{\text{Lower Class White Female}} \\
&+ \gamma_5 \underbrace{Female \times (1 - Black) \times Upper\ Class}_{\text{Upper Class White Female}} \\
&+ \gamma_6 \underbrace{Female \times Black \times (1 - Upper\ Class)}_{\text{Lower Class Black Female}} \\
&+ \gamma_7 \underbrace{Female \times Black \times Upper\ Class}_{\text{Upper Class Black Female}} + \varepsilon. \qquad \text{(G.11)}
\end{aligned}$$

Multiplying through, we have

$$
\begin{aligned}
\textit{Republican Support} = \gamma_0 &+ \gamma_1 \textit{Upper Class} - \gamma_1 \textit{Black} \times \textit{Upper Class} \\
&- \gamma_1 \textit{Female} \times \textit{Upper Class} + \gamma_1 \textit{Female} \times \textit{Black} \times \textit{Upper Class} \\
&+ \gamma_2 \textit{Black} - \gamma_2 \textit{Black} \times \textit{Upper Class} - \gamma_2 \textit{Female} \times \textit{Black} + \gamma_2 \textit{Female} \times \textit{Black} \times \textit{Upper Class} \\
&+ \gamma_3 \textit{Black} \times \textit{Upper Class} - \gamma_3 \textit{Female} \times \textit{Black} \times \textit{Upper Class} \\
&+ \gamma_4 \textit{Female} - \gamma_4 \textit{Female} \times \textit{Upper Class} - \gamma_4 \textit{Female} \times \textit{Black} + \gamma_4 \textit{Female} \times \textit{Black} \times \textit{Upper Class} \\
&+ \gamma_5 \textit{Female} \times \textit{Upper Class} - \gamma_5 \textit{Female} \times \textit{Black} \times \textit{Upper Class} \\
&+ \gamma_6 \textit{Female} \times \textit{Black} - \gamma_6 \textit{Female} \times \textit{Black} \times \textit{Upper Class} \\
&+ \gamma_7 \textit{Female} \times \textit{Black} \times \textit{Upper Class} + \varepsilon. \qquad \text{(G.12)}
\end{aligned}
$$

And collecting terms, we have

$$
\begin{aligned}
\textit{Republican Support} = \gamma_0 &+ \gamma_4 \textit{Female} + \gamma_2 \textit{Black} + \gamma_1 \textit{Upper Class} \\
&+ (\gamma_6 - \gamma_2 - \gamma_4) \textit{Female} \times \textit{Black} \\
&+ (\gamma_5 - \gamma_1 - \gamma_4) \textit{Female} \times \textit{Upper Class} \\
&+ (\gamma_3 - \gamma_1 - \gamma_2) \textit{Black} \times \textit{Upper Class} \\
&+ (\gamma_1 + \gamma_2 - \gamma_3 + \gamma_4 - \gamma_5 - \gamma_6 + \gamma_7) \textit{Female} \times \textit{Black} \times \textit{Upper Class} + \epsilon. \qquad \text{(G.13)}
\end{aligned}
$$

We can now see that the ‘alternative’ interaction model shown in Eq. G.7 is just an algebraic transformation of the ‘standard’ interaction model shown in Eq. G.8, where $\beta_0 = \gamma_0$, $\beta_1 = \gamma_4$, $\beta_2 = \gamma_2$, $\beta_3 = \gamma_1$, $\beta_4 = \gamma_6 - \gamma_2 - \gamma_4$, $\beta_5 = \gamma_5 - \gamma_1 - \gamma_4$, $\beta_6 = \gamma_3 - \gamma_1 - \gamma_2$, and $\beta_7 = \gamma_1 + \gamma_2 - \gamma_3 + \gamma_4 - \gamma_5 - \gamma_6 + \gamma_7$. In effect, the two models are just different representations of the *same* interaction model. From this, we once again see that looking at how some outcome such as support for the Republican Party varies across different identity groups (the alternative model in Eq. G.7) is exactly equivalent to looking at how the corresponding categories of difference interact to determine the outcome of interest (the standard model in Eq. G.8).

The Standard Interaction Model: Interpretation

How do we interpret the results from an interaction model with three categories of difference like the one shown in Eq. G.8? For brevity, we focus most of our attention in what follows on how to evaluate intersectional claims about the conditional effect of gender on support for the Republican Party.

The effect of gender — the effect of being a woman instead of a man — on Republican support is

$$\frac{\partial \textit{Republican Support}}{\partial \textit{Female}} = \beta_1 + \beta_4 \textit{Black} + \beta_5 \textit{Upper Class} + \beta_7 \textit{Black} \times \textit{Upper Class}. \tag{G.14}$$

From this, we once again see that the coefficient on *Female*, β_1, does not indicate the separate effect of gender in any general sense; it captures the separate effect of gender only if β_4, β_5, and β_7 are all 0. As Eq. G.14 indicates, the effect of gender is allowed to vary depending on someone's race and class. To be specific, the effect of being female is β_1 for a lower class White individual (*Upper Class* $= 0$, *Black* $= 0$), $\beta_1 + \beta_5$ for an upper class White individual (*Upper Class* $= 1$, *Black* $= 0$), $\beta_1 + \beta_4$ for a lower class Black individual (*Upper Class* $= 0$, *Black* $= 1$), and $\beta_1 + \beta_4 + \beta_5 + \beta_7$ for an upper class Black individual (*Upper Class* $= 1$, *Black* $= 1$). Put differently, β_1 tells us the difference in Republican Party support between a lower class White woman and a lower class White man, $\beta_1 + \beta_5$ tells us the difference between an upper class White woman and an upper class White man, $\beta_1 + \beta_4$ tells us the difference between a lower class Black woman and a lower class Black man, and $\beta_1 + \beta_4 + \beta_5 + \beta_7$ tells us the difference between an upper class Black woman and an upper class Black man. The variance for the effect of gender is

$$\begin{aligned}
\text{var}\left(\frac{\partial \textit{Republican Support}}{\partial \textit{Female}}\right) = {} & \text{var}(\beta_1) + \textit{Black}^2 \times \text{var}(\beta_4) + \textit{Upper Class}^2 \times \text{var}(\beta_5) \\
& + \textit{Black}^2 \times \textit{Upper Class}^2 \times \text{var}(\beta_7) \\
& + 2 \times \textit{Black} \times \text{cov}(\beta_1, \beta_4) + 2 \times \textit{Upper Class} \times \text{cov}(\beta_1, \beta_5) \\
& + 2 \times \textit{Black} \times \textit{Upper Class} \times \text{cov}(\beta_1, \beta_7) \\
& + 2 \times \textit{Black} \times \textit{Upper Class} \times \text{cov}(\beta_4, \beta_5) \\
& + 2 \times \textit{Black}^2 \times \textit{Upper Class} \times \text{cov}(\beta_4, \beta_7) \\
& + 2 \times \textit{Black} \times \textit{Upper Class}^2 \times \text{cov}(\beta_5, \beta_7).
\end{aligned} \tag{G.15}$$

So far, we have seen the effect of gender for four different types of individual who differ in terms of their race and class. But what about the intersectional relationship between gender and race? Does the effect of gender on Republican Party support depend on, or change with, someone's race? This concerns the interaction effect between gender and race,

$$\frac{\partial\left(\frac{\partial \textit{Republican Support}}{\partial \textit{Female}}\right)}{\partial \textit{Black}} = \frac{\partial\left(\beta_1 + \beta_4 \textit{Black} + \beta_5 \textit{Upper Class} + \beta_7 \textit{Black} \times \textit{Upper Class}\right)}{\partial \textit{Black}}$$
$$= \beta_4 + \beta_7 \textit{Upper Class}. \tag{G.16}$$

From this, we see that the intersectional relationship between gender and race is allowed to vary with someone's class. To be specific, β_4 tells us the interaction effect or intersectional relationship between gender and race for lower class individuals (*Upper Class* $= 0$) and $\beta_4 + \beta_7$ tells us the same quantity for upper class individuals (*Upper Class* $= 1$). In other words, the difference in Republican Party support between a lower class Black woman and a lower class Black man is β_4 units more than the difference between a lower class White woman and a lower class White man. And the difference in Republican Party support between an upper class Black woman and an upper class Black man is $\beta_4 + \beta_7$ units more than the difference between an upper class White woman and an upper class White man. The variance for the interaction effect or intersectional relationship between gender and race is

$$\text{var}\left(\beta_4 + \beta_7 \textit{Upper Class}\right) = \text{var}\left(\beta_4\right) + \textit{Upper Class}^2 \times \text{var}\left(\beta_7\right)$$
$$+ 2 \times \textit{Upper Class} \times \text{cov}\left(\beta_4, \beta_7\right). \tag{G.17}$$

What about the second-order level of intersectionality between gender, race, and class? Does the intersectional relationship between gender and race depend on someone's class? It should be clear from what we have just seen that this depends on whether β_7 is different from 0. We can see this explicitly,

$$\frac{\partial\left(\frac{\partial\left(\frac{\partial \textit{Republican Support}}{\partial \textit{Female}}\right)}{\partial \textit{Black}}\right)}{\partial \textit{Upper Class}} = \frac{\partial\left(\beta_4 + \beta_7 \textit{Upper Class}\right)}{\partial \textit{Upper Class}} = \beta_7. \tag{G.18}$$

Thus, we can use a simple t-test of $\beta_7 = 0$ to determine whether our empirical results are consistent with a theoretical claim of full intersectionality between gender, race, and class.

In addition to looking at the intersectional relationship between gender and race, we can also examine the intersectional relationship between gender and class. Does the effect of gender on Republican support depend on, or change with, someone's class? This concerns the interaction effect between gender and class,

$$\begin{aligned}\frac{\partial\left(\frac{\partial \textit{Republican Support}}{\partial \textit{Female}}\right)}{\partial \textit{Upper Class}} &= \frac{\partial\left(\beta_1 + \beta_4 \textit{Black} + \beta_5 \textit{Upper Class} + \beta_7 \textit{Black} \times \textit{Upper Class}\right)}{\partial \textit{Upper Class}} \\ &= \beta_5 + \beta_7 \textit{Black}. \end{aligned} \tag{G.19}$$

From this, we see that the intersectional relationship between gender and class is allowed to vary with someone's race. To be specific, β_5 tells us the interaction effect or intersectional relationship between gender and class for a White individual (*Black* $= 0$) and $\beta_5 + \beta_7$ tells us the same quantity for a Black individual (*Black* $= 1$). In other words, the difference in Republican Party support between an upper class White woman and an upper class White man is β_5 units more than the difference between a lower class White woman and a lower class White man. And the difference in Republican Party support between an upper class Black woman and an upper class Black man is $\beta_5 + \beta_7$ units more than the difference between a lower class Black woman and a lower class Black man. The variance for the interaction effect or intersectional relationship between gender and class is

$$\begin{aligned}\text{var}\left(\beta_5 + \beta_7 \textit{Black}\right) = \text{var}\left(\beta_5\right) &+ \textit{Black}^2 \times \text{var}\left(\beta_7\right) \\ &+ 2 \times \textit{Black} \times \text{cov}\left(\beta_5, \beta_7\right). \end{aligned} \tag{G.20}$$

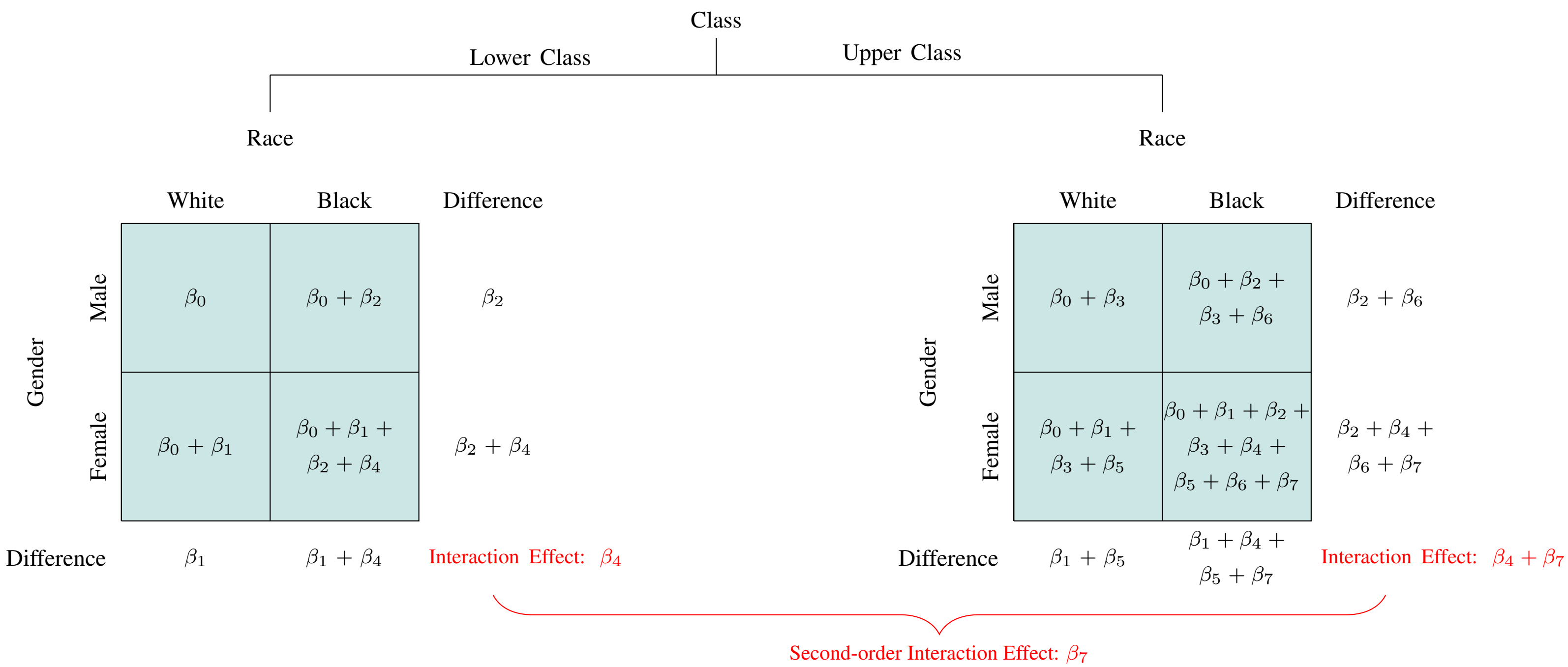
What about the second-order level of intersectionality? Does the intersectional relationship between gender and class depend on someone's race? It should be immediately obvious again from what we have just seen that this depends on whether β_7 is different from 0. We can see this explicitly,

$$\frac{\partial\left(\frac{\partial\left(\frac{\partial \textit{Republican Support}}{\partial \textit{Female}}\right)}{\partial \textit{Upper Class}}\right)}{\partial \textit{Black}} = \frac{\partial\left(\beta_5 + \beta_7 \textit{Black}\right)}{\partial \textit{Black}} = \beta_7. \tag{G.21}$$

Thus, just as we can use a simple t-test of $\beta_7 = 0$ to determine whether the intersectional relationship between gender and race depends on someone's class, we can use the same t-test to determine whether the intersectional relationship between gender and class depends on someone's race. This follows from our earlier discussion of Figure G.3, where we pointed out that the 'second-order' interaction effects between gender, race, and class are all identical because of the symmetry of interactions.

In Figure G.4, we visually show how the results from the standard interaction model in Eq. G.8

Figure G.4: Visualizing the Results from the Standard Interaction Model in Eq. G.8



Note: Figure G.4 visualizes the results from the standard interaction model in Eq. G.8. The values shown in the colored cells indicate the predicted level of Republican Party support for each of our eight different identity groups. The 'Difference' column to the right of each colored square indicates the effect of being Black (race) for men and women among the lower class (left square) and among the upper class (right square). The 'Difference' row below each colored square indicates the effect of being female (gender) for Whites and Blacks among the lower class (left square) and the upper class (right square). The 'Interaction Effect' to the bottom right of each colored square indicates the intersectional relationship between gender and race among the lower class (left square) and among the upper class (right square). The 'Second-order Interaction Effect' at the very bottom of Figure G.4 indicates how the intersectional relationship between gender and race varies with class.

translate into a figure like the one we saw earlier in Figure G.3. Hopefully, this provides some additional intuition as to where the 'effects' calculated in this section come from. It also reminds us that all of the effects we have calculated using calculus and derivatives are really just differences across various cells in Figure G.4 and can, thus, be calculated with simple addition and subtraction. In addition, it reemphasizes the point that the interaction model in Eq. G.8 is simply allowing us to simultaneously compare outcomes, such as support for the Republican Party, across different identity groups (while including any control variables of our choice).

So far, we have focused on evaluating intersectional claims about the conditional effect of *gender* on support for the Republican Party. As we have seen, the results from the interaction model in Eq. G.8 allow us to identify the effect of gender for all four possible combinations of values for race and class, the interaction effect between gender and race for both values of class, the interaction effect between gender and class for both values of race, and the second-order interaction effect of class (race) on the intersectional relationship between gender and race (class). We can also use the results from the interaction model in Eq. G.8 to identify the effect of race for all four possible combinations of values for gender and class, the effect of class for all four possible combinations of values for gender and race, and the interaction effect between class and race for both values of gender. Taken together, these effects allow us to evaluate all nineteen of the key predictions that we recommend for a theory positing a fully intersectional relationship between three dichotomous categories of difference, in this case gender, race, and class. In Table G.7, we summarize the quantities of interest from the standard interaction model shown in Eq. G.8 that are necessary for evaluating each of these nineteen key predictions. Whether these quantities should be positive, negative, or zero depends on the particular intersectional theory under consideration. To highlight the equivalent nature of the different interactive research designs we have discussed, we also summarize the corresponding quantities of interest from the alternative interaction model shown in Eq. G.7 as well as the more general, quantitative or qualitative, interactive 'comparison of means' setup depicted in Figure G.3. As a reminder, it is only by calculating all of the listed quantities of interest and evaluating all nineteen of the key predictions that scholars can know whether the data support their particular intersectional theory as opposed to one of the other thousands of possible intersectional relationships that might exist between gender, race, and class.

Table G.7: Nineteen Key Predictions and Quantities of Interest: Comparing Equivalent Interactive Research Designs

Key Prediction	Standard Interaction Model	Alternative Interaction Model	General Interactive Framework
1. $P_{Gender \times Race \times Class}$	β_7	$\gamma_1 + \gamma_2 - \gamma_3 + \gamma_4 - \gamma_5 - \gamma_6 + \gamma_7$	$\bar{Y}_{1,1,1} - \bar{Y}_{0,1,1} - \bar{Y}_{1,0,1} + \bar{Y}_{0,0,1} - \bar{Y}_{1,1,0} + \bar{Y}_{0,1,0} + \bar{Y}_{1,0,0} - \bar{Y}_{0,0,0}$
2. $P_{Gender \times Race \mid Class=Lower\ Class}$	β_4	$\gamma_6 - \gamma_2 - \gamma_4$	$\bar{Y}_{1,1,0} - \bar{Y}_{0,1,0} - \bar{Y}_{1,0,0} + \bar{Y}_{0,0,0}$
3. $P_{Gender \times Race \mid Class=Upper\ Class}$	$\beta_4 + \beta_7$	$\gamma_1 - \gamma_3 - \gamma_5 + \gamma_7$	$\bar{Y}_{1,1,1} - \bar{Y}_{1,0,1} - \bar{Y}_{0,1,1} + \bar{Y}_{0,0,1}$
4. $P_{Gender \times Class \mid Race=White}$	β_5	$\gamma_5 - \gamma_1 - \gamma_4$	$\bar{Y}_{1,0,1} - \bar{Y}_{1,0,0} - \bar{Y}_{0,0,1} + \bar{Y}_{0,0,0}$
5. $P_{Gender \times Class \mid Race=Black}$	$\beta_5 + \beta_7$	$\gamma_2 - \gamma_3 - \gamma_6 + \gamma_7$	$\bar{Y}_{1,1,1} - \bar{Y}_{1,1,0} - \bar{Y}_{0,1,1} + \bar{Y}_{0,1,0}$
6. $P_{Race \times Class \mid Gender=Male}$	β_6	$\gamma_3 - \gamma_1 - \gamma_2$	$\bar{Y}_{0,1,1} - \bar{Y}_{0,1,0} - \bar{Y}_{0,0,1} + \bar{Y}_{0,0,0}$
7. $P_{Race \times Class \mid Gender=Female}$	$\beta_6 + \beta_7$	$\gamma_4 - \gamma_5 - \gamma_6 + \gamma_7$	$\bar{Y}_{1,1,1} - \bar{Y}_{1,1,0} - \bar{Y}_{1,0,1} + \bar{Y}_{1,0,0}$
8. $P_{Gender \mid Race=White\ \&\ Class=Lower\ Class}$	β_1	γ_4	$\bar{Y}_{1,0,0} - \bar{Y}_{0,0,0}$
9. $P_{Gender \mid Race=White\ \&\ Class=Upper\ Class}$	$\beta_1 + \beta_5$	$\gamma_5 - \gamma_1$	$\bar{Y}_{1,0,1} - \bar{Y}_{0,0,1}$
10. $P_{Gender \mid Race=Black\ \&\ Class=Lower\ Class}$	$\beta_1 + \beta_4$	$\gamma_6 - \gamma_2$	$\bar{Y}_{1,1,0} - \bar{Y}_{0,1,0}$
11. $P_{Gender \mid Race=Black\ \&\ Class=Upper\ Class}$	$\beta_1 + \beta_4 + \beta_5 + \beta_7$	$-\gamma_3 + \gamma_7$	$\bar{Y}_{1,1,1} - \bar{Y}_{0,1,1}$
12. $P_{Race \mid Gender=Male\ \&\ Class=Lower\ Class}$	β_2	γ_2	$\bar{Y}_{0,1,0} - \bar{Y}_{0,0,0}$
13. $P_{Race \mid Gender=Male\ \&\ Class=Upper\ Class}$	$\beta_2 + \beta_6$	$\gamma_3 - \gamma_1$	$\bar{Y}_{0,1,1} - \bar{Y}_{0,0,1}$
14. $P_{Race \mid Gender=Female\ \&\ Class=Lower\ Class}$	$\beta_2 + \beta_4$	$\gamma_6 - \gamma_2$	$\bar{Y}_{1,1,0} - \bar{Y}_{1,0,0}$
15. $P_{Race \mid Gender=Female\ \&\ Class=Upper\ Class}$	$\beta_2 + \beta_4 + \beta_6 + \beta_7$	$\gamma_5 + \gamma_7$	$\bar{Y}_{1,1,1} - \bar{Y}_{1,0,1}$
16. $P_{Class \mid Gender=Male\ \&\ Race=White}$	β_3	γ_1	$\bar{Y}_{0,0,1} - \bar{Y}_{0,0,0}$
17. $P_{Class \mid Gender=Male\ \&\ Race=Black}$	$\beta_3 + \beta_6$	$\gamma_3 - \gamma_2$	$\bar{Y}_{0,1,1} - \bar{Y}_{0,1,0}$
18. $P_{Class \mid Gender=Female\ \&\ Race=White}$	$\beta_3 + \beta_5$	$\gamma_5 - \gamma_4$	$\bar{Y}_{1,0,1} - \bar{Y}_{1,0,0}$
19. $P_{Class \mid Gender=Female\ \&\ Race=Black}$	$\beta_3 + \beta_5 + \beta_6 + \beta_7$	$-\gamma_6 + \gamma_7$	$\bar{Y}_{1,1,1} - \bar{Y}_{1,1,0}$

Note: Table G.7 shows the nineteen key predictions that can typically be made from a theory positing a fully intersectional relationship between three dichotomous categories of difference (gender, race, class). It also shows the corresponding quantities of interest necessary for evaluating each of these predictions based on (1) the standard interaction model shown in Eq. G.8, (2) the alternative interaction model shown in Eq. G.7, and (3) the general (quantitative or qualitative) interactive 'comparison of means' setup depicted in Figure G.3. $\bar{Y}_{x,z,w}$ indicates the mean level of Y when *Female* $= x$, *Black* $= z$, and *Upper Class* $= w$. This means, for example, that $\bar{Y}_{1,0,0}$ indicates the mean level of Y when *Female* $= 1$, *Black* $= 0$, and *Upper Class* $= 0$; that is, the mean level of Y for a lower class White female.

Application: Gender, Race, Class and Support for the Republican Party

To demonstrate how scholars can maximize the information from a quantitative study of intersectionality involving three categories of difference, we extend our earlier substantive application in the main text to examine how gender, race, *and class* affected how much people liked the Republican Party during the 2016 U.S. presidential elections.

Theory

Previously, we focused our attention on how gender and race affected support for the Republican Party. To briefly summarize, we argued that Black people would exhibit less support for the Republican Party than White people, primarily because of the conservative position that the Republican Party espouses on the issues of civil rights and race. In terms of gender, we argued that women would exhibit less support for the Republican Party than men, primarily because the Republican Party holds a conservative position on a variety of policy issues related to things like healthcare, same sex marriages, restrictions on firearms, and government activism where women have historically held a more liberal position than men. Rather than assume that race and gender had separate effects on how much someone likes the Republican Party, we argued that there were several reasons related to things like the stigmatization of Black women in political discourse (Jordan-Zachery, 2003; Hancock, 2004), the relative conservatism of Black men (Dawson, 2001; Lewis, 2013; Rigueur, 2014; Anderson, 2018; Smith, 2018), as well as the political incarceration of Black men and relatively high level of political activism among Black women (Weaver, 2010; Nellis, 2016; Anderson, 2018; Subramanian, Riley and Mai, 2018) to think that there would be an intersectional relationship between gender and race when it comes to liking the Republican Party.[8] In particular, we claimed that being female (gender) increases the negative effect of being Black (race) on Republican Party support and that being Black (race) increases the negative effect of being female (gender) on Republican Party support.

How does class add to, and complicate, this theoretical story? Class is a complex and contested concept. Most societies are stratified into a hierarchical arrangement of social classes that are determined by a whole host of things such as wealth, income, educational attainment, occupation, social network, and 'status' (Cohen et al., 2017; Lindh and McCall, 2020). In a given substantive application, it is not always clear that the determinants of class such as, say, education and income, necessarily all work in the

[8]The main text provides a more detailed elaboration of this particular aspect of our argument.

same direction. In what follows, our theoretical discussion conceptualizes social class primarily in terms of income (Diemer et al., 2013) and so we refer to 'poor' and 'rich' individuals.[9]

Gender

We begin by thinking about the conditional effect of gender on Republican support. We have previously argued that, in general, women will be less supportive of the Republican Party than men. However, there are reasons to think that this might not be the case for *poor White* women. Cassese and Barnes (2019), for example, claim that poor White women are actually *more* likely to exhibit Republican support than poor White men due to their economic dependence on "White men and their desire to maintain their privileged status relative to more socially distant racial and ethnic groups" (688). The fact that many poor White women "do not work or work sparingly, [leads them to] favor Republican candidates and fiscally conservative policies that maximize the spending power of the male breadwinner in their homes" (683). Although they are accepting of their subordinate position relative to men, poor White women are especially drawn to the Republican Party because of their adoption of social positioning practices designed to emphasize and maintain their own privileged position over Black women (Junn, 2017, 346). This line of reasoning is specific to poor White women and is not expected to apply to rich White women. Thus, we expect poor White women to like the Republican Party more than poor White men but, for the reasons discussed previously, we expect rich White women to like the Republican Party less than rich White men. It follows that we expect there to be a negative intersectional relationship between gender and class among Whites.

So far, we have discussed the effect of gender across class among White people. But what about the effect of gender across class among Black people? Given our reasoning in the main text, and in keeping with the work of Gillespie and Brown (2019) and Coaston (2019), we always expect Black women to like the Republican Party less than Black men, irrespective of their level of income. We see no strong theoretical reason to expect this negative effect of gender among Black people to vary with income. When discussing White people, we noted that many poor White women value their home-maker role and choose not to work outside the home, making them reliant on, and supportive of policies that privilege, male bread winners. This contributes to a class division among White women with respect to Republican Party support. Unlike poor White women, poor Black women have historically had, for various reasons, little option but to enter

[9] Given our pedagogical purpose here, and to be consistent with our binary approach to conceptualization and operationalization, we divide individuals into just two income groups or classes. However, it is easy to generalize our upcoming interactive research design to deal with situations where we might want to split individuals into three (say, low, middle, and high) or more income groups or classes.

the work force in high numbers in order to help provide for their families (Sterling, 1997; Hunter, 2001; Zaw et al., 2017). In many instances, Black women are the primary, if not the sole, income earners in their households (Boushey, 2009), and Black feminist scholars like Beal (2008) and Hartman (2016) offer strong rebukes of the systems of exploitation that contribute to these patterns. As a result, we are unlikely to see the same level of support for policies that benefit male breadwinners among poor Black women that we see among poor White women. This suggests that there will be little, if any, evidence of a class division among Black women when it comes to liking the Republican Party. In sum, we do not expect there to be an intersectional relationship between gender and class among Black people.

Given that we expect to see a negative intersectional relationship between gender and class among White people and no intersectional relationship between gender and class among Black people, it follows that there should be a positive second-order intersectional relationship between gender, class, and race. In other words, we expect race — being Black — to reduce, and indeed eliminate, the negative intersectional relationship between gender and class. Put differently, we expect that being Black reduces and eliminates the negative modifying effect of increased income on the effect of being female on Republican Party support.

Thus far, we have identified the predicted effect of gender for poor Whites, rich Whites, poor Blacks, and rich Blacks. We have also identified the predicted intersectional relationship between gender and class for White people and Black people, and the predicted second-order intersectional relationship between gender, class, and race. The only things left to think about with respect to gender is the intersectional relationship between gender and race for each of the two income groups. Following the argument presented in the main text, we expect there to be a negative intersectional relationship between gender and race for both income groups when it comes to liking the Republican Party. In other words, we expect being Black (being female) to have a negative modifying impact on the effect of being female (Black) for both poor and rich individuals. Given that we expect a positive second-order intersectional relationship between gender, class, and race, it follows that the magnitude of this negative intersectional relationship between gender and race should be smaller for rich individuals than poor individuals.

All of our reasoning so far leads to the *New Female Hypothesis*:

> *New Female Hypothesis:* Being female increases Republican Party support among poor White people but decreases it among all other groups. The intersectional (modifying) effect of increased income (class) on the effect of being female is negative among White people and non-

existent among Black people. The intersectional (modifying) effect of being Black (race) on the effect of being female is always negative, but less so for the rich than for the poor.

The *New Female Hypothesis* is clearly more complicated than the hypotheses we have seen previously. However, it is no more complicated than necessary to convey all nine of the predictions needed to distinguish the hypothesized intersectional effect of gender on Republican Party support from all of the possible alternative intersectional effects of gender we might find in the data.

Race

We now turn to the conditional effect of race on support for the Republican Party. For reasons outlined in the main text, we expect that being Black always reduces Republican Party support irrespective of someone's gender and class. As noted when discussing the effect of gender, we expect there to always be a negative intersectional relationship between race and gender. In other words, we expect that being Black has a larger negative effect on Republican Party support among women as opposed to men for all income groups. Also as noted when discussing the effect of gender, we anticipate that the magnitude of this negative intersectional relationship between race and gender will be larger among the poor than the rich.

What about the intersectional relationship between race and class for each of the gender groups? We begin by considering women. As noted previously, there are reasons to believe that income (class) creates a division among White women such that poor White women support the Republican Party whereas rich White women oppose it (Cassese and Barnes, 2019). Thus, we expect an increase in income to reduce Republican Party support among White women. In contrast, we suggested that there was little theoretical reason to expect that class would create a significant division among Black women when it comes to supporting the Republican Party. In other words, we expect an increase in income to have little effect on Republican Party support among Black women. This difference in the predicted effect of income across White and Black women suggests that we should find a positive intersectional relationship between race and class among women. In other words, we expect that being Black as opposed to White reduces the negative impact of income on Republican Party support among women.

What about for men? Just as we see little theoretical reason to expect that income (class) creates a significant division among Black women, we see little reason to expect that it produces a significant division among Black men. Given recent anecdotes about Black male athletes, pastors, and entertainers backing Donald Trump (Christian, 2020; Capehart, 2020; Scott, 2020), one might expect that increased income leads

Black men to favor the fiscally conservative and lower tax policies of the Republican Party.[10] At the same time, though, rich Black men may be less favorable to the Republican Party than poor Black men because they tend to live and work in more diverse environments where discrimination against minorities and the lack of opportunities for advancement are especially noticeable (Cose, 1993; Feagin and Sikes, 1994; Staples, 1994; Fullwood III, 1996).[11] In general, we expect that concerns with racial discrimination will limit the extent to which income affects support for the Republican Party among Black people. As a result, we do not expect increased income to have much effect on Republican Party support among Black men.

In contrast, we expect that income creates a division among White men. Specifically, we expect rich White men to exhibit greater Republican Party support than poor White men. This is the traditional argument that increased income is associated with greater support for right-wing parties, such as the Republican Party, that favor small government, lower taxes, and fiscal conservatism.[12] Relative to Black men, White men are less likely to exhibit concerns with racial discrimination that might act in a countervailing way to limit this positive effect of increased income. One potential argument against our line of reasoning here is that the specific mixture of populist and racialized messages used by the Republican presidential candidate, Donald Trump, during the 2016 election campaign may have proved so appealing to poor White men that it reduced, and possibly even eliminated, the traditional income divide between White men (Chalabi, 2016; O'Leary, 2016; Williams, 2016; Jardina, 2019; Thompson, 2019). Whether this is the case is, of course, an empirical question that can be addressed with our interactive research design. In general, we expect that increased income raises Republican Party support among White men. The difference in the predicted effect of income across White and Black men implies a negative intersectional relationship between race and gender among men. In other words, we expect that being Black reduces, and possibly eliminates, the positive impact of income on Republican Party support among men.

Combining our reasoning here leads to the *New Black Hypothesis*:

[10]Controversy over why some Black men supported Donald Trump in the 2020 presidential election campaign has fueled heated exchanges on social media. Crenshaw (2020) recently hosted a virtual town hall meeting that was designed to mimic a barbershop conversation on her podcast *Intersectionality Matters* in which a panel of Black male scholars, celebrities, and activists were invited to "discuss patriarchy, misogynoir, and why a small but meaningful minority of Black men ... are choosing to support President Trump this election."

[11]The argument here is similar to that proposed by gender scholars who claim that women who enter the labor force get to see forms of gender discrimination that are typically hidden from homemakers (Huber and Spitze, 1983; Klein, 1984; Plutzer, 1988).

[12]The modern Republican Party can no longer be strictly characterized as the party of the rich and it is also true that Democrats struggle more now than they did before to maintain their appeal among the working class (Drutman, 2016; Manza and Crowley, 2017; Curley, 2020). That said, favoring the affluent — sometimes at the expense of the less fortunate — is still perceived to be a dominant strategy of the Republican Party, while advocating for policies that narrow (rather than widen) the gap between the *haves* and the *have-nots* continues to be perceived as a hallmark of the Democratic Party (Shapiro, 2017).

New Black Hypothesis: Being Black always decreases Republican Party support. The intersectional (modifying) effect of income (class) on the effect of being Black is positive among women and negative among men. The intersectional (modifying) effect of being female (gender) on the effect of being Black is always negative, but less so for the rich than the poor.

Class

Finally, we turn to the conditional effect of class on support for the Republican Party. As it happens, we have already discussed all aspects of the effect of class when developing the *New Female Hypothesis* and the *New Black Hypothesis*. For example, we have already argued that increased income leads to more Republican Party support among White men, less Republican support among White women, and that it has little effect on Republican Party support among Black people. We have also argued that there will be a positive intersectional relationship between class and race among women but a negative intersectional relationship between class and race among men. In addition, we have argued that there will be a negative intersectional relationship between class and gender among White people but no intersectional relationship between class and gender among Black people. Finally, we have indicated that there will be a positive second-order intersectional relationship between class, gender, and race. All of this leads to the following *Class (Income) Hypothesis*,

Class (Income) Hypothesis: Increased income heightens Republican Party support among White men but reduces it among White women; increased income has no effect among Black people. The intersectional (modifying) effect of being Black (race) on the effect of increased income is positive for women but negative for men. The intersectional (modifying) effect of being female (gender) on the effect of increased income is negative for White people but non-existent for Black people.

Empirics

To test our hypotheses, we again use data from the 2019 version of the American National Election Studies 2016 Time Series Study (American National Election Studies, 2019). The dependent variable, *Republican Support*, is based on a survey question in which respondents are asked to indicate how much they like the Republican Party on a $0-10$ scale, where 0 indicates they strongly dislike the Republican Party and 10 indicates they strongly like it. The mean value of *Republican Support* is 4.95 [3.03]; standard deviation shown in parentheses. As before, *Female* is a dichotomous variable that equals 1 if an individual self-identifies as female and 0 otherwise and *Black* is a dichotomous variable that equals 1 if an individual self-identifies as Black and 0 otherwise. In terms of class, *Upper Class* is a dichotomous variable that equals 1 if an individual is outside the bottom third when it comes to family income and 0 otherwise; in effect, *Upper Class* distinguishes respondents at the very bottom of the income scale from everyone else.[13] As in the main text, we control for a respondent's *Age* in years. We treat our dependent variable as continuous and estimate an ordinary least squares regression with the following 'standard' interactive model specification,

$$\begin{aligned} \textit{Republican Support} = \beta_0 &+ \beta_1 \textit{Female} + \beta_2 \textit{Black} + \beta_3 \textit{Upper Class} \\ &+ \beta_4 \textit{Female} \times \textit{Black} + \beta_5 \textit{Female} \times \textit{Upper Class} + \beta_6 \textit{Black} \times \textit{Upper Class} \\ &+ \beta_7 \textit{Female} \times \textit{Black} \times \textit{Upper Class} + \beta_8 \textit{Age} + \epsilon. \end{aligned} \tag{G.22}$$

Predictions

Before moving to our analysis, we briefly think through what our hypotheses imply for what we should see in the data. Our three hypotheses speak to the effect of gender, race, and class on Republican Party support. The effect of being female is $\beta_1 + \beta_4 \textit{Black} + \beta_5 \textit{Upper Class} + \beta_7 \textit{Black} \times \textit{Upper Class}$. According to our *New Female Hypothesis*, poor White women should exhibit more Republican Party support than poor White men. This implies that β_1 should be positive. In contrast, rich White women should exhibit less support than rich White men. This implies that $\beta_1 + \beta_5$ should be negative. Since β_1 should be positive, it follows that β_5, the intersectional effect of gender and class among White people, should be negative. It also follows that the absolute magnitude of β_5 should be larger than that of β_1, i.e. $|\beta_5| > |\beta_1|$. Poor Black women should exhibit less support than poor Black men. This implies that $\beta_1 + \beta_4$ should be negative. Since β_1 should be positive, it follows that β_4, the interaction effect between gender and race among the poor, should be negative and that $|\beta_4| > |\beta_1|$. Rich Black women should also exhibit less support than rich Black men, implying that $\beta_1 + \beta_4 + \beta_5 + \beta_7$ should be negative. Since we do not expect an intersectional relationship between gender and class among Black people, it follows that $\beta_5 + \beta_7$ should be 0. Given that β_5 is expected to be negative, this implies, consistent with our prediction about the second-order interaction effect between

[13] The decision to divide respondents into just two income groups in this way makes sense given our illustrative purposes here. However, it is easy to generalize our approach to deal with situations where we might want to split respondents into three (say, low, middle, and high) or more income groups.

gender, race, and class, that β_7 should be positive and that $|\beta_5| = |\beta_7|$. Finally, we expect there to be a negative intersectional relationship between gender and race among the rich. This implies that $\beta_4 + \beta_7$ should be negative. Since β_7 is expected to be positive, it follows that $|\beta_7| < |\beta_4|$.

The effect of being Black is $\beta_2 + \beta_4$*Female* $+ \beta_6$*Upper Class* $+ \beta_7$*Female* $\times$ *Upper Class*. According to our *New Black Hypothesis*, poor Black men should exhibit less Republican Party support than poor White men ($\beta_2 < 0$), poor Black women should exhibit less support than poor White women ($\beta_2 + \beta_4 < 0$), rich Black men should exhibit less support than rich White men ($\beta_2 + \beta_6 < 0$), and rich Black women should exhibit less support than rich White women ($\beta_2 + \beta_4 + \beta_6 + \beta_7 < 0$). The intersectional effect of race and gender should be negative among both the poor ($\beta_4 < 0$) and the rich ($\beta_4 + \beta_7 < 0$). However, the magnitude of this negative intersectional effect should be smaller among the rich ($\beta_7 > 0$). Finally, we expect the intersectional effect of race and class to be negative among men ($\beta_6 < 0$) and positive among women ($\beta_6 + \beta_7 > 0$). This, in turn, implies that $|\beta_7| > |\beta_6|$.

The effect of being rich is $\beta_3 + \beta_5$*Female* $+ \beta_6$*Black* $+ \beta_7$*Female* $\times$ *Black*. According to our *Class (Income) Hypothesis*, rich White men should exhibit more support than poor White men ($\beta_3 > 0$) and rich White women should exhibit less support than poor White women ($\beta_3 + \beta_5 < 0$). As noted previously, it follows that the intersectional effect of class and gender among White people should be negative ($\beta_5 < 0$). Rich Black men should exhibit the same level of support as poor Black men ($\beta_3 + \beta_6 = 0$) and rich Black women should exhibit the same level of support as poor Black women ($\beta_3 + \beta_5 + \beta_6 + \beta_7 = 0$). This implies, as we have already seen, that there should not be an intersectional effect of class and gender among Black people ($\beta_5 + \beta_7 = 0$). Also as previously noted, we expect the intersectional effect of class and race to be negative among men ($\beta_6 < 0$) and positive among women ($\beta_6 + \beta_7 > 0$).

Results

The results from the interaction model in Eq. G.22 are reported in Table G.8. We start by briefly indicating how to interpret the reported results. We note in passing that all of the coefficients on the independent variables have the predicted sign. The positive and statistically significant coefficient on *Female* indicates that poor White women like the Republican Party 0.46 units more than poor White men. The negative and statistically significant coefficient on *Black* indicates that poor Black men like the Republican Party 0.93 units less than poor White men. The positive and statistically significant coefficient on *Upper Class* indicates that rich White men like the Republican Party 0.44 units more than poor White men. The coefficient

Table G.8: Gender, Race, Class and Support for the Republican Party in the 2016 U.S. Presidential Elections

Dependent Variable: *Republican Support,* $0-10$

	Standard Interaction Model
Female	0.46^{**}
	(0.21)
Black	-0.93^{**}
	(0.39)
Upper Class	0.44^{**}
	(0.19)
Female×Black	-1.61^{***}
	(0.49)
Female×Upper Class	-0.72^{***}
	(0.26)
Black×Upper Class	-1.08^{*}
	(0.57)
Female×Black×Upper Class	0.95
	(0.73)
Age	0.01^{***}
	(0.003)
Constant	4.16^{***}
	(0.23)
Observations	2,788
R^2	0.07

Standard errors in parentheses. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$ (two-tailed)

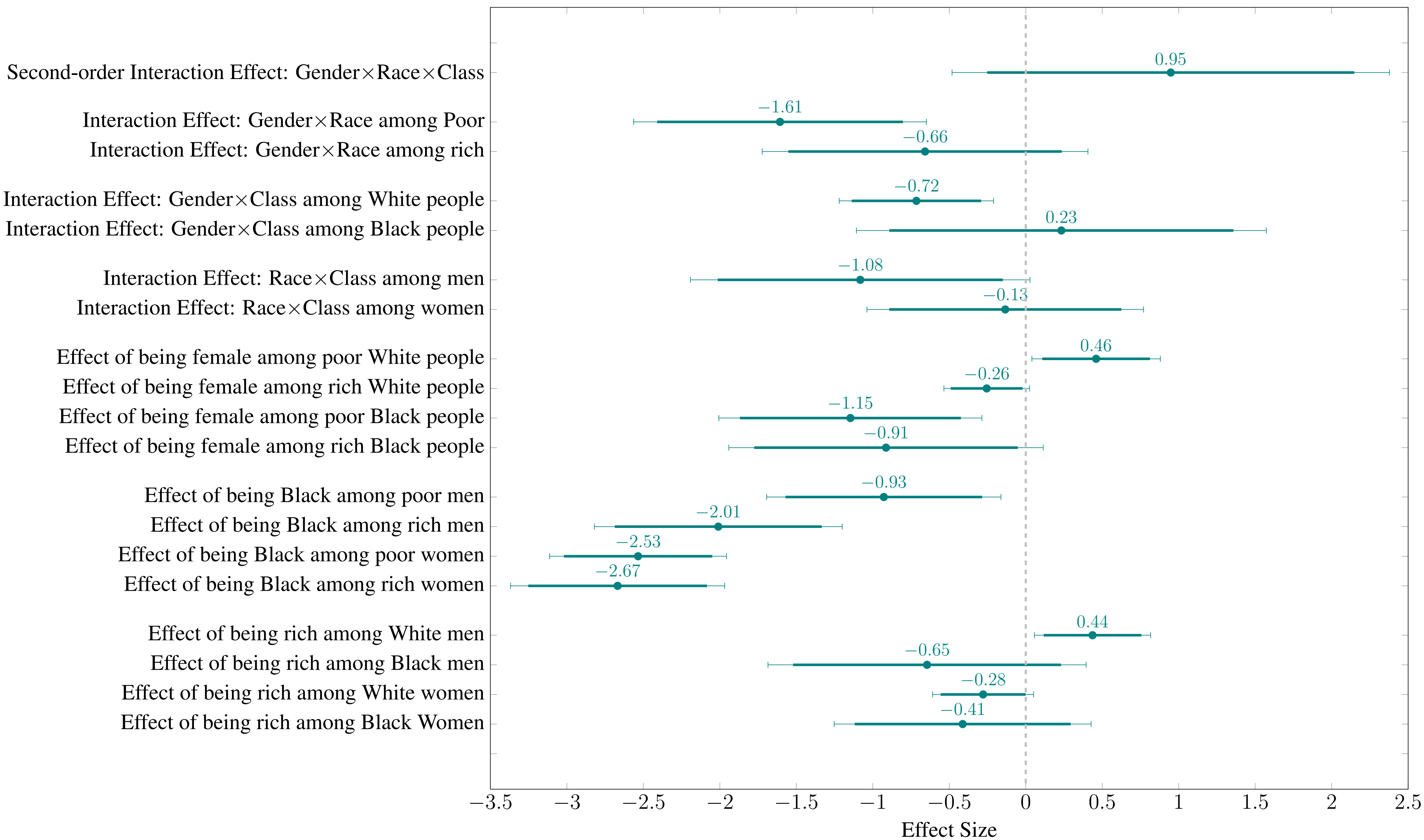
on *Female×Black* indicates that there is a negative and statistically significant intersectional relationship between gender and race among the poor. Specifically, the effect of being female (Black) on Republican Party support is 1.61 units lower *among the poor* when someone is Black (female) as opposed to White (male). The coefficient on *Female×Upper Class* indicates that there is a negative and statistically significant intersectional relationship between gender and class among White people. Specifically, the effect of being female (rich) on Republican Party support is 0.72 units lower *among White people* when someone is rich (female) as opposed to poor (male). The coefficient on *Black×Upper Class* indicates that there is a negative and statistically significant intersectional relationship between race and class among men. Specifically, the effect of being Black (rich) on Republican Party support is 1.08 units lower *among men* when someone is rich (Black) as opposed to poor (White). The coefficient on *Female×Black×Upper Class* indicates that there is a positive but statistically insignificant second-order intersectional relationship between gender, race, and class. Specifically, the intersectional relationship between gender and race is 0.95 units higher among the rich than the poor, the intersectional relationship between gender and class is 0.95 units higher among Black people than White people, and the intersectional relationship between race and class is 0.95 units higher among women than men. And finally, the positive and statistically significant coefficient on *Age* indicates that Republican Party support increases by 0.01 units for each year of an individual's age.

While the results in Table G.8 are consistent with our theoretical expectations, they do not allow us to evaluate all nineteen of the key predictions contained in the *New Female Hypothesis*, the *New Black Hypothesis*, and the *Class Hypothesis*. Just as we had to move beyond the table of results when evaluating our hypotheses about the intersectional impact of gender and race on Republican Party support in the main text, we have to do the same thing now when evaluating our hypotheses about the intersectional impact of gender, race, and class. In Figure G.5, we use the results from our interaction model to create a combined marginal effect plot that shows all of the quantities of interest necessary to fully evaluate the nineteen key predictions made by our intersectional theory. Each of the quantities of interest or effects is shown as a small circle along with its corresponding two-tailed 95% (thin) and 90% (thick) confidence intervals. The vertical dashed gray line helps to indicate when the effects are significantly different from zero.

Results: Full Intersectionality?

The starting point for evaluating any proposed intersectional theory like the one presented here is the second-order interaction effect between gender, race, and class. This is because this determines whether there is a 'fully intersectional' relationship between gender, race, and class when it comes to Republican Party support. As predicted, the second-order interaction effect is positive, indicating that the intersectional relationship between gender and race is larger among the rich than the poor, that the intersectional relationship between gender and class is larger among Black people than White people, and that the intersectional relationship between race and class is larger among women than men. The magnitude of this positive second-order inter-

Figure G.5: The Effects of Gender, Race, and Class on Republican Party Support in the 2016 U.S. Presidential Elections



Note: Figure G.5 shows the various effects as small circles along with their corresponding two-tailed 95% (thin) and 90% (thick) confidence intervals.

action effect (0.95) is substantively large and equates to a shift of almost one-third of a standard deviation in the dependent variable *Republican Support*. However, the second-order interaction effect is not statistically significant at conventional levels in a two-tailed test. That said, we have a directional theoretical claim about the second-order interaction effect and it is statistically significant at the 90% level in a one-tailed test. We leave it up to the reader to determine whether this is sufficient evidence of a substantively meaningful second-order intersectional relationship between gender, race, and class.[14]

Results: The Effect of Gender?

What can we say about the effect of gender on Republican Party support? Much of the academic and media focus during the 2016 presidential elections in the United States was on how poor White men were particularly attracted to the Republican Party and its presidential candidate Donald Trump. As Figure G.5 indicates, though, and in line with our theoretical predictions, poor White women actually liked the Republican Party 0.46 [0.11, 0.81] units more than poor White men; two-tailed 90% confidence intervals are shown in brackets. This positive effect of gender among poor White people is substantively meaningful and is equivalent to a 9.1% increase in the average level of Republican Party support among poor White men (5.02). In contrast, but again in line with our theoretical predictions, Figure G.5 indicates that rich White women liked the Republican Party 0.26 [0.02, 0.49] units less than rich White men. This negative effect of gender among rich White people is equivalent to a 4.8% reduction in the average level of Republican Party support among rich White men (5.33). We leave it to readers to determine whether an effect of this size is substantively meaningful. It should be clear, though, that these particular conclusions regarding the effect of gender among White people were completely hidden by our analysis in the main text where we ignored the intersectional role of class. Our earlier results had indicated that there was no significant difference in Republican Party support between White men and women. We now see that there are clear differences between White men and women among both the poor and the rich. As Figure G.5 indicates, the difference in the effect of being female between rich White people and poor White people is $-0.26 - 0.46 = -0.72$ $[-0.29, -1.14]$. This provides support for our prediction of a negative intersectional relationship between gender and class among Whites when it comes to Republican Party support.

[14]We note that those who reject the evidence of a substantively meaningful second-order interaction effect are effectively concluding that we can study the intersectional relationship between gender and race in the context of Republican Party support in the 2016 U.S. presidential elections separate from class, that we can study the intersectional relationship between gender and class separate from race, and that we can study the intersectional relationship between race and class separate from gender. This is the implication of rejecting evidence of a second-order interaction effect and 'full intersectionality'.

As expected, Black women always like the Republican Party less than Black men. As Figure G.5 indicates, poor Black women like the Republican Party 1.15 [0.42, 1.87] units less than poor Black men. This negative effect of gender among poor Black people is substantively large and is equivalent to a 33.8% reduction in the average level of Republican Party support among poor Black men (3.39). Rich Black women like the Republican Party 0.91 [0.05, 1.78] units less than rich Black men. The magnitude of this negative effect of gender among rich Black people is also large and equates to a 26.2% reduction in the average level of Republican Party support among rich Black men (3.49). Figure G.5 indicates that the difference in the effect of being female between rich Black people and poor Black people is substantively small and statistically insignificant, $-0.91 - (-1.15) = 0.23$ [-0.89, 1.36]. This provides support for our prediction that there is no intersectional relationship between gender and class among Black people when it comes to Republican Party support.

As predicted, Figure G.5 provides evidence of a strong and statistically significant negative intersectional relationship between gender and race among the poor. As we have seen, the effect of being female among poor White people is 0.46 and the effect of being female among poor Black people is -1.15. This means that the intersectional effect of gender and race among the poor is $-1.15 - 0.46 = -1.61$ [-0.80, -2.41]. As predicted, Figure G.5 also provides evidence of a smaller negative intersectional effect between gender and race among the rich. As we have seen, the effect of being female among rich White people is -0.26 and the effect of being female among rich Black people is -0.91. Thus, the intersectional effect of gender and race among the rich is $-0.91 - (-0.26) = -0.66$ [-1.55, 0.24]. While this intersectional effect has the correct sign, it does not reach conventional levels of statistical significance. Although not fully supportive of our theory, we are not too concerned that the intersectional effect of gender and race lacks significance among the rich as our theory predicts that this effect will be smaller, and hence closer to 0, among the rich than among the poor.

Overall, the results presented in Figure G.5 are strongly consistent with the predictions contained in the *New Gender Hypothesis*.

Results: The Effect of Race?

What can we say about the effect of race on Republican Party support? As expected, Black people always like the Republican Party less than White people. Starting with men, Figure G.5 indicates that poor Black men like the Republican Party 0.93 [0.29, 1.57] units less than poor White men and that rich Black men like it 2.01 [1.33, 2.69] units less than rich White men. These negative effects of race among men are substantively large and meaningful. For example, the negative effect of race among poor men equates to an 18.5% reduction in the average level of Republican Party support among poor White men (5.02) and the same effect among rich men equates to a 37.7% reduction in the average level of Republican Party support among rich White men (5.33). As Figure G.5 indicates, the difference in the effect of being Black between poor men and rich men is $-2.01 - (-0.93) = -1.08$ [-2.01, -0.15]. This provides support for our prediction of a negative intersectional relationship between race and class among men when it comes to Republican Party support.

Turning to women, Figure G.5 indicates that poor Black women like the Republican Party 2.53 [2.05, 3.02] units less than poor White women and that rich Black women like it 2.67 [2.08, 3.25] units less than rich White women. These negative effects of race among women are also substantively large. For example, the negative effect of race among poor women is equivalent to a 49.6% reduction in the average level of Republican Party support among poor White women (5.11) and the same effect among rich women is equivalent to a 52.3% reduction in the average level of Republican Party support among rich White women (5.10). As Figure G.5 indicates, the difference in the effect of being Black between poor women and rich women is $-2.67 - (-2.53) = -0.13$ [-0.89, 0.63]. This tells us that there is no evidence of a statistically significant intersectional relationship between race and class among women when it comes to Republican Party support. This particular result runs slightly counter to our prediction. We had correctly predicted that the intersectional relationship between race and class among women would be larger than that among men but we had predicted that it would be positive rather than statistically indistinguishable from zero.

As previously noted, and in line with our predictions, Figure G.5 indicates a strong intersectional relationship between race and gender among the poor. In other words, the negative effect of race is especially strong among poor women (-2.53) as opposed to poor men (-0.93). As predicted, the intersectional relationship between race and gender is much smaller among the rich. In other words, the negative effect of race is only slightly stronger among rich women (-2.67) as opposed to rich men (-2.01).

Overall, the results presented in Figure G.5 are largely consistent with the predictions contained in the *New Black Hypothesis*.

Results: The Effect of Class?

What can we say about the effect of class on Republican Party support? We start with White people. As predicted, Figure G.5 indicates that increased income heightens support for the Republican Party among White men. Specifically, rich White men like the Republican Party 0.44 [0.12, 0.76] units more than poor White men. This positive effect of income among White men is equivalent to an 8.7% increase in the average level of Republican Party support among poor White men (5.01). The result here runs counter to the message in much of the media surrounding the 2016 presidential elections that poor White men were at the heart of the Republican Party's electoral success. As our results clearly indicate, rich White men liked the Republican Party significantly more than poor White men. As expected, Figure G.5 also indicates that increased income reduces support for the Republican Party among White women. To be specific, rich White women like the Republican Party 0.28 [0.0003, 0.56] units less than poor White women ($p = 0.10$). The substantive magnitude of the negative effect of income among White women is arguably quite small as it equates to only a 5.5% reduction in the average level of Republican Party support among poor White women (5.11). As noted previously, Figure G.5 indicates that the difference in the effect of increased income between White women and White men is $-0.28 - 0.44 = -0.72$ [-0.29, -1.14]. This provides support for our prediction of a negative intersectional relationship between class and gender among White people.

In line with our predictions, Figure G.5 shows that increased income never has a significant effect on Republican Party support among Black people. We see that rich Black men like the Republican Party 0.65 [-0.23, 1.52] units less than poor Black men and rich Black women like it 0.41 [-0.29, 1.12] units less than poor Black women. However, both of these negative effects of income among Black people are statistically insignificant. As predicted, and previously noted, there is no evidence of a significant intersectional relationship between class and gender among Black people, $-0.41 - (-0.65) = 0.23$ [-0.89, 1.36].

Overall, the results presented in Figure G.5 are in line with the predictions contained in the *Class (Income) Hypothesis*.

In this appendix, we have looked at how to evaluate claims of intersectionality with respect to three dichotomous categories of difference or axes of structural inequality. Our discussion and recommendations easily generalize to evaluating claims of intersectionality that deal with more than three categories of difference and situations in which the categories of difference are not dichotomous.

Online Appendix H: Intersectional Theories when the Categories of Difference are Multichotomous and Unranked – Comparing the Standard and Alternative Interaction Models

In the main text, we argued that there are two different, but exactly equivalent, ways to specify an interaction model to evaluate a claim of intersectionality involving discrete categories of difference. The first way, which we refer to as the 'alternative' interaction model, involves additively including a series of dichotomous independent variables that each indicate someone's membership in an identity group such as Black women that captures a particular combination of values for the relevant categories of difference. The second way, which we refer to as the 'standard' interaction model, involves including dichotomous independent variables that capture the categories of difference as well as their interactions. We showed that these two different model specifications were exactly equivalent in the specific case where gender (male/female) and race (White/Black) are both assumed to be dichotomous. However, our proof easily extends to situations in which categories of difference such as, say, race are assumed to be multichotomous and, thus, have more than two categories. In effect, it is the case that we will always be able to specify a standard interaction model that is exactly equivalent to any alternative interaction model we might wish to specify. As we noted in the main text, the benefit of estimating a standard interaction model is that we can identify if there is any interaction or intersectionality directly from the regression output. Scholars who adopt the alternative model often fail to recognize that it is, in fact, an interaction model and, as a result, do not take the necessary steps to identify whether there is evidence of interaction and hence intersectionality.

The equivalence between these two different model specifications is not widely recognized by scholars of intersectionality and, indeed, it is commonly argued that intersectional claims can only be properly evaluated with the alternative model. In their recent book, for example, Reingold, Haynie and Widner (2020, 13) state that interaction "models are too rigid for intersectional analysis, for they cannot accommodate or capture a range of possible (non-additive or unranked) relationships and effects of categories of difference. For example, they cannot tell us whether or how representational activity of Latina legislators is similar to or different from that of Black female, White female, or Latino legislators." They go on to suggest that the alternative model, where we "use a series of dummy variables for each race gender group . . . [is uniquely designed] for this purpose: to allow for similar effects, different effects, distinct/unique effects, or any combination thereof (Spierings, 2012)." Part of their criticism is the claim that interaction models cannot accommodate multichotomous or unranked categories of difference. These types of claims, which are false, have unfortunately generated confusion about, and in some cases opposition to, the use of interaction models to evaluate intersectional claims. We now demonstrate why these claims are false.

To provide some substantive context, we build on the specific example raised by Reingold, Haynie and Widner (2020, 13) in their quote above where gender has two unranked categories (male, female) and race has three unranked categories (White, Black, Latinx). It appears from their example that the three 'racial' categories of White, Black, and Latinx are assumed to be discrete and mutually exclusive. In what follows, we will adopt the same assumption. However, it is important to recognize that our upcoming discussion does not rely on this particular conceptualization of race. Our argument, for example, can easily be extended to deal with racial identities that are not assumed to be mutually exclusive, where individuals might identify as, say, White Latinx or Black Latinx.[15] Of course, we also recognize that many scholars will not view Latinx as a racial category at all, preferring to see it as an ethnic or cultural category. With this conceptualization, the example raised by Reingold, Haynie and Widner (2020) is really one where we have three dichotomous categories of difference: (i) gender (male, female), (ii) race (Black, White), and (iii) ethnicity (Latinx, non-Latinx). In this particular regard, we refer the reader back to Online Appendix F where we specifically discuss interaction models and intersectional theories with three categories of difference in some detail. Our point here is that interaction models are flexible enough to capture any of these (and other) conceptualizations of race.[16] Put differently, no matter how one wishes to conceptualize categories of difference such as race, there is always an appropriate interaction model that can be specified to evaluate the implications of an intersectional theory.

The modeling strategy recommended by Reingold, Haynie and Widner (2020) and others requires that we include $K-1$ dichotomous independent variables that each capture someone's membership in one of the K identity groups that can be formed by all of the possible combinations of values for an individual's gender and race. In our particular scenario, we have $K = 2 \times 3 = 6$ identity groups and so our model

[15]In this sense, the assumption of mutually exclusive racial categories used here means that the category of White really means non-Latinx White, the category of Black really means non-Latinx Black, and the category of Latinx really means Latinx who are either White or Black. For simplicity, we stick with the labels White, Black, and Latinx.

[16]Examples of other conceptualizations of race include cases where racial categories are conceptualized as continuous rather than discrete (Saperstein and Penner, 2012) or where race is conceptualized in terms of multiple weighted categories (Lee, 2009) or as a disaggregable composite 'bundle of sticks' (Sen and Wasow, 2016).

specification is

$$Republican\ Support = \gamma_0 + \gamma_1 White\ Female + \gamma_2 Black\ Male + \gamma_3 Black\ Female + \gamma_4 Latinx\ Male + \gamma_5 Latinx\ Female + \varepsilon, \tag{H.1}$$

where each independent variable is dichotomous and equals 1 if an individual falls into the named identity group and 0 otherwise, and *White Male* is the omitted identity group. In this setup, White men act as the 'baseline' or 'reference' category against which the other groups are compared. This means, for example, that the coefficient on *Latinx Female*, γ_5, indicates the effect of being a Latinx woman as opposed to a White man, or equivalently, the difference in Republican support between a Latinx woman and a White man. As we noted in the main text, the model shown in Eq. H.1 is a type of interaction model because each of the independent variables, such as *White Female*, is a 'hidden' interaction term. We have referred to this particular type of interactive specification as the 'alternative' interaction model.

As we now demonstrate, the alternative interaction model shown in Eq. H.1 is exactly equivalent to the following standard interaction model when our three racial categories are mutually exclusive,

$$Republican\ Support = \beta_0 + \beta_1 Female + \beta_2 Black + \beta_3 Latinx + \beta_4 Female \times Black + \beta_5 Female \times Latinx + \epsilon. \tag{H.2}$$

Female, *Black*, and *Latinx* are each dichotomous variables that equal 1 if an individual is female, Black, and Latinx, and 0 otherwise.

To demonstrate that these two models are equivalent, we again start by explicitly recognizing that all of the dichotomous independent variables capturing identity groups in Eq. H.1 are interaction terms,

$$\begin{aligned} Republican\ Support = \gamma_0 &+ \gamma_1 \underbrace{Female_1 \times Black_0 \times Latinx_0}_{\text{White Female}} + \gamma_2 \underbrace{Female_0 \times Black_1 \times Latinx_0}_{\text{Black Male}} \\ &+ \gamma_3 \underbrace{Female_1 \times Black_1 \times Latinx_0}_{\text{Black Female}} + \gamma_4 \underbrace{Female_0 \times Black_0 \times Latinx_1}_{\text{Latinx Male}} \\ &+ \gamma_5 \underbrace{Female_1 \times Black_0 \times Latinx_1}_{\text{Latinx Female}} + \varepsilon. \end{aligned} \tag{H.3}$$

In this setup, $Female_0$ is a dichotomous variable that equals 1 when $Female = 0$ and 0 otherwise, $Female_1$ is a dichotomous variable that equals 1 when $Female = 1$ and 0 otherwise, $Black_0$ is a dichotomous variable that equals 1 when $Black = 0$ and 0 otherwise, $Black_1$ is a dichotomous variable that equals 1 when $Black = 1$ and 0 otherwise, $Latinx_0$ is a dichotomous variable that equals 1 when $Latinx = 0$ and 0 otherwise, $Latinx_1$ is a dichotomous variable that equals 1 when $Latinx = 1$ and 0 otherwise, and $Female_0 \times Black_0 \times Latinx_0$ (White male) is the omitted interaction term.

Since $Female_1$ is the same as *Female*, $Black_1$ is the same as *Black*, and $Latinx_1$ is the same as *Latinx*, we can rewrite Eq. H.3 as

$$\begin{aligned} Republican\ Support = \gamma_0 &+ \gamma_1 \underbrace{Female \times Black_0 \times Latinx_0}_{\text{White Female}} + \gamma_2 \underbrace{Female_0 \times Black \times Latinx_0}_{\text{Black Male}} \\ &+ \gamma_3 \underbrace{Female \times Black \times Latinx_0}_{\text{Black Female}} + \gamma_4 \underbrace{Female_0 \times Black_0 \times Latinx}_{\text{Latinx Male}} \\ &+ \gamma_5 \underbrace{Female \times Black_0 \times Latinx}_{\text{Latinx Female}} + \varepsilon. \end{aligned} \tag{H.4}$$

Since $Female_0$ is just the opposite of *Female*, $Black_0$ is just the opposite of *Black*, and $Latinx_0$ is just the opposite of *Latinx*, we can rewrite Eq. H.4 as

$$\begin{aligned} Republican\ Support = \gamma_0 &+ \gamma_1 \underbrace{Female \times (1 - Black) \times (1 - Latinx)}_{\text{White Female}} + \gamma_2 \underbrace{(1 - Female) \times Black \times (1 - Latinx)}_{\text{Black Male}} \\ &+ \gamma_3 \underbrace{Female \times Black \times (1 - Latinx)}_{\text{Black Female}} + \gamma_4 \underbrace{(1 - Female) \times (1 - Black) \times Latinx}_{\text{Latinx Male}} \\ &+ \gamma_5 \underbrace{Female \times (1 - Black) \times Latinx}_{\text{Latinx Female}} + \varepsilon, \end{aligned} \tag{H.5}$$

Multiplying through, we have

$$\begin{aligned} Republican\ Support = \gamma_0 &+ \gamma_1 Female - \gamma_1 Female \times Latinx - \gamma_1 Female \times Black + \gamma_1 Female \times Black \times Latinx \\ &+ \gamma_2 Black - \gamma_2 Black \times Latinx - \gamma_2 Female \times Black + \gamma_2 Female \times Black \times Latinx \\ &+ \gamma_3 Female \times Black - \gamma_3 Female \times Black \times Latinx \\ &+ \gamma_4 Latinx - \gamma_4 Black \times Latinx - \gamma_4 Female \times Latinx + \gamma_4 Female \times Black \times Latinx \\ &+ \gamma_5 Female \times Latinx - \gamma_5 Female \times Black \times Latinx + \varepsilon. \end{aligned} \tag{H.6}$$

At this point, note that $Black \times Latinx$ and $Female \times Black \times Latinx$ are always equal to 0 due to our assumption that the three racial categories are mutually exclusive; it is not possible for *Black* and *Latinx* to both be 1. As a result, we can eliminate these two interaction terms,

$$\begin{aligned} \textit{Republican Support} = \gamma_0 &+ \gamma_1 \textit{Female} - \gamma_1 \textit{Female} \times \textit{Latinx} - \gamma_1 \textit{Female} \times \textit{Black} \\ &+ \gamma_2 \textit{Black} - \gamma_2 \textit{Female} \times \textit{Black} + \gamma_3 \textit{Female} \times \textit{Black} \\ &+ \gamma_4 \textit{Latinx} - \gamma_4 \textit{Female} \times \textit{Latinx} + \gamma_5 \textit{Female} \times \textit{Latinx} + \varepsilon. \end{aligned} \tag{H.7}$$

Collecting the terms that remain, we have

$$\begin{aligned} \textit{Republican Support} = \gamma_0 &+ \gamma_1 \textit{Female} + \gamma_2 \textit{Black} + \gamma_4 \textit{Latinx} \\ &+ (\gamma_3 - \gamma_1 - \gamma_2) \textit{Female} \times \textit{Black} \\ &+ (\gamma_5 - \gamma_1 - \gamma_4) \textit{Female} \times \textit{Latinx} + \varepsilon. \end{aligned} \tag{H.8}$$

We can now see that the alternative interaction model shown in Eq. H.1 is just an algebraic transformation of the standard interaction model shown in Eq. H.2 where $\beta_0 = \gamma_0$, $\beta_1 = \gamma_1$, $\beta_2 = \gamma_2$, $\beta_3 = \gamma_4$, $\beta_4 = \gamma_3 - \gamma_1 - \gamma_2$, and $\beta_5 = \gamma_5 - \gamma_1 - \gamma_4$.[17] The two models are just different representations of the same interaction model. This means that the standard interaction model can do anything that the alternative interaction model can do. As this example illustrates, interaction models can easily handle situations where categories of difference are multichotomous and unranked. Contrary to the claims of intersectionality scholars such as Reingold, Haynie and Widner (2020, 13), interaction models allow for the possibility that we will find "similar effects, different effects, distinct/unique effects, or any combination thereof" when evaluating the intersectional impact of categories of difference such as gender and race. This last point becomes particularly clear when we look at how to interpret interaction models in our current example.

[17] As we noted earlier, we do not have to make the assumption that our three racial categories are mutually exclusive. If we were to relax this assumption, the appropriate standard interaction model would be

$$\begin{aligned} \textit{Republican Support} = \beta_0 &+ \beta_1 \textit{Female} + \beta_2 \textit{Black} + \beta_3 \textit{Latinx} \\ &+ \beta_4 \textit{Female} \times \textit{Black} + \beta_5 \textit{Female} \times \textit{Latinx} + \beta_6 \textit{Black} \times \textit{Latinx} \\ &+ \beta_7 \textit{Female} \times \textit{Black} \times \textit{Latinx} + \epsilon. \end{aligned} \tag{H.9}$$

Of course, the alternative interaction model would also have to change to recognize the possibility of individuals who identify as, say, Black Latinx female or White non-Latinx male.

Interpretation

The fact that the two models are algebraically equivalent means that the exact same quantities of interest can be calculated from both models. The key advantage of the standard model, though, is that we can directly identify from the regression output whether there are significant interaction effects between race and gender and hence whether there is any evidence of intersectionality. There is no way of identifying this directly from the regression output with the alternative model. This is important because evidence of intersectionality is a necessary condition for concluding that an intersectional theory is supported. In the standard model, the interaction effect between *Female* and *Black* is β_4. Due to the symmetry of interactions, this tells us both whether the effect of being female instead of male is different for Black people as opposed to White people *and* whether the effect of being Black instead of White is different for women as opposed to men. In the standard model, the interaction effect between *Female* and *Latinx* is β_5.[18] This tells us both whether the effect of being female instead of male is different for Latinx individuals as opposed to Whites *and* whether the effect of being Latinx instead of White is different for women as opposed to men. We cannot identify either of these interaction effects simply by examining the statistical significance of the coefficients from the alternative model. In order to identify whether there is an interaction effect between *Female* and *Black* in the alternative model, we would need to formally test whether $\gamma_3 - \gamma_1 - \gamma_2 = 0$. And in order to identify whether there is an interaction effect between *Female* and *Latinx*, we would need to formally test whether $\gamma_5 - \gamma_1 - \gamma_4 = 0$. Without making these calculations, it is *impossible* to infer whether the empirical results from the alternative model support a claim of intersectionality or not.

Below, we briefly compare other aspects of the alternative and standard interaction models shown in Eq. H.1 and Eq. H.2. To focus our discussion, consider the predicted values and conditional effects from

[18] The effect of being female on Republican support in the standard model is

$$\frac{\partial \textit{Republican Support}}{\textit{Female}} = \beta_1 + \beta_4 \textit{Black} + \beta_5 \textit{Latinx}. \quad \text{(H.10)}$$

The interaction effect between *Female* and *Black* indicates how the effect of being female changes if one is Black instead of White,

$$\frac{\partial \left(\frac{\partial \textit{Republican Support}}{\textit{Female}} \right)}{\partial \textit{Black}} = \beta_4. \quad \text{(H.11)}$$

The interaction effect between *Female* and *Latinx* indicates how the effect of being female changes if one is Latinx instead of White,

$$\frac{\partial \left(\frac{\partial \textit{Republican Support}}{\textit{Female}} \right)}{\partial \textit{Latinx}} = \beta_5. \quad \text{(H.12)}$$

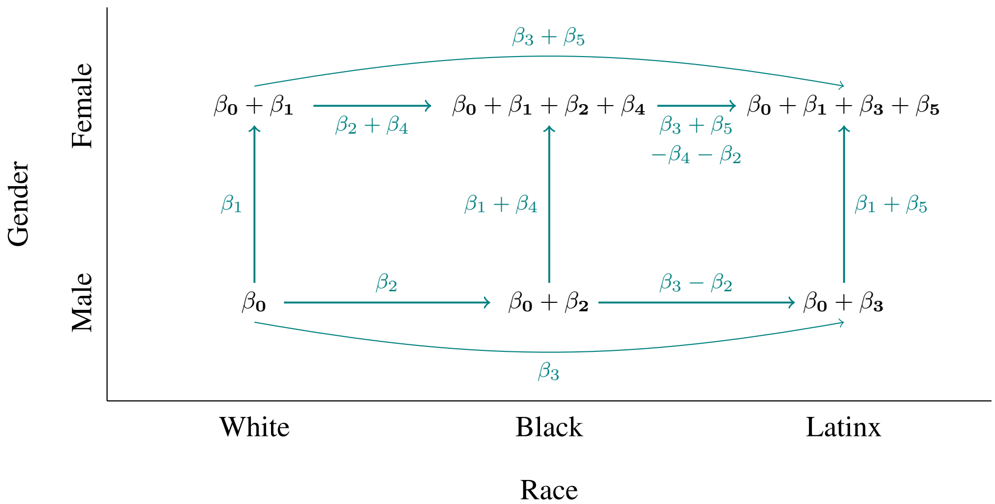
From this, we see that $\beta_5 - \beta_4$ tells us how the effect of being female changes if one is Latinx instead of Black.

Figure H.6: Predicted Values and Conditional Effects from the Standard and Alternative Interaction Models

(a) Standard Interaction Model

Interaction Effect 1: *Female*$\times$*Black* $= \beta_4$

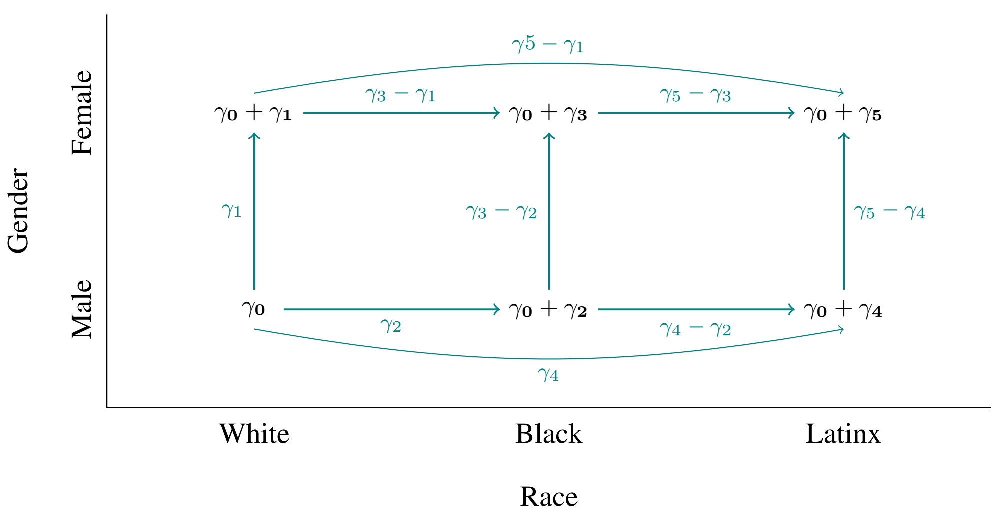
Interaction Effect 2: *Female*$\times$*Latinx* $= \beta_5$



(b) Alternative Interaction Model

Interaction Effect 1: *Female*$\times$*Black* $= \gamma_3 - \gamma_1 - \gamma_2$

Interaction Effect 2: *Female*$\times$*Latinx* $= \gamma_5 - \gamma_1 - \gamma_4$



Note: Panel (a) shows the predicted values (in black) and conditional effects (in teal) from the standard interactive model shown in Eq. H.2. Panel (b) shows the same quantities from the alternative interactive model shown in Eq. H.1.

the two models shown in panels (a) and (b) of Figure H.6. The predicted values for the six identity groups are shown in black, while the conditional effects of changing gender and race, as well as the interaction effects between race and gender, are shown in teal. Both models allow us to see directly from the regression output the effect of being female instead of male among White people (White women vs White men), the effect of being Black instead of White among men (Black men vs White men), and the effect of being Latinx instead of White among men (Latinx men vs White men). These effects are captured by the coefficients $\beta_1 = \gamma_1$, $\beta_2 = \gamma_2$, and $\beta_3 = \gamma_4$.

Both models require that we move beyond the regression output to examine the effects of being female instead of male among Black people and Latinx people. To determine whether the effect of being female instead of male is statistically significant among Black people (Black women vs Black men), we must formally test whether $\beta_1 + \beta_4 = 0$ in the standard model and whether $\gamma_3 - \gamma_2 = 0$ in the alternative model. To determine the same thing among Latinx individuals (Latinx women vs Latinx men), we must formally test whether $\beta_1 + \beta_5 = 0$ in the standard model and whether $\gamma_5 - \gamma_4 = 0$ in the interaction model.

Both models also require that we move beyond the regression output to examine other effects of race. To determine whether the effect of being Latinx instead of Black is statistically significant among men (Latinx men vs Black men), we must formally test whether $\beta_3 - \beta_2 = 0$ in the standard model and whether $\gamma_4 - \gamma_2 = 0$ in the alternative model. To determine the same thing among women (Latinx women vs Black women), we must formally test whether $\beta_3 + \beta_5 - \beta_4 - \beta_2 = 0$ in the standard model and whether $\gamma_5 - \gamma_3 = 0$ in the alternative model. To determine whether the effect of being Black instead of White is statistically significant among women (Black women vs White women), we must formally test whether $\beta_2 + \beta_4 = 0$ in the standard model and whether $\gamma_3 - \gamma_1 = 0$ in the alternative model. And finally, to determine whether the effect of being Latinx instead of White is statistically significant among women (Latinx women vs White women), we must formally test whether $\beta_3 + \beta_5 = 0$ in the standard model and whether $\gamma_5 - \gamma_1 = 0$ in the alternative model.

Online Appendix I: A Generic Example of the Interactive Approach Utilizing Qualitative Methods

Early in the main text, we demonstrated that an interactive research design is necessary for evaluating a claim of intersectionality regarding the non-separable effects of categories of difference and that this is true irrespective of whether we measure and analyze our outcomes of interest using qualitative or quantitative methods. In the rest of the main text, we focused on providing advice to scholars who choose to employ *quantitative* methods in their intersectionality research. In this appendix, we want to very briefly give a sense of how our advice to quantitative scholars of intersectionality might generically transfer to *some types* of qualitative research dealing with intersectionality.

Before doing so, we want to acknowledge up front that we recognize the important distinction articulated by Cho, Crenshaw and McCall (2013), Hancock (2013), Cooper (2016), and many others between intersectionality as *methodology* (i.e., as a way of doing research) and intersectionality as *epistemology* (i.e., as a way of knowing). While epistemology and methodology are obviously connected, many philosophers remind us that knowledge generation does not have to rely on practices of empirical falsification (Sosa, 2018). Even if we narrow our focus to a particular type of knowledge (in this case, knowledge generated "empirically" or based in observation), we recognize and appreciate the sheer diversity of approaches and goals that characterize qualitative research on intersectionality. Our qualitative colleagues in the social sciences, humanities, and performing arts often adopt very different ways of doing intersectionality. For example, the primary goal of many qualitative scholars who adopt an intracategorical approach is not to test theoretical claims of intersectionality but to instead center the lived experiences of particular groups such as Black women who have historically been marginalized or ignored. Other forms of qualitative research on intersectionality prioritize descriptive, interpretive, and/or exploratory approaches to *theory building* rather than *hypothesis testing*.[19] We recognize the value of these alternative approaches and understand that intersectionality is not only about testing empirical claims or, even, testing the conditional effects of various axes of structural inequality or categories of difference. Our point here is simply that the following discussion and advice is primarily targeted at qualitative scholars who wish to empirically evaluate a theoretical claim of intersectionality where the effects of categories of difference are thought to be non-separable. We

[19] For some examples of intersectionality research employing a diversity of qualitative approaches, see Syed (2010), Hunting (2014), Cassell, Cunliffe and Grandy (2017), and Windsong (2018).

believe that the non-separability of categories of difference is a core defining feature of intersectionality and therefore a necessary condition for a claim to be intersectional.

To provide some substance, we continue to focus on the case where we are interested in the intersectional effects of gender and race on some aspect of support for the Republican Party. To mirror the discussion in the main text, we will also continue to assume that our theory continues to treat gender (women/men) and race (Black/White) as dichotomous.[20] One important distinction between quantitative and qualitative research typically has to do with how researchers think about and measure the outcome of interest. In the main text where we were focusing on quantitative methods, we operationalized support for the Republican Party in terms of a survey question that asked respondents to indicate how much they liked the Republican Party on a scale from 0 (strong dislike) to 10 (strong like). This is obviously just one way of quantifying support for the Republican Party and readers will, as always, have to judge whether it is a suitable one for the purpose of achieving the desired research goal. Qualitative scholars are likely to think about and operationalize their concept of Republican Party support differently. They might, for example, conduct in-depth interviews and focus groups to get a sense of how people think about the Republican Party and its policies (Williamson, Skocpol and Coggin, 2011). Or they might engage in some form of participant observation where they observe and interpret individual behavior related to the Republican Party in some way (Cole, 2020). Or they might analyze the rhetoric or ways in which individuals talk or write about the Republican Party (Bedingfield, 2013; Jarvis, 2005). Whether they rely on descriptive, inferential, or interpretivist reasoning, scholars will presumably reach an overall qualitative judgement about whether individuals who belong to particular identity groups exhibit similar or different levels of support for the Republican Party than individuals from other identity groups. The question we are interested in here is whether the observed pattern of variation in qualitative levels of support for the Republican Party is consistent with the intersectional theory proposed by the researcher.[21]

Much of the advice that we present in the main text transfers directly over to qualitative research. To be able to identify whether the pattern of variation in Republican support across identity groups is consistent

[20] As discussed in Online Appendix H, though, our upcoming discussion easily generalizes to other ways of conceptualizing categories of difference like race and gender.

[21] As we have already noted, we recognize that not all qualitative scholars are interested in traditional hypothesis testing. They may, for example, be interested in simply describing the pattern of observed support for the Republican Party across different identity groups and discussing or interpreting what this means. However, even if description or interpretation is the primary goal, it is possible to determine whether the observed pattern of qualitative support is consistent with the claim that race and gender have non-separable effects in this particular research context; that is, whether the observed pattern of support results from an intersectional relationship. Recall that we have been assuming that the researcher is, at least partially, interested in evaluating this claim of intersectionality.

with the intersectionality of gender and race, qualitative scholars, like quantitative ones, need to examine Republican support among four different identity groups: Black women, Black men, White women, and White men. As we showed in section 2 of the main text, examining fewer identity groups than this does not allow us to determine whether gender and race have separable effects or not.

In the main text, we encouraged quantitative scholars to make five key predictions about how gender and race intersect in determining an outcome of interest like Republican support. These five predictions were necessary to distinguish the researcher's proposed intersectional account of Republican support from one of the many other theoretically possible intersectional and non-intersectional accounts. We encourage qualitative scholars to make the same five predictions. The very premise of a research study like the one proposed here is that gender and race do not have separable effects. Thus, we immediately have a prediction of intersectionality; that is, that race modifies the effect of gender and that gender modifies the effect of race. As we showed in the main text, we do not have to think of intersectionality in terms of 'effects'; we can also think of it in terms of 'differences' across groups. Whenever possible, scholars should make a prediction about the direction of the posited intersectionality and not just its existence. Two of the other five key predictions relate to the effect of gender among Black people and White people. Do we expect Republican support to be higher among Black women than Black men? And do we expect Republican support to be higher among White women than White men? The last two key predictions relate to the effect of race among women and men. Do we expect Republican support to be higher among Black women than White women? And do we expect Republican support to be higher among Black men than White men? Quantitative and qualitative scholars are equally well placed to make these five predictions as these predictions have to do with one's theory and not with one's empirical methods. Like quantitative scholars, qualitative researchers do not have to present the five key predictions as separate hypotheses. It is usually possible to incorporate the five predictions into a hypothesis about how the effect of gender varies with race and a hypothesis about how the effect of race varies with gender.

Mirroring the substantive application in the main text, we might be able to derive the following two hypotheses from an intersectional theory linking gender and race to Republican Party support:

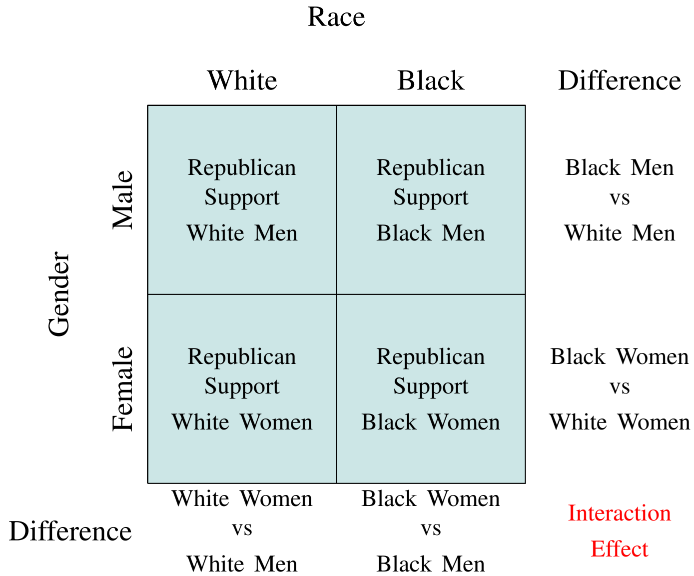
> *Female Hypothesis:* Women will always exhibit less Republican Party support than men. This difference is larger among Black people than White people.
>
> *Black Hypothesis:* Black people will always exhibit less Republican Party support than White people. This difference is larger among women than men.

As we demonstrated in the main text, quantitative scholars who wish to evaluate these hypotheses can do so using an interaction model; in fact, there are several equivalent versions of an interaction model that they could use. Quantitative scholars are likely to present their statistical results in the form of a regression table like Table 2 in the main text, a marginal effect plot like Figure 4, and/or a table like the one shown in Figure 5. Qualitative scholars are obviously going to conduct their analyses and present their conclusions differently. The important point to recognize, though, is that the research design in which we employ a statistical interaction model is essentially equivalent to a research design where we make comparisons of the outcome of interest across different identity groups. Thus, while a qualitative scholar interested in evaluating a claim of intersectionality like the one underpinning the two hypotheses shown above is likely to go about things differently, they are effectively employing the same modeling strategy as a quantitative scholar. To fully evaluate their hypotheses, the qualitative scholar is going to have to present the same quantities of interest, even if those quantities of interest are qualitative rather than quantitative.

To illustrate this, consider the qualitative interactive research design depicted in Figure I.7. The four quadrants of the colored square indicate our evaluations of Republican Party support for each of our four identity groups based on whatever qualitative method we have chosen to obtain these evaluations. While these evaluations could be quantitative in nature, we recognize that in many cases they will be more qualitative. For example, they could be our descriptions or interpretations of the behavior and attitudes of individuals from the four identity groups towards the Republican Party in some respect that we obtained through, say, interviews or participant observation. The important point, though, is that we should be able to make comparisons of these qualitative evaluations across the four identity groups such that we can determine whether the evaluations are different or the same.

The five 'cells' around the colored square have to do with the possible comparisons across or differences between the identity groups. They refer to the 'quantities of interest' needed to evaluate our five key predictions. The 'Difference' row at the bottom addresses the effects of gender. The left cell, 'White Women vs White Men', refers to our qualitative evaluation of whether the level of Republican support exhibited by White women is higher, lower, or the same as it is for White men. According to the *Female Hypothesis*, Republican support among White women should be lower than it is for White men. Put differently, the effect of being female should be negative for White people. The right cell, 'Black Women vs Black Men', refers to our qualitative evaluation of whether the level of Republican support exhibited by Black women is higher, lower, or the same as it is for Black men. According to the *Female Hypothesis*, Republican support

Figure I.7: A Generic Qualitative Interactive Research Design for Examining the Intersectional Effect of Race and Gender on Republican Party Support



Note: The colored square indicates our qualitative evaluations of Republican Party support for our four identity groups: White men, Black men, White women, and Black women. The effect of gender (male → female) is shown in the bottom 'Difference' row and is equivalent to comparing women to men among White people (left cell) and among Black people (right cell). The effect of race (White → Black) is shown in the right 'Difference' column and is equivalent to comparing Black people to White people among men (top cell) and women (bottom cell). The interaction or intersectional effect of race and gender is shown in red in the bottom right corner and is equivalent to the difference in the effect of gender among Black people and White people *and* the difference in the effect of race among women and men.

among Black women should be lower than it is for Black men. Put differently, the effect of being female should be negative for Black people. When making these comparisons in the main text, we encouraged quantitative scholars to report both the statistical and substantive significance of these differences or effects. While things are obviously slightly different with qualitative research, we encourage qualitative scholars to do likewise by discussing whether any difference they find is substantively meaningful and whether it is likely to have arisen by chance. The same recommendation applies to the other comparisons a qualitative researcher must make.

The 'Difference' column to the right addresses the effects of race. The top cell, 'Black Men vs White Men', refers to our qualitative evaluation of whether the level of Republican support exhibited by Black men is higher, lower, or the same as it is for White men. According to the *Black Hypothesis*, Republican support among Black men should be lower than it is for White men. Put differently, the effect of being Black should be negative for men. The bottom cell, 'Black Women vs White Women', refers to our qualitative evaluation of whether the level of Republican support exhibited by Black women is higher, lower, or the same as it is for White women. According to the *Black Hypothesis*, Republican support among Black women should be lower than it is for White women. Put differently, the effect of being Black should be negative for women.

The cell shown in red in the very bottom right-hand corner captures information about the interaction effect between race and gender on Republican Party support and tells us whether we have evidence of intersectionality. The interaction or intersectional effect refers to our qualitative evaluation of whether the difference between Black women and Black men is higher, lower, or the same as the difference between White women and White men. In other words, it tells us whether the effect of being female is different for White people than it is for Black people. Due to the symmetry of interactions, the interaction or intersectional effect also refers to our qualitative evaluation of whether the difference between Black women and White women is higher, lower, or the same as the difference between Black men and White men. In other words, it tells us whether the effect of being Black is different for women than it is for men. It should be clear, as we noted in the main text, that the interaction or intersectional effect is just a difference in differences or a 'comparison of two comparisons.' According to both the *Female Hypothesis* and the *Black Hypothesis*, the interaction effect of gender and race on Republican support should be negative.

It should be clear that the qualitative interactive research design captured in Figure I.7 is equivalent to the quantitative interactive research design captured in Figure 5 from our substantive application in the main text. The only real difference is that the information in the cells in Figure 5 came from a statistical interaction model, whereas the information in the cells in Figure I.7 would come from a qualitative analysis and comparison of Republican support across our four different identity groups. We have the same underlying research design and quantities of interest, just different quantitative and qualitative approaches to measurement and interpretation.

The qualitative interactive research design described here easily extends to cases in which we have more than two categories of difference. In this regard, we encourage the reader to reexamine the research design shown in Figure G.3 in Online Appendix G. The research design in Figure G.3 is equivalent to the research design in Figure I.7 except that the intersectional theory underpinning Figure G.3 involves dichotomous conceptualizations of race, gender, *and* class. The information that would 'appear' in the cells of the research design in Figure G.3 would come from a statistical interaction model if we were a quantitative scholar but would come from a qualitative analysis and comparison of Republican support across our now eight different identity groups if we were a qualitative scholar. The qualitative interactive research design described in this appendix also easily extends to cases in which our categories of difference are multichotomous and unranked rather than dichotomous. In this regard, we encourage the reader to reexamine Online Appendix H. Panel (b) in Figure H.6 is particularly useful for thinking about the type of qualitative analysis and comparisons across identity groups that are necessary for fully evaluating the implications of an intersectional theory where we have a dichotomous concept of gender and a trichotomous concept of race.

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