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COMPLEX STEREOTYPES: STEREOTYPES ACROSS THE INTERSECTIONS OF GENDER, SEXUALITY, AGE, RACE/ETHNICITY, AND SOCIAL CLASS

by

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Abstract

Research on stereotypes and their consequences often focuses on discrete categorical stereotypes in isolation from each other (e.g. gender or race categories), and rarely centers the fact that people belong to many social categories at once (e.g. gender and race categories). I address this issue using two large factorial experiment (N=1,762 and N=1,481) designed to measure two core aspects of stereotypes, warmth and competence, across the intersections of multiple social categories: Gender, Sexuality, Age, Race/Ethnicity (Chapter 3), and Social Class (Chapter 2). In Chapter 2, I develop a framework for analyzing intersectional complexity in these data, beginning with overall measures of complexity and moving toward narrower and more specific tests. In both studies. warmth stereotypes were complex in the sense that only about a third of intersectional variation came from main effects of the five social categories. Competence stereotypes were less complex, with most variation stemming from main effects. Social Class, when presented, accounted for most variance in competence stereotypes; when not presented, Race/Ethnicity did the same. In Chapter 3 I use both a large factorial survey experiment and secondary data from the American Community Survey and Department of Labor to test a theoretical model integrating several major theories of stereotypes and their social structural causes. Despite the complexity of intersectional stereotypes, the theoretical model nevertheless performs well in explaining intersectional stereotypes of warmth and competence. Other analyses supported predictions regarding multiple

standards for status and power for more marginalized people, and provided supporting evidence for the 'intersectional aggregation hypothesis' that categorical stereotypes are an 'average' of the intersectional stereotypes of people within a social category. The project shows how intersectional perspectives, paired with a methodological framework capable of measuring and analyzing outcomes across hundreds of intersections, can shed new light on how intersecting identities affect how people are seen and uncover commonalities as well as differences between intersectional identities.

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Chapter 1: Introduction

1.1 Introduction to Stereotypes

People readily develop beliefs about other people and groups, despite the fact that the social world is highly complex and individuals' characteristics, like their abilities and trustworthiness, are difficult to discern accurately without extensive information. One of the critical ways that people accomplish this is by using stereotypes, which social psychologists understand as 'common sense' beliefs about what 'most people' think about people in different social categories, like racial groups or genders (Fiske et al. 2002; Fiske 2018; Webster and Walker 2022). Stereotypes tend to form a 'first draft' or 'starting point' for social evaluations, which often go on to heavily impact later judgments, e.g. of whether a person is a violent threat (Eberhardt 2020), which then leads to emotional reactions and to different types of behaviors in social interaction (Talaska, Fiske, and Chaiken 2008; Webster and Walker 2022).

In addition to their uses and consequences in social interaction, stereotypes are key cultural schema that connect micro-level cognition and behavior with macro-level social structures (Lawler, Ridgeway, and Markovsky 1993; Ridgeway 2006). As detailed further in Chapter 3, social structure helps to generate stereotypes and determine their content. Economic inequality and the division of labor, in addition to being classic topics of study for sociologists, are particularly important for determining the content of stereotypes. Groups that have more economic resources tend to be stereotyped as more

competent and those with fewer resources tend to be stereotyped as less competent (Fiske 2018; Fiske et al. 2002; Ridgeway 1991, 2018). Groups that tend to perform roles, especially occupations, that are seen as involving more leadership become stereotyped as more competent, while groups that tend to perform roles (e.g. occupations) seen as involving more care and sociability become stereotyped as warmer (Eagly and Steffen 1984; Koenig and Eagly 2014, 2019). And groups seen as being in zero-sum competition with other groups tend to become stereotyped as less warm (Fiske 2018; Fiske et al. 2002;). In these ways, stereotypes are a perfect example of how broader sociological conditions impact how individuals think about the world and people around them.

If stereotypes stopped at beliefs, they may not be especially relevant to sociological theories and analysis. But stereotypes lead to a range of behaviors like discrimination (Fiske 2018; Talaska et al. 2008) that tend to reproduce macro-scale social structures. This is evident across many areas of study. Gender stereotypes affect how men and women see themselves and others, which then helps generate occupational sex segregation (Cech 2013; Correll 2001, 2004). Stereotypes of mothers as family-oriented and caring lead to workplace bias against mothers (Correll et al. 2007; Heilman 2012). Anti-Black stereotypes and bias are related to discrimination, police violence, and opposition to social welfare policies (Brown-Iannuzzi et al. 2017, 2019; Eberhardt 2020; Hehman et al. 2018). Organizations' personnel decisions, such as hiring, are influenced by stereotypes of groups' ability and sociability (Quadlin 2018; Pedulla 2014; Rivera 2020). Competence stereotypes shape who attains positions of influence and leadership in groups (Berger and Fisek 2018; Ridgeway 2019; Webster and Walker 2022). Examples like these show how important stereotypes are for larger social processes. Stereotypes are

not separate from broader sociological forces, or simply their by-product. Rather, stereotypes are caused by larger social structures, but then drive many of the behaviors that sustain and justify structures like inequality (Ridgeway 2006, 2013).

But while stereotypes are a critical social psychological concept for sociologists, research on them has historically tended to leave unaddressed a critical social fact: that people are members of many social categories at once, and that it is not always clear how stereotypes operate when people can be multiply categorized by, for example, their gender, race, or sexuality. In recent years, the influence of intersectional perspectives has led to growing attention to how multiple categorization affects phenomena like ingroup bias (Grigoyan et al. 2022), discrimination (e.g. Di Stasio and Larsen 2020; Pedulla 2014), person-role fit (Hall, Galinsky, and Phillips 2015), health (Bauer et al. 2021; Evans et al. 2018; Merlo 2018), inequality (Doren and Lin 2019; Tomaskovic-Devey and Avent-Holt 2018) and work (Wilson and Rosçigno 2018; Wingfield 2019).

In the rest of this introduction, I will introduce intersectionality and its implications for stereotype research, outline the aims of this dissertation, and show how the aims and methodologies of this project are influenced by intersectional perspectives.

1.2 What Makes Research 'Intersectional'?

This work is meant to be explicitly intersectional in nature. In the following chapters, I will offer a perspective and methodology on stereotypes that I label as 'intersectional,' and argue that this intersectional perspective should be incorporated into theory and research on stereotypes. However, it is far from clear what precisely it means to make a claim on intersectionality, and what implications that claim must have for how research is carried out. This is more than merely a problem of definitions, since scholars of

intersectionality have offered many different versions of what the concept is, the assumptions it makes, the methodologies it requires, and its key goals (e.g. Bowleg 2008; Carastathis 2014; Carbado 2013; Cho, Crenshaw, and McCall 2013; Choo and Ferree 2010; Cole 2009; Collins 2009 [2000], 2015, 2019; Collins and Bilge 2016; Crenshaw 1989, 1991; Else-Quest and Hyde 2016a, 2016b, 2016b; Hancock 2007, 2013, 2016; McCall 2005; Monk 2022; Nash 2008; Ridgeway and Kritcheli-Katz 2013; Williams and Frederick 2015; Yuval-Davis 2006). Many questions divide these authors, including:

- Whether intersectionality is a single coherent set of concepts or aims, or a broader set of loosely related intellectual projects.
- Whether intersectionality is the project of a specific intellectual discipline, or a 'meme' spread and adapted virally among many disciplines.
- The role of social justice as a goal or component of intersectional analysis.
- The extent to which statistical analysis, especially statistical interaction effects, are of interest to intersectionality, or distract from its core concerns.
- Whether intersectionality must center the experiences of women of color, or provides a 'de-centered' view on the interactions between many forms of identity, oppression, and privilege.
- Whether intersectional work assumes a particular epistemology, such as standpoint epistemology, or is compatible with other epistemic systems like positivism.
- Whether intersectionality offers falsifiable theories, or is a perspective, approach, or critical theory.

- Whether intersectional work must deconstruct the conceptual bases of social categories like race and gender, or if it can accept these categories for the purposes of analysis.

While important, most of these questions are beyond the scope of this work, though I will discuss relevant issues at various points in the dissertation.

For the purposes of this project, I adopt a broad definition of what it means for research to be intersectional. In *Intersectionality as Critical Social Theory* (2019), Patricia Hill Collins surveys intersectionality scholarship and offers a set of assumptions and concepts that are common across this wide-ranging literature. She finds four major 'guiding premises' (Collins 2019:44-50):

> Guiding Premise 1: *Race, class, gender and similar systems of power are interdependent and mutually construct one another.*

In general, intersectional scholarship agrees that categorical systems of inequality and identity like race, class, and gender are not fully separate from each other. The conceptual boundaries of these categorical systems are socially constructed rather than objective, and the exact meanings and effects of each social category are shaped by other, simultaneously active social categories or systems of oppression (Bowleg 2008; Cho et al. 2013; Choo and Ferree 2010; Collins 2015, 2019; Collins and Bilge 2016; Hancock 2016; McCall 2005; Monk 2022). For example, experimental research has found that race and social class are highly overlapping concepts, with race-related concepts likely to activate assumptions about class and vice-versa (Brown-Iannuzzi et al. 2017, 2019; Penner and Saperstein 2013).

Guiding Premise 2: *Intersecting power and relations produce complex, interdependent social inequalities of race, class, gender, sexuality, nationality, ethnicity, ability, and age*.

Scholars also agree that systems of inequality or oppression cannot be reduced to a single categorical lens, like social class (Marx 1976 [1867]), or a set of more or less separate categorical lenses (Tilly 1999). Instead, many systems of categorical inequalities operate simultaneously and 'intersect' with each other—that is, multiple categorical oppressions overlap, interact, or otherwise combine in ways that are not entirely visible through a single categorical lens alone (Bowleg 2008; Collins 2019; Crenshaw 1989, 1991; Else-Quest and Hyde 2016a; Hancock 2013, 2016; McCall 2005; Ridgeway and Kritcheli-Katz 2013; Williams and Frederick 2015). Intersectional perspectives grew out of marginalized intellectual communities of the 1970s-80s, including feminists of color, queer feminists, and feminists from developing and post-colonial nations (Collins 2009 [2000]; Crenshaw 1989; Hancock 2016), and over time intersectional perspectives tended to focus heavily on the experiences of women of color (Nash 2008; Hancock 2016). However, in the decades since, the idea of intersectionality was expanded to incorporate many social categories, like age, nationality, and ability (Collins 2019; Doren and Lin 2019; Hancock 2016).

Guiding Premise 3: *The social location of individuals and groups within intersecting power relations shapes their experiences within and perspectives on the social world*.

Not just outcomes, but individuals' experiences and perspectives on the world are shaped by their memberships in multiple, intersecting social categories (Bowleg 2008;

Collins 2019; Kang and Bodenhausen 2015; Monk 2022; Ridgeway and Kritcheli-Katz 2013). People do not conceive themselves as having just one social identity, but rather incorporate many different identities that each have their own distinct and overlapping relationships with individuals' social context. At the same time, the way that people perceive their world and others also takes into account their own intersectional position as well as those of others.

Guiding Premise 4: *Solving social problems within a given local, regional, or global contexts requires intersectional analysis*.

Intersectionality grew out of the realization that mainstream activist movements for racial, gender, and other forms of equality nevertheless tended to continue to reproduce inequalities based on secondary, 'subaltern', social categories. This insight came from experience: Black women were marginalized as women within the Black civil rights movement and marginalized as people of color in the feminist movement (Collins 2009 [2000], 2015, 2019; Collins and Bilge 2016; Crenshaw 1991; Hancock 2016). So, even while each movement pushed for specific forms of equality, they nevertheless worked at cross purposes and thus tended to reproduce the very inequalities they fought against.

Crenshaw's seminal work (1989) pointed out a similar flaw in discrimination law: even though racial and gender discrimination are illegal, women of color nevertheless face greater difficulty in discrimination lawsuits because discrimination law does not recognize discrimination on the basis of both gender and race simultaneously. This forces women of color facing 'intersectional' discrimination to make legal arguments that only

partially fit their circumstances, which makes it less likely that they obtain redress (Best et al. 2011).

Intersectional perspectives therefore argue that any movement for equality cannot adopt a singular categorical lens, and instead must recognize the related roles of multiple forms of oppression (Collins 2009 [2000], 2015, 2019; Collins and Bilge 2016; Crenshaw 1989, 1991; Hancock 2016). That recognition not only helps to prevent inadvertent reproduction of inequality, but also helps to uncover power relationships that involve multiple mutually-constitutive categorical systems which must be dismantled in order to fully alleviate injustice.

Intersectionality guides scholarship by pointing researchers in particular directions summarized by these premises. Thinking about a particular research question intersectionally might mean, according to these premises, paying attention to the ways that one social factor like gender might lead to or affect power relations in another dimension like race; examining whether inequalities differ according to the interaction of multiple factors; surveying the history of research to investigate whether marginalized groups have been excluded from knowledge production; or pointing out the ways in which a policy proposal might affect, or be affected by, power relationships beyond those it is specifically targeted at.

There is much to intersectionality that is not summarized by these premises, however. The premises do not resolve any of the conflicts listed at the beginning of this section. There are also many concepts detailed by Collins (2019)—including relationality, power, social inequality, social context, complexity, and social justice—that recur across intersectional scholarship, but do not appear in all such work and are

sometimes defined quite differently. And of course, many other authors present alternative visions of what it means to do 'intersectional' work across different fields and methodologies (Bauer et al. 2021; Bowleg 2008; Bowleg and Bauer 2016; Carastathis 2014; Carbado 2013; Cho et al. 2013; Choo and Ferree 2010; Cole 2009; Else-Quest and Hyde 2016a, 2016b, 2016b; Hancock 2007, 2013, 2016; McCall 2005; Nash 2008; Yuval-Davis 2006).

I argue that at present, intersectionality scholarship is epistemically and methodologically pluralistic rather than defined by a specific set of topics, methods, analytical tools, or goals. As Collins (2019) argues, self-identified intersectionality scholars across this wide ecosystem tend to approach their work using similar premises and concepts, while adapting and synthesizing them with the subject matter and methodologies of their own fields.

This spread of intersectional concepts across academic disciplines is hardly without criticism (e.g. Bowleg 2008; Carastathis 2014; Carbado 2013; Cho et al. 2013; Choo and Ferree 2010; Hancock 2007, 2013, 2016; McCall 2005; Nash 2008; Yuval-Davis 2006), much of it offered by Collins herself, (e.g. Collins 2015, 2019; Collins and Bilge 2016). Many authors express concern that as intersectionality's ideas spread to new disciplines, intersectionality may lose its intellectual history and aims, or may be misapplied through the use of inappropriate methodologies. Intersectionality may not have a single, restricted set of concepts or methods, but it does still have a distinct intellectual history and set of concerns. Research varies in the ways that it engages with those concerns and adapts them to different areas of study including the primary focus of this dissertation, the study of stereotypes.

In this project, I adapt intersectionality concepts to the context of quantitative research on stereotypes. Recognizing the particulars of my own circumstances (or 'positionality') is critical to understanding why this project takes the form that it does, and why I take the approach to intersectionality that I do. As a quantitatively-oriented sociologist specializing in social psychology, adapting intersectionality involves more 'importing' concepts into my field of study than 'exporting' concepts to another field. Typically, when researchers import intersectionality into their own research, they have done so in a cursory way with little attention paid to the ways that intersectionality may require novel methodological approaches (Bauer et al. 2021). This is often the case in social psychology, where training rarely requires extensive engagement with intersectionality and related scholarship.

I aimed to incorporate intersectionality more deeply into this project than these more typical surface-level approaches. I therefore studied the literatures on intersectionality theory, quantitative methods for intersectional research, and explored the various ways that other researchers in my specialty and related specialties have pursued intersectional questions through quantitative methods. This examination revealed three core approaches to intersectionality in stereotype research, each with its own strengths and weaknesses. I then developed my own methodological approach with an eye toward resolving recurring methodological and conceptual drawbacks that are pervasive throughout research on stereotypes.

1.3 Intersectionality and Approaches to Stereotypes

Next, I review three major ways that stereotype research has (or has not) engaged with intersectionality. The critical issue in this comparison is not whether each approach does

justice to intersectionality's intellectual heritage, but to review the characteristic methods, questions, and insights of each approach, as well as the shortcomings that each approach exposes in the others. In addition to describing different schools of thought regarding intersectional stereotypes, these approaches also mirror broader divisions within intersectional scholarship on how to address the concept of social categories in general.

1.3.1 The Categorical Approach

Since Allport's (1979 [1954]) early work on prejudice, researchers have typically thought of stereotypes as beliefs about a social category defined by a single essentialized trait, e.g. gender or race. This is in part because categorization is a key cognitive heuristic used by the brain to organize and simplify thought and perception. When confronted with a variety of stimuli like individuals, for example, research participants tend to sort them into categories based on a single shared characteristic like their gender or age (Brewer and Lui 1989). The pervasiveness, ease, and rapidity of categorization has led many researchers to argue that when people evaluate each other, it is often on the basis on a single social category (e.g. Petsko, Rosette, and Bodenhausen 2022). That is, a Black woman might be categorized by others primarily by her race or her gender, and that categorization would then dominate what beliefs or assumptions guide how others act towards her.

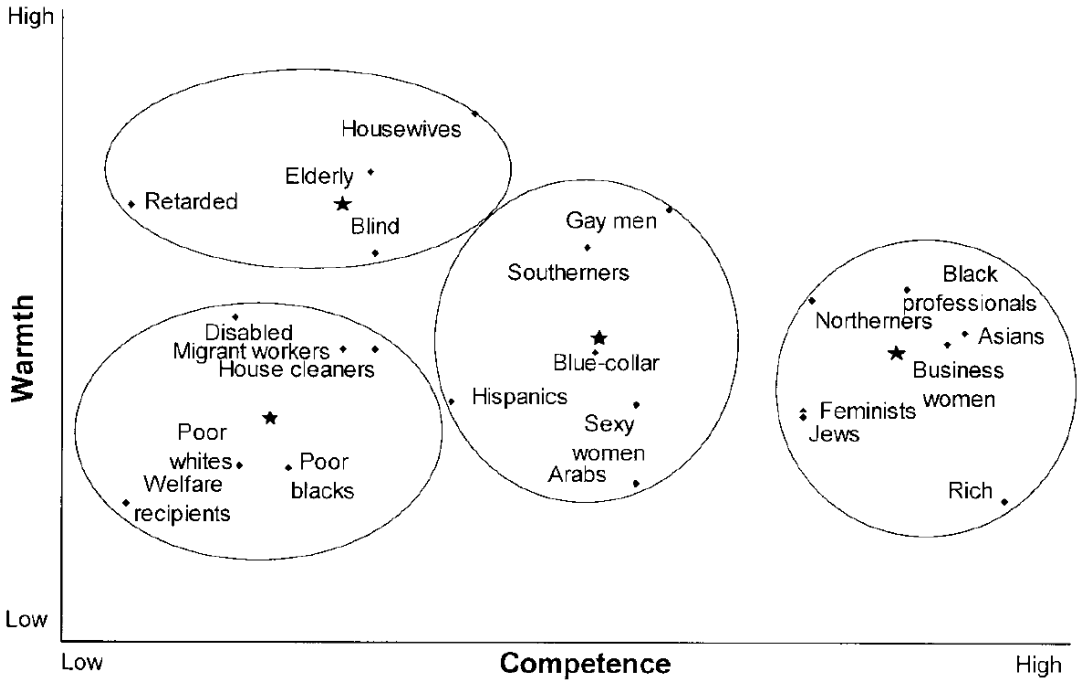


Figure 1.1—Categorical warmth and competence stereotypes from Fiske et al. (2002), Study 1.

As explained in the next chapter, I label this the Categorical Approach—the argument that stereotypes are organized around single-trait categories, and that when people are stereotyped, it is primarily on the basis of one of these categories at a time. The influence of this perspective is apparent in Figure 1.1, which shows stereotypes of warmth and competence of different groups from Fiske et al's (2002) foundational study of stereotype content. Most of the groups shown are defined by a single social category, with only a few defined by two (e.g. poor Whites). Stereotype research, as well as research in closely related areas like status, continues to mainly define stereotypes by reference to single-characteristic social categories.

Some researchers interested in intersectional perspectives apply the Categorical Approach to intersectional questions. For example, one area of research frames

intersectionality as posing a forced choice dilemma (e.g. Petsko et al. 2022): if individuals primarily evaluate others through a single categorical lens at a time, and multiple such lenses are available, then why are some lenses activated while others are not? Here, the importance of multiple social categories for social cognition is accepted, but so too is the assumption that cognition and behavior is usually the result of a single categorical lens which, once applied, comes to dominate perception. As a result, these kinds of categorical approaches avoid questions of how multiple categorical systems, like categorical stereotypes, may combine. Instead, the key questions of research revolve around which categorical system dominates perceptions in any given situation to the exclusion of others.

However, intersectional perspectives are typically opposed to the Categorical Approach, whether it is applied to stereotypes or any other social phenomenon (Bauer et al 2021; Bowleg 2008; Bowleg and Bauer 2016; Carbado 2013; Cho et al. 2013; Choo and Ferree 2010; Collins 2019; Collins and Bilge 2016; Else-Quest and Hyde 2016a; Hancock 2016; McCall 2005; Monk 2022; Nash 2008; Ridgeway and Kritcheli-Katz 2013; Williams and Frederick 2015; Yuval-Davis 2006). Since the 1970s, intersectionality scholars have argued that a categorical focus tends to privilege otherwise dominant members of marginalized groups (e.g. men within Black civil rights organizations, or whites within feminist organizations) and create an over-simplified picture of phenomena that actually involve many different categorical systems and their interactions. This viewpoint is most often expressed through the Deconstructionist Approach.

1.3.2 The Deconstructionist Approach

The most direct opposition to the Categorical Approach comes from what may be termed the Deconstructionist Approach. This view is most strongly aligned with the first of Collins' (2019) premises, that systems of power are interdependent and mutually constructed. Scholars arguing from this point of view generally make the point that the social categories people use—whether in activism, law, or research on stereotypes—are socially constructed, with fuzzy boundaries and conceptual and historical relationships with other social categories (Bowleg 2008; Cho et al. 2013; Choo and Ferree 2010; Collins 2019; Hancock 2013, 2016; McCall 2005; Monk 2022). As noted in a previous section, much work has shown that race and class categories are heavily interrelated, with people more likely to categorize racially ambiguous others as Black when they are also seen as poor, and more likely to imagine Black faces when prompted to imagine welfare recipients (Brown-Iannuzi et al. 2015, 2017; Penner and Saperstein 2013). Other work shows that gender and race are conceptually related: relative to Whites, Blacks are seen as more masculine and Asians as more feminine. These perceptions then affect, for example, patterns of discrimination and interracial relationships (Di Stasio and Larsen 2020; Galinsky, Hall, and Cuddy 2013; Hall et al. 2015). In this view, even research that focuses on a single categorical lens of social perception still neglects the ways that a single social category entails beliefs or assumptions that originate with other social categories.

While some quantitative studies, like those cited above, have examined deconstructionist questions, typically qualitative methods are a more natural fit for deconstructionist approaches to intersectionality (Bauer et al 2021). These methods allow

researchers to closely examine how different axes of inequality, like gender and class, are experienced by people in their daily lives. This research often reveals that though researchers might be able to conceptually or statistically separate different axes of inequality, individuals experience them simultaneously and without the ability to separate out their distinct influences (Bowleg 2008). Further, qualitative research is more able than quantitative research to elicit specific circumstances and situations in which participants feel multiple aspects of their identities place them in distinctive binds which they are unlikely to attribute to just one form of oppression.

1.3.3 The Complementarian Approach

A different reaction to the Categorical Approach accepts the boundaries of social categories, at least pragmatically, in order to study how multiple social categories jointly affect outcomes (Cole 2009; McCall 2005; Else-Quest and Hyde 2016a, 2016b; Hancock 2013). Here the question is not which categories become the singular lens that determines how people are seen, or the conceptual or historical connections between different social categories, but how the multiple social categories simultaneously influence perceptions or outcomes. This typically requires accepting categorical schemes as a pragmatic matter (McCall 2005). The researcher accepts that categories like racial groups do not correspond to something 'objective' but recognizes that they are currently important for making quantitative research possible. Quantitative research that does not use conventional racial classifications is possible but is typically more complex than research in which it is used (McCall 2005; Monk 2022).

In quantitative research, the Complementarian Approach is typically accomplished through statistical analysis of main and interaction effects of social

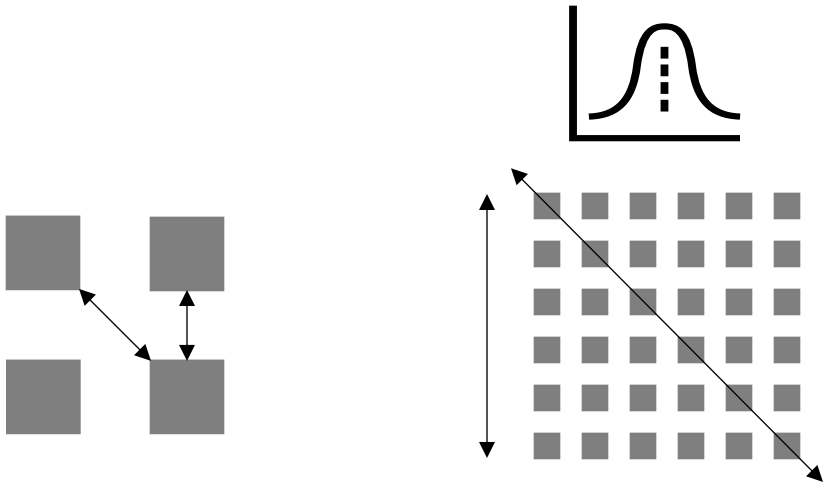
categories (Bauer et al. 2021; Bowleg 2008; Cole 2009; Else-Quest and Hyde 2016b, 2016b; McCall 2005; Hancock 2013, 2016), e.g. testing for whether labor market outcomes vary based on gender, race, and their statistical interactions (Browne and Misra 2003; Doren and Lin 2019; Pedulla 2018). However, the Complementarian Approach poses unique challenges in quantitative research. Categorical and Deconstructionist-oriented studies are often able to focus on 'small-N' analyses using relatively small-factorial designs because they tend to focus on specific categorical boundaries. While the Complementarian Approach also often involves studies that focus narrowly on key interactions (like the differences in outcomes between Black women vs White women or Black men), the approach implies that researchers ought to also pursue more 'large-N' research: studies involving larger sets of possible interactions involving a greater number of distinct social categories. However, such analyses are difficult to accomplish and interpret effectively (Bauer et al. 2021; McCall 2005). Most population datasets do not provide adequate samples of smaller social categories, like Asians, to allow subgroup analysis; the number of individual interaction terms grows exponentially—and results become less reliable—the more distinct categories are interacted with each other; higher-order interactions become more difficult to present and interpret. Difficulties like these mean that 'large-N' intersectional analyses remain relatively rare.[1]

1.4 Intersectionality in This Project

I apply a quantitative, Complementarian Approach to stereotypes in this project. I begin from the premise that people are stereotyped on the basis of multiple, simultaneously

[1] Some recent methods, such as MAIHDA (Evans et al 2018; Merlo 2018), apply multi-level modeling approaches to population datasets. Nevertheless, these analyses are typically not 'large-N' in the sense that I use here, as meaning a large number (many dozens or hundreds) of intersectional strata.

salient social categories. From there, I develop a 'large-N' methodology for measuring and analyzing intersectional stereotypes across a large number of categorical intersections (or 'intersectional strata'; Evans et al. 2018; Merlo 2018) of up to five intersecting social categories (five categories and 360 intersectional strata in Chapter 3, and four categories and 96 intersectional strata in Chapter 4).



Small-N

- 2-3 intersecting categories
- Usually <12 intersectional 'strata'
- Small factorial designs
- Intersectional strata as conditions
- Main and interaction effects
- Pairwise contrasts

Large-N

- 3+ intersecting categories
- Dozens / hundreds of intersectional 'strata'
- Large factorial designs
- Intersectional strata as a population, distribution, or higher level of analysis
- Intersectional variation
- Random effects across intersections
- Main and interaction effects

Figure 1.2—Differences between 'small-N' and 'large-N' intersectional research designs.

As shown in Figure 1.2, this 'large-N' methodology provides several benefits over more typical 'small-N' research designs. The latter are typically limited to 2-3 intersecting categories with less than a dozen distinct intersectional strata (individual combinations of distinct states of separate social categories; Evans et al. 2018; Merlo 2018). The researcher can analyze these data by testing for main and interaction effects of the social categories involved, or by directly contrasting means of specific strata.

In a large-N approach to intersectional research, on the other hand, the researcher examines three or more separate intersecting social categories. This increases the number of individual intersectional strata exponentially. For example, in Chapter 3 I study a set of 360 intersectional strata defined by two Gender, three Sexuality, three Age, four Race/Ethnicity, and five Social Class categories[2] (2 x 3 x 3 x 4 x 5 = 360). This number of intersectional strata would usually be considered a complication for intersectional research because of the impracticality and complexity it creates, but in large-N research like this project, the number of strata becomes a benefit. When the number of intersectional strata is large, it becomes possible to treat them not as a large number of individual conditions to be directly compared, but as a distribution or population. It is possible to quantify higher-order characteristics of this population or distribution of intersectional stereotypes (see Evans et al. 2018 and Merlo 2018 for a similar approach to non-experimental data).

One useful tool is decomposition of variance: partitioning variation in a variable into components attributable to the main effects of important social categories (e.g.

[2] In this project, I capitalize categories when I refer to the categories as defined, manipulated, or measured in the experiments or secondary data, and do not capitalize them when discussing the categories more generally.

Gender or Race) and other components attributable to those categories' interactions. Multilevel models (Gelman and Hill 2007, Snijders and Bosker 2012) are also useful because they allow the researcher to not only estimate the average effect of a social category like Gender on a dependent variable, but can also estimate how much that effect varies across a large number of groups, e.g. a large number of intersectionally-defined groups or strata. Analyses like these provide greater structure for Complementary approaches than difficult to interpret lists of interaction effects, and provide intermediate tests for specific kinds of variation that help forestall the possibility of merely capitalizing on chance interactions. Similar strategies have been developed in health research (Evans et al. 2018; Merlo 2018) using non-experimental data, though the usefulness of these methods has been questioned in population data (Bell, Holman, and Jones 2019; Lizotte et al. 2020). Thus, methods like variance decomposition may be better suited to experiments, where issues like sample size and omitted variables can be controlled methodologically.

As detailed in the next chapter, I pursue large-N analysis of intersectional stereotypes by using blocked factorial survey experiments, a type of experimental design that is ideally suited to obtaining respondent ratings of hundreds, or even thousands, of distinct vignettes defined by large numbers of intersecting experimental categories. This method, and the large-N intersectional analyses it allows, improves Complementarian approaches to stereotypes by allowing better operationalization of each of Collins' (2019) four guiding premises in quantitative methods. It allows better examinations of (1) the ways that seemingly different categorical systems depend on and influence each other , (2) how they jointly generate inequalities and (3) affect how individuals are perceived

and treated by others, and (4) allows researchers to examine specific problems like racial bias while acknowledging and integrating intersectional complexity in both the problem and potential solutions.

1.5 Outline of the Dissertation

The rest of the dissertation is organized into three chapters. Chapters 2 and 3 are written as self-contained research articles, and as a consequence are organized slightly differently, use slightly different terminology, and some sections, e.g. Future Directions, may be somewhat redundant with the final chapter.

Chapter 2

The goal of Chapter 2 is to introduce the concept of intersectional stereotypes as well as the methods and statistical techniques I use to analyze them. I introduce the Stereotype Content Model (SCM) and its theoretical definitions of warmth and competence stereotypes (as well related theoretical literatures) and explain why stereotypes should depend on multiple simultaneous social categories rather than just one. I define the idea of intersectional complexity in the context of quantitative research, and outline several hypotheses for ways in which intersectional stereotypes might be 'complex'.

In the Methods section, I detail the blocked factorial survey experiment I use to gather intersectional stereotypes of warmth and competence across 360 intersectional 'strata', or unique combinations, of Gender, Sexuality, Age, Race/Ethnicity, and Social Class (Table 1.3). In this method, survey respondents read short profiles (in random order) describing a person by several social category memberships, then provide ratings of how they think that person would be stereotyped.

I then analyze the extent of intersectional complexity through three sections. First, I decompose the between-strata variation in warmth and competence stereotypes into variation attributable to the main effects of the five social categories and their interaction effects. Second, I test for 'muted' or 'amplified' congruence (Pedulla 2018); that is, whether the marginal effect of an additional marginalized category membership increases or decreases with the overall level of marginalization. Third, I use random slopes models to measure the degree to which categories' positive or negative stereotypes vary across their intersections with other social categories. In a final section, I demonstrate the utility of intersectional stereotypes by testing for multiple standards for social rank; that is, whether the correlation between competence stereotypes and expected status and power is lower for profiles of people with more marginalized social category memberships. The General Discussion section then reviews the key results from Chapter 2 and their implications.

Table 1.1—Experimental categories and levels for both Chapters 2 and 3.

	Chapter 2		Chapter 3	
	#	Levels	#	Levels
Gender	2	Man, woman	2	Man, woman
Sexuality	3	Straight, bisexual, gay/lesbian	2	Straight, gay/lesbian
Age	3	Young, middle-aged, older	6	16-25, 26-35, 36-45, 46-55, 56-65, 66-75
Race/Ethnicity	4	White, Black, Hispanic, Asian	4	White, Black, Hispanic, Asian
Social Class	5	Lower, lower middle, middle, upper middle, upper		
Total # of Strata	360		96	

Chapter 3

The main goal of Chapter 3 is to integrate and extend several major theories of stereotype content to intersectional stereotypes. These theories provide four major factors that

predict warmth and competence stereotypes for social categories, and I argue that their predictions should generalize to intersectional stereotypes. That is, the same social structural factors and individual perceptions that predict warmth and competence stereotypes of entire social categories should also predict the stereotypes of intersectionally-defined individuals. A second goal of the chapter is to argue for the 'intersectional aggregation hypothesis', the claim that stereotypes of whole social categories are averages of the intersectional stereotypes applied to intersectionally-complex individuals within that broad category.

The Introduction outlines the Stereotype Content Model (Fiske 2018; Fiske et al. 2002), Social Role Theory (Eagly and Steffen 1984; Koenig and Eagly 2014, 2019), and Status Construction Theory (Ridgeway 1991, 2018), and outlines the key factors that these theories assert predict stereotypes: social categories' socioeconomic status, social roles (i.e. occupational agency and communion), and competition. I explain how these factors relate to each other as well as social structure, and explain how I integrate and translate them to the context of intersectional stereotypes. Finally, I outline the intersectional aggregation hypothesis.

The Method section then details the blocked factorial survey experiment I used in Chapter 3. The experimental design component of Chapter 3 is very similar to that used in Chapter 2. The primary differences are in the number of categories and the levels in the experimental design (Table 1.3) and the additional variables measuring participants perceptions, e.g. of profiles' SES. In addition to the survey experiment, Chapter 3 uses secondary data, drawn from the American Community Survey and Department of Labor (Ruggles et al. 2021; O*NET 2020), to estimate population average characteristics of

actual individuals in each of the 96 intersectional strata defined in Chapter 3. These characteristics include mean income and college completion rate as well as occupational agency and communion. Finally, I review measures of overall intersectional complexity, as developed in Chapter 2.

The next two sections of Chapter 3 test whether the integrated theoretical model predicts intersectional stereotypes. First, I test a key assumption of the model, that participants perceive the people in the intersectional profiles as having socioeconomic characteristics (e.g. income) that correlate with the socioeconomic characteristics of people who actually have that intersectional identity, as measured in the ACS. Then, I test whether those perceptions of intersectional profiles' socioeconomic (and other) characteristics then predict intersectional stereotypes. The final analysis section then tests the intersectional aggregation hypothesis by weighting data from the survey experiment according to the demographic size of each intersectional stratum in the ACS and comparing category-level weighted averages against the categorical stereotypes found in prior research. The General discussion section then reiterates the key findings of Chapter 3 and explores implications.

Conclusion

In the Conclusion section, I first review the major findings of Chapters 2 and 3 and what they mean for the study of stereotypes and the applications of the concept in sociology and policy more broadly. In addition, I compare the two chapters and identify common findings and ways in which differences across the studies generate further insights about, for example, the roles of race and social class in intersectional stereotypes. Finally, I

outline plans for future research using the data from Chapters 2 and 3, as well as research beyond them.

Chapter 2: Measuring and Analyzing Intersectional Complexity in Stereotypes

2.1 Introduction

People use stereotypes to organize and understand the social world around them. As 'common sense' understandings of what 'most people' believe about social groups (Fiske et al. 2002; Fiske 2018; Ridgeway 2019), stereotypes allow individuals to rapidly form beliefs and expectations (whether correctly or incorrectly) about others and anticipate the decisions and behaviors others will accept as legitimate (Ridgeway 2019). The content of stereotypes thus has major consequences for a range of fundamental sociological processes, including the social status people are granted (Berger and Webster 2018; Ridgeway 2018, 2019; Webster and Walker 2022), hiring and promotion (Di Stasio and Larsen 2020; Pedulla 2014; Quadlin 2018; Quillian et al. 2017; Rosçigno 2007), and who is singled out for reward and punishment (Rosçigno 2007).

But most social science tends to study just one 'axis of difference' (e.g. gender, race, sexuality) at a time (Collins 2019; McCall 2005; Ridgeway and Kritcheli-Katz 2013; Williams and Fredrick 2015). Some work expands that focus to two or three axes, e.g. by testing for interaction effects, but often those additional axes are included for purposes of statistical control rather than substantive analysis of how they jointly affect outcomes (Bauer et al. 2021; Else-Quest and Hyde 2016b; Hancock 2013; McCall 2005).

Yet all people are many things at once: a person cannot be Black without a gender identity, or young without a social class background. This point is more often taken up by qualitative research, which is well suited to examining how individuals experience their multiple identities (Bowleg 2008; Hancock 2013). Quantitative research currently has few methodological frameworks for studying multiple categorization beyond a handful of categorical intersections at a time. For social science to speak to the impacts of stereotypes on actual people—as opposed to hypothetical people defined by just one category—as well as the relationship of those stereotypes to macro structures, we need to develop better quantitative methodologies to complement well-developed qualitative methods (Hancock 2013; McCall 2005; Ridgeway and Kritcheli-Katz 2013).

This study develops such methods to test the proposition, inspired by extensive work from the intersectionality literature (e.g. Collins 2009, 2019; Crenshaw 1989; McCall 2005; Monk 2022), that stereotype content varies in quantitatively complex ways (defined below) when people are multiply categorized by Gender, Sexuality, Age, Race/Ethnicity, and Social Class. Complexity is juxtaposed with the categorical framework in which stereotypes are assumed, often implicitly, to combine together like independent variables in regression (Pedulla 2018). Since 'complexity' in this sense is a property of intersectional stereotypes in general rather than individual intersectional stereotypes, this study focuses on evaluating the degree of complexity of a whole set of intersectional stereotypes. Results point to ways in which the categorical approach fails to characterize intersectional stereotypes.

These findings have implications for how we understand the social psychological processes that emerge from and reinforce inequality. Much work posits that phenomena

like discrimination, health inequalities, and occupational segregation are influenced by prejudice and bias, e.g. anti-Black or anti-LGBTQ biases. But if these biases are intersectionally complex, then their effects on such phenomena may be equally complex and not captured by investigations into main or categorical biases. Researchers may therefore need to develop ways of measuring intersectional biases and harms (Grollman 2014; Williams and Frederick 2015).

The next sections review the categorical approach to stereotype content and how categorical stereotypes are used to explain social processes. I then make the case for why we should expect stereotypes to be complex.

2.1.1 Categorical Stereotypes[3]

The richness of the social world forces people to process a huge amount of information, much of it incomplete, ambiguous, biased, and uncertain. People cannot easily identify each other's socially relevant characteristics, like their abilities, status, and intentions, without an extensive interaction history. Yet even with strangers, people must decide who to associate with and whose views and motives to attend to (Berger and Webster 2018; Fiske 2018; Ridgeway 2019; Webster and Walker 2022).

Social categorization helps reconcile the need for useful information with its scarcity. People create categories to describe whole groups who might share as little as an artistic preference or as much as a nationality or religious practice (Ridgeway 2018, 2019). They then generalize characteristics to the whole group based on their social roles,

[3] I use 'social category' in this project rather than 'identity' because of stereotypes' focus on perceivers rather than identity as experienced by those perceived. However, in some places I used the term 'identity' when discussing perspectives and theories that discuss social perceptions in terms of identity more than category.

resources, intergroup competitiveness, and experience in cross-category interactions (Koenig and Eagly 2014; Fiske et al. 2002; Fiske 2018; Ridgeway 2018, 2019). Categorization is pervasive, rapid, and sensitive to trivial or irrelevant information (Freeman and Ambady 2011; Penner and Saperstein 2013). People can rapidly and (at least somewhat) accurately categorize others on even relatively subtle or concealable characteristics like sexuality (Rule and Ambady 2008; Rule, Ambady, and Hallett 2009) and social class (Kraus, Park, and Tan 2017). Since social categories matter for who is assigned lower status or excluded from social goods, the boundaries between categories are the subject of socio-political projects to define and justify social categories in ways that increase or decrease categorical inequalities (Omi and Winant 2015; Tomaskovic-Devey and Avent-Holt 2019).

2.1.2 Stereotype Content Dimensions

Stereotype content has two fundamental dimensions: warmth and competence[4] (Abele et al. 2016; Fiske et al. 2002; Fiske 2018). These are universal and general dimensions of person perception rather than specific to some social categories. Thus, they are useful for comparing stereotypes across categories. These dimensions have informed a wide range of sociological work, such as studies on discrimination (Pedulla 2014; Quadlin 2018) and status (Ridgeway 2019).

Warmth is the perception of a group or category as moral, friendly, open, and cooperative (Fiske 2018). People tend to accommodate or facilitate the interests of stereotypically warm groups, but oppose and harm groups they view as colder (Fiske

[4] Social categories have more specific stereotypes about characteristics or roles that are not necessarily detectable using this generalized model of stereotype content, e.g. stereotypes of cleanliness. Such specific content seems likely to display complex variation but falls outside the scope of this research.

2018). One example is discrimination: employers often condition hiring on perceptions that a person is friendly and a 'team player,' especially when applicants are from marginalized groups (Pedulla 2014; Quadlin 2018).

Competence is the perception of a group as capable, intelligent, assertive, and driven. It summarizes the perception that others can successfully and effectively pursue goals, for good or ill. People allocate more status—deference, honor, and respect—to groups and individuals seen as more competent (Berger and Webster 2018; Ridgeway 2019; Webster and Walker 2022). In group interactions, seemingly competent people are granted more influence over group decisions and opportunities to have their voices heard, and receive a greater share of group rewards. Those seen as less competent are expected to take more complementary, deferential, and supporting roles, and tend to receive smaller shares of group rewards.

When personally-held beliefs contradict socially-shared assumptions like stereotypes, stereotypes often still influence behavior because of normative pressure to behave in ways that will make sense to others (Correll et al. 2017; Ridgeway and Nakagawa 2017). Individuals attempt to navigate between personally held beliefs and the social expectations of self and others created by stereotypes. Ultimately, stereotypes often impact behaviors even when individuals do not personally endorse them.

Warmth and competence parallel similar constructs in other theories. Status Characteristics Theory posits that status is a function of Generalized Performance Expectations, which resemble competence stereotypes (Berger and Webster 2018; Ridgeway 2019). Social Role Theory defines stereotypes in terms of Agency and Communion, which resemble competence (especially confidence and assertiveness) and

warmth respectively (Koenig and Eagly 2014, 2019). And Affect Control Theory defines the affective meanings of identities in terms of Evaluation, Potency, and Activity (Robinson and Smith-Lovin 2018). Evaluation and Potency resemble warmth and competence, respectively (Rogers, Schröder, and Scholl 2013), though Evaluation also tends to capture aspects of competence as well (Kervyn, Fiske, and Yzerbyt 2013). Thus, understanding intersectional stereotypes of warmth and competence has implications for a range of theoretical research programs in sociology and other social sciences.

2.1.3 Intersectionality and Multiple Categorization

While people often focus on one social category to the exclusion of others (Petsko et al. 2022), many more characteristics can be salient at once in face-to-face interaction, from gender, age, and race/ethnicity to more granular characteristics like hobbies or fandoms (Berger and Webster 2018; Kang and Bodenhausen 2015; Monk 2022; Ridgeway and Kritcheli-Katz 2013; Webster and Walker 2022). Intersectional frameworks (Crenshaw 1989; Collins 2009 [2000], 2019) argue that these multiple identities should not be isolated from each other in theory, methodology, or interpretation. Rather, they should be conceptualized and studied together to better understand social phenomena from the labor market (Browne and Misra 2003) to health (Evans et al. 2018; Merlo 2018) and stigma (Williams and Frederick 2015). From this perspective, the harms and benefits associated with social categories may depend on the other category memberships one possesses (e.g. gender as well as race), the categorical lines one blurs (e.g. multiracial or transgender status) (Kang and Bodenhausen 2015; Monk 2022), and the unique constraints imposed by multiple overlapping categorical marginalizations (Crenshaw 1989; Ridgeway and Kritcheli-Katz 2013). The different axes of oppression, including racism, heterosexism,

and classism, form a “matrix of domination” which cannot be observed through a single categorical lens alone (Collins 2019; Ridgeway and Kritcheli-Katz 2013; Williams and Frederick 2015).

For example, work on ‘multiple jeopardy’ (King 1988) finds that women of color are less likely to succeed in discrimination claims based on both gender and race than claims implicating only one of those prejudices (Crenshaw 1989; Rosçigno 2007). But importantly, some research has found cases where possessing multiple stigmatized category memberships is associated with reduced disadvantage on particular outcomes, such as Pedulla’s (2014) finding that gay Black men are sometimes preferred for hiring because the stereotypes of gay men as effeminate counteract negative stereotypes of Black men’s hypermasculinity. This occurred despite evidence of hiring discrimination against Blackness and LGBTQ individuals separately (Quillian et al. 2017; Tilcsik 2011). These cases illustrate how little we understand about how stereotypes actually affect multiply-categorized individuals, and suggest that researchers should not necessarily assume that multiple intersecting stigmas always lead to worse outcomes.

Quantitative research rarely directly incorporates intersectionality, partly because of methodological difficulties (Bowleg 2008; Else-Quest and Hyde 2016b; Hancock 2013; Hunt et al. 2014; McCall 2005), and partly because of epistemic differences (Bowleg 2008; Else-Quest and Hyde 2016a; Hancock 2013; McCall 2005). Nevertheless, intersectional theory yields important insights that should be taken seriously even–perhaps especially–by those outside intersectionality’s home communities, methods, and epistemologies.

2.1.4 Categories vs Prototypes[5]

The salience of one social category, like sexuality, can lead to evaluations based primarily on that category while swamping the influence of other present categories (Petsko et al. 2022). But person perception typically incorporates additional information, including things that seem irrelevant (Freeman and Ambady 2011; Kang and Bodenhausen 2015). For example, people are more likely to be categorized as Black when they are perceived as having lower SES (Penner and Saperstein 2013). People also use 'prototypes:' detailed, ideal-typical images of persons possessing attributes beyond their gender, race, or other single category membership (Kang and Bodenhausen 2015; Lei, Leshin, and Rhodes 2020; Stangor et al. 1992). Prototypes (or 'controlling images,' in Collins' terms) can embody cultural narratives about different 'types' of group members, especially those who uphold social expectations vs 'deviants' who violate them (Collins 2009 [2000]). However, the existence of numerous prototypes within social categories makes them internally heterogeneous. In turn, the content of categorical stereotypes may vary depending on which prototypes one uses to interpret that category. Further, prototypes might have a greater impact on social evaluations when people are defined more intersectionally (e.g. intersecting gender, race, and age categories). That is, a person relies more on prototypes when evaluating a person described as older, wealthy, White, and male than when evaluating person described only as being older.

[5] Intersectional prototypes could be considered simply another kind of social category, just more narrowly defined. In this project, I use 'category' or 'categorical' to refer to membership in only one social category like gender or race. I use other terms like 'prototype' to refer to more intersectionally-constructed categories.

2.1.5 Intersectionality and the Structural Causes of Stereotypes

Another reason to expect intersectional complexity in stereotype content is that the causes of stereotypes themselves exhibit such complexity. Sociological and social psychological theories identify three main structural causes of stereotype content: economic resources, intergroup competition, and social roles.

2.1.5.1 Economic Resources

Competence stereotypes tend to reflect groups' economic resources (Fiske et al. 2002). People take economic resources as a direct indication of ability, but those resources can also provide skills, tools, and social capital that make individuals more capable and useful in group tasks, which is then misattributed to group membership itself (Ridgeway 2018).

Economic inequalities are at least partly intersectional in nature (Browne and Misra 2003). For example, the gender wage gap is larger for White workers and smaller for minority racial groups (Browne and Misra 2003; Greenman and Xie 2008). Women are also under-represented among the elite (Yavorsky et al. 2019). Gay/lesbian status is associated with lower incomes for men, but higher for women (Peplau and Fingerhut 2004), likely because of how sexuality affects perceptions related to parenthood, and the ways in which masculinity (which lesbian women are seen as being higher in than gay men) is rewarded more highly than femininity (which gay men are seen as higher in than lesbian women). Relatedly, Mize (2016) found that bisexuals have lower incomes than gay men or lesbian women.

There is also intersectional variation in inequalities over the life course. The gender wage gap expands more over the life course for Whites and the more highly

educated than for Blacks and less educated groups (Doren and Lin 2019). Black workers are more likely to experience downward occupational mobility as they age than equivalent White workers (Wilson and Rosçigno 2018). Since competence stereotypes derive in large part from economic inequality (Fiske et al. 2002; Ridgeway 1991), intersectional complexities in those inequalities imply that competence stereotypes may also exhibit intersectional characteristics.

2.1.5.2 Intergroup Competition and Threat

Warmth stereotypes are related to perceptions of threat and competition between social groups. The more a group is seen as an economic, political, or cultural threat to dominant groups and the status quo social hierarchy, the more the members of that group are stereotyped as cold and untrustworthy and, sometimes, crime-prone (Fiske et al. 2002; Fiske 2018).

However, perceptions of competition and threat also vary based on multiple categories at once. Here, work on discrimination and prejudice is useful because they tend to be directed at groups based on their perceived threat to dominant groups (Bobo 1999; Rosçigno 2007). Audit experiments show evidence of intersectional advantage and disadvantage, such as fewer callbacks for minority men vs minority women when applicant gender and job gendering do not match (Di Stasio and Larsen 2020; Pedulla 2014).

Another example is mass incarceration: the most heavily policed and punished individuals tend to not only be people of color, but also tend to be male, younger, and of lower SES. Thus, not only race, but gender, age, and class are part of the structure of mass incarceration (Western 2007). Intersectional scholarship has long recognized the

role that multiple, overlapping systems of oppression play in structuring victimization, punishment, and who has the power to seek justice (Crenshaw 1989).

2.1.5.3 Social Roles

Stereotypes also come from the distribution of social roles, like occupations, across social categories (Koenig and Eagly 2014). For example, women are stereotyped as warm and caring and men as cool and agentic in part because they tend to occupy, respectively, more stereotypically caring occupations (e.g. nursing) or more achievement-oriented occupations (e.g. upper management).

But occupational segregation has intersectional as well as categorical aspects. Occupational gender segregation is more severe among many people of color (Alonso-Villar, del Rio, and Gradin 2012), and Black women are less represented in management than either Black men or White women (Browne and Misra 2003; Stainback and Tomaskovic-Devey 2012). Even sexuality matters for occupations, with gay men and lesbian women tending to cluster more heavily in occupations associated with social perceptiveness and task independence, like psychologists and technical writers (Tilcsik, Anteby, and Knight 2015). Intersectional variation in the distribution of social roles should lead to similarly complex patterns of intersectional stereotypes.

2.1.6 Operationalizing Intersectional Complexity

From a quantitative viewpoint, categorical stereotypes might intersect in two broad ways.[6] In additivity, the influences of two or more categories add to, or subtract from,

[6] Other work points out that social identities can intersect with each other by virtue of someone blurring or crossing boundaries between seemingly different categories, like transgender or racially ambiguous (Kang and Bodenhausen 2015; Penner and Saperstein 2013) individuals. Such work points out that categorical boundaries are often more porous or indeterminate than they seem. This study

one another to create different outcomes (Else-Quest and Hyde 2016b; Evans et al. 2018; Merlo 2018). Additive perspectives stress the importance of including multiple categories in analysis and showing how they add to each other to worsen or alleviate harms. However, additivity is analogous to standard statistical methods in which variables' effects are estimated independent of other variables and added to each other in a linear fashion, as in OLS regression. It thus typically implies that even if multiple factors matter at the same time, different category memberships and their effects can be conceptually as well as statistically isolated from each other and discussed independently (Bowleg and Bauer 2016).

Instead, quantitative scholars often operationalize intersectional complexity in multiplicative terms (Bauer et al. 2021; Else-Quest and Hyde 2016b; McCall 2005; Pedulla 2018). Here the effect associated with one category depends on the state of at least one other. For example, labor market gender inequalities vary across race-category (Browne and Misra 2003; Stainback and Tomaskovic-Devey 2012) and hiring biases against Black people and gay men may be reversed when applicants are both Black and gay (Pedulla 2014). Analyses that isolate categories from others can be misleading because they miss the ways that different categories change each others' meanings and jointly influence experiences (e.g. Collins 2019; Hancock 2013). Importantly, 'complexity' in this sense is a property of a *system* of intersecting categories, not individual intersectional stereotypes.

takes those categorical boundaries as a given because stereotypes are most likely to apply to people when they are clearly categorized by the perceiver.

Therefore, in this study 'complex' refers to the effects and variation related to the interaction of multiple variables, such as membership in multiple social categories. I use this definition to form this study's first hypothesis.

Hypothesis 1 (Stereotype Complexity): *A large portion of variation in warmth and competence stereotypes will be complex. That is, a large portion of their variance will be associated with interaction effects between social categories, or uniquely associated with particular combinations of social categories.*

As described later in the analysis, I define 'large' vs 'small' amounts of intersectional variation relative to the size of categories' main effects. Analysis may show that interactions between categorical stereotypes explain as much or more variance than main effects, suggesting a large amount of intersectional variation. But it may also show that interactions explain far less than main effects, suggesting a low level of intersectional variation. In the former case, Hypothesis 1 would be strongly supported, while in the latter case it would be only slightly supported. A finding that interactions do not explain any variance would not support Hypothesis 1 at all, and instead would support the categorical view embodied in much of existing stereotype scholarship.

2.1.7 Varieties of Complexity: Amplified vs Muted Congruence

If stereotype content is complex to some degree, there may be general trends in how categorical stereotypes combine. Pedulla (2018) details two such principles. In amplified congruence, membership in multiple marginalized categories is associated with stronger negative effects than the sum of categorical effects on their own. That is, amplified congruence involves increasing marginal effects of additional marginalized category membership. In muted congruence, however, the negative effects of multiple category

membership are weaker than either category membership alone. That is, muted congruence involves decreasing marginal effects of additional marginalized category membership.

Existing work suggests that stereotypes may be characterized by muted, rather than amplified, congruence. Cognitive psychologists argue that once a categorical stereotype skews person perception in a positive or negative direction, additional information consistent with that stereotype is redundant and exerts a weaker effect (Fiske and Neuberg 1990). Status Characteristics Theory likewise argues for muting: the more status characteristics (like race or gender) one perceives that bias perceptions in the same direction, the lower the marginal impact of an additional redundant status characteristic will be (Berger and Webster 2018; Webster and Walker 2022). However, there may be exceptions to any general trend toward muted congruence, such that particular categorical intersections amplify each other's effects. There may also be no consistent trend either way. Hypotheses 2a and 2b formalize predictions about amplified vs muted congruence.[7]

Hypothesis 2a (Amplified Congruence): *The more marginalized category memberships a person is seen as having, the greater the negative impact of an additional marginalized category membership on stereotypes will be.*

Hypothesis 2a predicts that, for example, the difference in stereotyped warmth or competence will be larger when comparing people with two marginalized group

[7] In this study, the total number of category memberships presented to participants is fixed and the number of positively- and negatively-valued category memberships are inversely related. If both positive and negative category memberships combine according to the same principle, and that principle is approximately equally applied, the result of increasing marginalization will appear to be additive. This analysis therefore should be understood as testing for a *net* amplifying or muting effect.

memberships against those with one than it is when comparing people with no marginalized group memberships against those with one.

Hypothesis 2b (Muted Congruence): *The more marginalized category memberships a person is seen as having, the lower the negative impact of an additional marginalized category membership on stereotypes will be.*

In contrast to H2a, Hypothesis 2b predicts that the difference in stereotyped warmth or competence will be smaller when comparing people with two marginalized group memberships against those with one than it would be when comparing people with no marginalized group memberships against those with one.

2.1.8 Stereotype Variability and the Role of Primary, Secondary, and 'Master' Categories

In social perception, people do not treat all social categories as equal. 'Primary' categories are cognitively activated quickly, while 'secondary' categories are activated after primary categories, activated less reliably, and are more susceptible to re-categorization and bias from other information (Brewer and Lui 1989; Kang and Bodenhausen 2015). Prior work has identified gender, race, and age as primary categories in this sense, while categories like class are more secondary in the sense that people categorize by class more slowly, less reliably, and more based on contextual cues (Brewer and Lui 1989; Ridgeway 2011; Ridgeway and Kritcheli-Katz 2013). The ease and rapidity of perceiving category membership does not have any necessary relation to socioeconomic importance – though race may tend to be cognitively processed after gender and age information, racism and White supremacy nevertheless play a major role

in structuring American society and perpetuating inequality (Collins 2009; Omi and Winant 2015).

The cognitive concept of a 'primary' category bears resemblance to Goffman's (1963 [1986]) concept of a master status or master category. Both emphasize that some categories may be more frequently salient and impactful in interaction. However, they are less clear about whether these categories are important because they activate consistent beliefs across situations, or because they control how other social characteristics, like sexuality, are interpreted and whether one category's stereotypes tend to dominate over others. In other words, some social categories are more frequently used as 'lenses' into others' identities (Petsko et al. 2022).

Gender in particular is often pointed to as a universal frame which shapes how individuals are perceived, but this shaping could occur through unconditional beliefs about the warmth of women and competence of men (Ridgeway 2011), through the 'gendering' of other categories like race or occupation (Ridgeway and Kritcheli-Katz 2013; Stainback and Tomaskovic-Devey 2012), or both.

In statistical terms, this theoretical discussion reflects questions of the average magnitude of categorical stereotypes and the variability of those categorical stereotypes across intersections with other categories. The design of the study I present below allows examination of whether different social categories have a) significant and invariant average effects, b) significant and variable effects, c) variable effects with no average trend, or d) no effects whatsoever across intersections. Hypothesis 3a pertains specifically to the question of whether categorical stereotypes vary across intersections.

Hypothesis 3a (Stereotype Variability): *Intersectional warmth and competence stereotypes will vary from their average value across their intersections with other social categories.*

Stereotype content may vary enough that some of the time, a social category will be associated with effects of the opposite sign as its average effect. For example, even though research shows hiring discrimination against both Black men and gay men (Quillian et al. 2017; Tilcsik 2011), Pedulla (2014) found that gay Black men were preferred over heterosexual Black men and White gay men. Because of the comprehensive coverage of categorical intersections provided by the study design, analyses will be able to estimate the overall prevalence of such countervailing stereotypes. Support for Hypothesis 3a will be based on the amount and statistical significance of variation in category main effects, as measured by random slopes models.

Hypothesis 3b (Countervailing Stereotypes): *Intersectional warmth and competence stereotypes will vary such that they will sometimes have the opposite sign as the average stereotype.*

This extends Hypothesis 3a: if a stereotype is intersectionally variable, it may vary enough across intersections that it sometimes has the opposite sign as its average. For example, Black people are negatively stereotyped compared to White people, but if Black stereotypes are highly variable then there may be cases, like Pedulla's (2014) study of hiring discrimination against gay Black men, where stereotypes or other outcomes are more positive for Black people than otherwise similar White people.

If a category acts as a primary category in the sense of having large, consistent effects across contexts, then target category should have large average effects on warmth

and competence stereotypes compared to the other social categories, but should vary little across categorical intersections. On the other hand, if a category is a primary categories in the sense of shaping how other social categories are interpreted, we should expect its effects to vary significantly across intersections with other categories. And it is, of course, possible that both will occur.

2.1.9 Multiple Standards for Social Rank

In addition to demonstrating methods for measuring and analyzing intersectional stereotypes, this study is also aimed at demonstrating how to use these methods to evaluate intersectional characteristics of relationships between stereotypes and their consequences, particularly for the status and power that marginalized people are expected and allowed to attain (Berger and Webster 2018; Ridgeway 2019; Webster and Walker 2022). Since people confer status mainly based on how competent others seem to be, intersectional competence stereotypes will lead to differential expectations of status and power, which then lead to self-fulfilling prophecies in status- and power-granting behaviors. But marginalization also creates different standards of competence and warmth for groups like women and people of color when they attempt to gain status and power. To overcome a presumption of incompetence or untrustworthiness and be deemed capable and worthy of higher status positions, members of marginalized groups often must demonstrate even more competence than comparable male and White workers and behave in warmer and friendlier ways (Foschi 2000; Heilman 2012; Phelan, Moss-Racusin, and Rudman 2008). For example, Quadlin (2018) found that while hiring managers' decisions regarding male applicants were based heavily on perceived

competence rather than warmth, the reverse was true of decisions regarding female applicants.

The final aim of the current study is to test whether warmth and competence stereotypes have the same 'payoffs' for expectations of status and power across different degrees of intersectional marginalization, from the multiply advantaged (e.g. heterosexual White men) to the multiply disadvantaged (e.g. bisexual Black women). Though different standards cannot be demonstrated in this study by controlling levels of competence, the finding that marginalized people must demonstrate greater competence and warmth to achieve a given level of status or deservingness implies that, for them, the correlation between perceived competence and status is lower, and the correlation between perceived warmth and status is higher than it is for the less marginalized.

Hypothesis 4 (Multiple Standards for Social Rank): *The expected status and power of more marginalized people will depend more heavily on warmth stereotypes and less heavily on competence stereotypes, compared to less marginalized people.*

2.2 Method

2.2.1 Overview

This study uses a blocked factorial survey experiment (Auspurg and Hinz 2015; Auspurg, Hinz, and Sauer 2017) to gather data on stereotype content and expected status and power for three hundred and sixty unique combinations (or 'intersectional strata'; Evans et al. 2018; Merlo 2018) of Gender, Sexuality, Race/Ethnicity, Age, and Social Class, described through short profiles. This allows me to test Hypotheses 1-4, which importantly are about the characteristics of a system of intersecting stereotypes, such as the overall importance of interaction effects or the presence of amplified or muted

congruence, rather than characteristics of specific intersectional stereotypes. To evaluate these systemic properties, the analyses begin with sample-level tests of stereotype complexity and proceed to narrower, parameter-level tests.

2.2.2 Category and Level Selection

The blocked factorial design experimentally manipulates the Gender (man, woman), Sexuality (heterosexual, gay or lesbian, bisexual), Race/Ethnicity (White, Black, Hispanic, Asian), Age (younger, middle-aged, older), and Social Class (lower, lower middle, middle, upper middle, upper) of individuals described to participants in short profiles.

These categories are among the most frequently studied in work on stereotypes and related issues. They are also likely to be salient and identifiable in everyday interaction (Brewer and Lui 1989; Collins 2009 [2000]; Kraus et al. 2017; Mize and Manago 2018; Ridgeway and Kritcheli-Katz 2013), making it likely that most people frequently experience—and apply—stereotypes based on these categories.

The number of levels per category is low enough that it was possible to gather data on their full factorial. The experiment included two Genders, three Sexualities, three Age groups, four Race/ethnic groups, and five Social Classes. Given that this study is focused on the subjective interpretation of these categories, they were not defined for participants.

The confluence of different social categories is often called an ‘intersection.’ To retain a clear distinction between paradigm, theory, and operationalization, I adopt Evans et al’s (2018) term ‘intersectional social strata,’ or ‘strata,’ to refer to the unique combination of social categories, and ‘profile’ to refer to the text vignette describing a

person in an intersectional stratum. The term ‘category’ will refer specifically to single categories, and not to groupings or individuals defined by multiple categories. The experimental design resulted in $2^1 3^2 4^1 5^1 = 360$ strata.

Table 2.1—Experimental categories and levels.

Category	# Levels	Levels
Gender	2	Man, woman
Sexuality	3	Straight, bisexual, gay/lesbian
Age	3	Young, middle-aged, older
Race/Ethnicity	4	White, Black, Hispanic, Asian
Social Class	5	Lower, lower middle, middle, upper middle, upper
Total # of Strata	360	
Example Profile:	“Please take a moment to imagine an **older straight Hispanic woman in the upper middle class**.”	

2.2.2.1 Social Class as an Experimental Factor

Class is an experimental factor in this design, and so is uncorrelated with the other manipulated categories. However, the role of class in intersectional analysis is contested. Some argue that methodologically or analytically isolating class, especially from race, neglects the ways in which class and other categories mutually construct one another (Penner and Saperstein 2013). Others, however, argue for the inclusion of class as a distinct factor in intersectional analyses because of the ways in which class position intersects with other identities to create unique constraints or opportunities (Ridgeway and Kritcheli-Katz 2013).

These arguments are further complicated by the treatment of class in stereotype theories, which generally posit that stereotypes attach to social class categories in much the same way that they attach to categories like race or gender (Fiske et al. 2002; Berger and Webster 2018; Webster and Walker 2022). People apply these stereotypes when they

perceive social class cues, like signs of wealth and even speech patterns (Kraus et al. 2017). However, these theories also posit class as a *source* of stereotype content. Economic and social resources create stereotypes by giving members of more-resourced groups an edge in task-oriented interactions (Ridgeway 2018) and because people assume that wealth signals competence (Berger and Webster 2018; Fiske et al. 2002). Thus, for example, racial stereotypes are driven, at least in part, by the over-representation of people of color in the lower classes. Presenting class as orthogonal to race obscures this relationship and runs the risk of over-emphasizing the role of class.

I offer three reasons for manipulating Class orthogonal to other manipulated factors. First, class is often salient within as well as between racial groups. In those situations, Class might align with its racial associations (e.g. middle class White vs lower class Black profiles), but in many cases it may not (e.g. lower class White vs upper middle class Black profiles). Especially in the latter case, Class and Race may interact in ways that illuminate how people of different racial categories are seen differently even when they clearly share social strata, and how people of different Social Classes are seen differently despite shared racial identity

Second, including Social Class offers a more conservative test of intersectional predictions. Given concerns that Class might overwhelm or crowd out effects of other social categories, evidence for intersectional complexity in a Class-inclusive analysis would suggest that complexity can emerge even in a context where it seems to be the least likely.

Third, we can compare findings from studies that manipulate Class against those that do not (Chapter 3). Indeed, one goal of this study is to encourage research to investigate

stereotype complexity with and without Class manipulations, among other questions. Differences between such studies will reveal how the implicit 'classing' of other social categories helps to create intersectional stereotype content.

2.2.3 Experimental Design

Each participant was randomly assigned to one of 45 'blocks,' each containing eight strata. Each of the 360 strata were displayed in only one block, and all participants assigned to a block rated the same eight strata. Figure 1 diagrams this design. Each stratum contained a brief profile of a person described by their Gender, Sexuality, Age, Race/Ethnicity, and Social Class.

Strata were allocated to blocks in a way that minimizes the correlation between manipulated factors within blocks, and between those factors and the blocks (Auspurg and Hinz 2015). This minimizes the design effect on standard errors and maximizes statistical power. The block design also allows estimation of all 2-, 3-, and 4-way interactions without confounding those interactions with block-specific effects. And importantly, since each profile was rated a nearly-equal number of times by a nearly-equal number of participants, the variance explained by different categories and interactions functions as a direct measure of their statistical importance. This contrasts with many datasets, especially representative ones, where intergroup differences, e.g. between White people and racial minorities, may explain little variance simply because of the lower prevalence of the minority group.

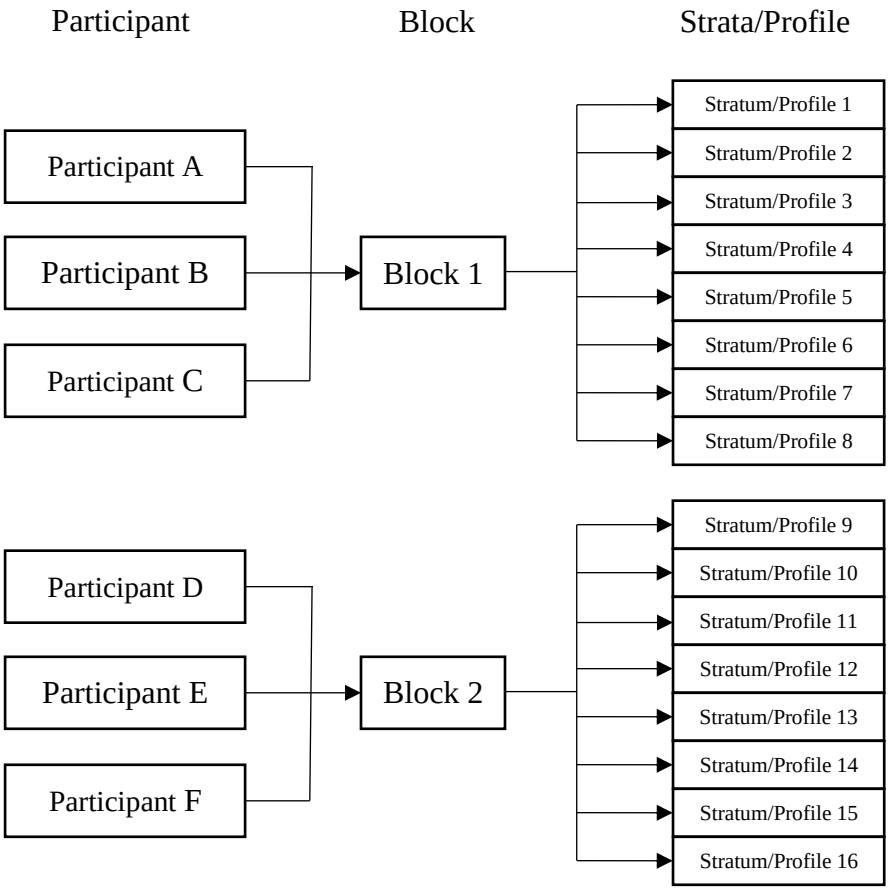


Figure 2.1—Diagram of experimental design. Participants are randomly assigned to one of 45 blocks of eight profiles. Profiles are allocated to only one block, and participants rate all eight profiles in their block.

2.2.4 Strata Vignette Presentation and Measures

As shown in Table 2.1, for each of eight strata in each block, participants were presented with a profile which briefly described a person using five social categories.[8] The profile used the format "Please take a moment to imagine… A(n) [Age group] [Sexuality]

[8] Auspurg and Hinz (2015) recommend that participants rate no more than ten vignettes. Pre-testing with student and online samples showed that participants were able to rate up to a dozen vignettes without significantly increasing difficulty. I chose eight vignettes per participant to err on the side of caution and preserve data quality.

[Race/Ethnicity] [Gender] in the [Social Class].” In this method, all social categories are defined and are equally salient, which controls for the ways that one category might skew categorization on another (Penner and Saperstein 2013) and makes the design agnostic to the particular ‘lenses’ (Petsko et al. 2022) that participants apply that draw attention to some social categories, like Gender, over others.

The presentation format was written to give participants an intuitive adjective order but leaves open the possibility of ordering effects, which would likely increase the impact of the first (Age) and final (Social Class) categories presented. As reviewed in the results, Social Class had large impacts, but otherwise order did not appear to be consistently related to statistical effects.

Profiles were presented one at a time in random order. After reading the profile, participants completed measures of stereotypes—how “most people” would see that person on various characteristics—using 9-point response scales ranging from 1 (not at all) to 9 (extremely). Sauer, Auspurg, and Hinz (2020) show that randomized ordering and Likert rating scales produce more valid regression estimates for multifactorial experiments than other methods (e.g. placing the most extreme vignette first, using open-ended scales), and studies produce similar results whether factors are presented in a text vignette or table.

The study used two specially-constructed scales, developed over several rounds of pretesting with student and online samples, measuring warmth and competence stereotypes because recent work (Abele et al. 2016) distinguishes several sub-factors of warmth and competence. Warmth is composed of a sub-factor connoting morality and pro-sociality, and another connoting sociability and friendliness. The final warmth items

were trustworthy, good-natured, warm, and friendly (α=.92), with the first two indicating morality and the second two indicating sociability. Competence is composed of a sub-factor connoting drive and assertiveness (generally labeled agency), and another connoting intelligence and skill (generally labeled competence). The competence items were confident, assertive, capable, and intelligent (α=.89), with the first two indicating agency and the second two indicating competence. In contrast, the standard SCM warmth and competence scales were designed with only the two broader factors in mind (Fiske et al. 2002). The new scales were designed to capture these sub-factors as well as the more general factors, and to ensure that no sub-factor was weighted disproportionately. Many of my items were used in previous SCM warmth and competence scales (Fiske et al. 2002; Fiske 2018). Work using parallel scales with differing sets of items reliably yields results similar to work using the standard SCM scales (Koenig and Eagly 2019). These scales thus measure warmth and competence stereotypes in a shorter form while retaining the ability to separate out the sub-factors of each stereotype.

A third scale measured expected social rank and included terms related to social status and power. As Cheng and colleagues (2014) note, measures of status often confound perceived status, power, and other concepts. To allow potential distinctions between perceived power and status to emerge, I selected items for each construct based on theoretical definitions of status as respect, deference, and valuation by others (Berger and Webster 2018; Ridgeway 2019; Webster and Walker 2022) and structural power as asymmetrical, structurally held control over outcomes others value (Cook, Cheshire, and Gerbasi 2018; Magee and Smith 2013). This approach means that these measures most clearly fit the theoretical definitions of status and power theories, but may not align as

clearly with related, but distinct, constructs like occupational prestige. The final social rank items were respected by others, valued by others, controls things others want, and holds a powerful position (α=.87). The first two assess status, and the second two assess power. For space, all analyses examine outcomes with these items aggregated into scales for warmth, competence, and social rank.

Another concern is social desirability bias: participants may rate marginalized groups more favorably to not appear prejudiced. However, while expressing personal biases may violate norms, reporting that 'most people' hold a bias does not, since this does not necessarily imply bias on the part of the participant. Several decades of stereotype research shows that participants are therefore quite willing to report on what they believe the stereotypes of different groups are (Fiske et al. 2002; Fiske 2018). In addition, prior factorial survey experiments have been able to measure biases that participants themselves declare they do not hold (Auspurg et al. 2017). This is because in this type of experiment, numerous factors change from one profile to the next, so participants have limited ability to selectively 'subtract' specific biases.

2.2.5 Sample Characteristics

The experiment was administered using TurkPrime's (rebranded after data collection as CloudResearch) Prime Panels (Chandler et al. 2019; Litman and Robinson 2021; Litman, Robinson, and Abberbock 2017). This service distributes studies to survey panel companies, each of which recruits participants from the general public and compensates them through a variety of reward plans. This participant pool is much larger than other online participant pools, tends to be more representative, and is less familiar with common social science methods (Chandler et al. 2019; Litman and Robinson 2021).

I obtained a large sample, N=1,762. Participants were excluded from the analytic sample if they failed an attention check (N=146), gave stereotype ratings that did not vary at all across items or vignettes (N=46), rated only some of their assigned profiles (N=5), or reported being under the age of 18 (N=3). In all, 190 participants were excluded, leaving an analytic sample of N=1,572.

The sample was highly diverse, though slightly Whiter and higher in SES than the general population (Table 2.2). Block analytic Ns were close to perfectly balanced, with an average of 34.9 participants per block (range=33-36, SD=0.8). Since each participant completed all profiles in their block, the number of ratings is much larger than the participant sample, N=12,576.

Table 2.2—Participant demographics, analytic sample (*N*=1,572).

	Mean (SD) or %
Age	45.2 (16.6)
% Female[†]	52.1%
% White	70.9%
% 4-Year College Degree	37.4%
Household Income[††]	$60.6k ($53.3k)
Subjective SES (1-10)	5.3 (2.0)
% Employed Full-/Part-Time	54.8%
Conservatism (1-7)	3.9 (1.8)

[†] Five participants identified as 'other gender'. They are grouped with Female.
[††] Income was midpoint-coded based on a 14-point scale.

Random assignment of participants to blocks, and the maximal internal heterogeneity of blocks, ensures that participant demographics are uncorrelated with experimental factors. The random intercept for participant ID (and in hybrid models, centering variable scores on participant-level means) provides additional control for unobserved participant characteristics, and accounts for the nesting of responses within

participants. As Appendix Table A.1 shows, more conservative participants report more negative stereotypes of warmth (b=-.083, SE=.019, p<.001) and competence (b=-.078, SE=.018, p<.001), but there are no other effects of demographics. Controlling for demographics causes minimal change to main effects of the experimental factors (Appendix Table A.2).

2.3 Stereotype Complexity

2.3.1 Analysis Strategy

Except where otherwise noted, analyses used mixed effects models (Gelman and Hill 2007, Snijders and Bosker 2012) with a participant ID random intercept to adjust for the nesting of responses within participants, as recommended for factorial survey experiments (Auspurg and Hinz 2015; Auspurg et al. 2017). The random intercept primarily captures participants' different 'baselines' on these scales, which accounted for 51.6% and 44.8% of the total variance of warmth and competence, respectively. It also captures block effects, which were present but extremely small (R^2=.01 for all DVs), and likely absorbs some variance from interactions between strata and participant characteristics. All references to categorical variables or effects refer to the experimentally manipulated social categories (which are modeled as categorical independent variables) and their effects on DVs (which are modeled as continuous).

This analysis decomposes the sources of between-strata variance (R^2_{strata}) and attributes it to the main and interaction effects of the manipulated social categories. Analyses use unadjusted R^2 values, defined as the proportional reduction in error variance (Gelman and Hill 2007; Snijders and Bosker 2011). I highlight three sources of R^2_{strata}.

1. **Main Effects**. Some of R^2_{strata} is accounted for by the main or average effects of the independent variables.[7] This captures all "non-complex" intersectional variation.
2. **Interaction Effects**. Some of R^2_{strata} is accounted for by 2-, 3-, and 4-way interaction effects among the independent variables. This captures all intersections of social categories and represents the 'complex' portion of variance.
3. **Strata-Unique Variation**. The portion of R^2_{strata} that is not accounted for by even the set of all 4-way interactions is composed of strata-level variation and error.

Because the experimental design minimizes the collinearity of main and interaction effects, explained variance is equal to the sum of the variance explained by each main effect or interaction term, estimated separately (Auspurg and Hinz 2015): $R^2_{strata} =$ category main effects + interaction effects + strata unique variation. Since the size of variance components is stable as sample size increases and the ratio of strata sizes remains constant (Gelman and Hill 2007), this estimate of complexity does not depend heavily on sample size or statistical power.

Hypothesis 1 will receive support if 'most' (>50%) of R^2_{strata} is associated with interaction effects and strata-specific variation. A completely null finding for H1 would occur if category main effects explain all of R^2_{strata}.

2.3.2 Results

Table 2.3 decomposes between-strata variance (R^2_{Strata})[9] for each stereotype variable into main, interaction, and strata-unique effects. Warmth stereotypes were highly complex, supporting Hypothesis 1. The main effects of social categories explained only about a third (35.5%) of R^2_{Strata} for warmth stereotypes, while interaction effects (2-, 3-, and 4-way) accounted for more than four tenths (42.8%). Many of these interactions were statistically significant. To identify the portion of variance associated with significant interactions, I used a model trimming approach, beginning with models containing all 2-, 3-, or 4-way interactions, then removing non-significant interactions (judged by an *F*-test comparing the model with the interaction against the model without) one by one. This process revealed that, for warmth, statistically significant interaction effects accounted for about a quarter (26.3%) of between-strata variation.

The fact that main effects accounted for less than half of the variance in warmth stereotypes, and that interaction effects played such a significant role, constitutes strong evidence that warmth stereotypes are complex. The average effects of each social category were, statistically speaking, less important than the interactions between them.

In contrast, results showed far less evidence for complexity in competence stereotypes. Main effects explained about three-quarters (76.1%) of R^2_{Strata} for competence stereotypes, with Social Class alone explaining more than half (58.3%). Interaction effects explained a notable portion of R^2_{Strata} (15.7%), a little less than half of which (6.3%) came from statistically significant interaction effects. Thus, competence

[9] Estimates of R^2_{strata} were obtained by adding strata ID fixed effects to the 2-level model with a participant ID random effect. R^2_{strata} equaled 4.9% of total variance for warmth, and 12.0% of total variance for competence.

stereotypes show some evidence of interaction effects, in general they are much less complex than warmth stereotypes.[10]

Table 2.3—Decomposition of between-strata variance for warmth and competence stereotypes.

	% of R^2_{Strata}	
	Warmth	Competence
Gender	.5	.7
Sexuality	19.1	14.3
Age	.1	.1
Race/Ethnicity	.7	2.9
Social Class	15.2	58.3
All Main Effects	35.6	76.1
All 2-Way Interactions	13.5	3.0
- Significant 2-Way Effects	11.7	2.3
All 3-Way Interactions	14.2	4.3
- Significant 3-Way Effects	10.8	1.3
All 4-Way Interactions	15.0	8.2
- Significant 4-Way Effects	3.8	2.7
All Interaction Effects	42.7	15.7
- All Significant Interactions	26.3	6.3
Unexplained Strata-Specific Variation	21.7	8.2
Total	100.0	100.0

2.3.3 Summary

Overall, Hypothesis 1 was supported for warmth, but only weakly for competence. For warmth stereotypes, interactions among Gender, Sexuality, Age, Race, and Social Class categories explained more variation than the main effects of those categories. Competence stereotypes were much less complex: most variation in competence

[10] These patterns are similar for the four sub-factors of warmth and competence. Main effects explained less than half of R^2_{Strata} for prosociality and morality, while main effects explained about three-quarters of R^2_{Strata} for agency and intelligence. Patterns of statistically significant interactions differed slightly between sub-factors.

stereotypes was associated with Social Class alone, and interactions accounted for only a sixth of the variance in competence stereotypes. The complexity of warmth stereotypes also suggests that they may be more likely than competence stereotypes to depend on a variety of intersectional prototypes than competence stereotypes.

This analysis also shows that when all intersectional strata are equally observed, main and interaction effects of social categories can be directly associated with distinct components of variance. This provides the researcher with a broad summary measure of the extent of intersectional complexity.

2.4 Muted or Amplified Congruence?

2.4.1 Analysis Strategy

This section tests whether intersectional stereotypes show evidence of muted congruence, where additional redundant memberships in marginalized social categories tend to have diminishing effects, or amplified congruence, where additional marginalization tends to have increasing effects (Pedulla 2018). This question pertains to trends in the impact of overall levels of marginalization regardless of *which* social categories drive that marginalization but does not necessarily bear on the question of how *individual* social categories affect each other.

To quantify overall marginalization, four social categories were recoded into dummy variables indicating whether a profile is marginalized on that category. Woman, Lesbian, Gay, Bisexual, Black, Hispanic, Asian, Lower- and Lower Middle-class profiles were coded as marginalized. Since there were no main effects of Age on either warmth or competence, as reviewed in the next section, no Age group was coded as marginalized.

The four sources of categorical marginalization were then summed, creating a variable ranging from complete advantage (0) to complete marginalization (4).

Very few profiles were completely advantaged or disadvantaged on all four categorical distinctions, for much the same reason that a pair of six-sided dice have many ways to add up to seven (a middling value) but only one way to add up to two (an extreme value). Only 5.0% of profiles were completely advantaged, 23.3% had one marginalized category, 38.3% had two, 26.7% had three, and 6.7% were completely disadvantaged. This also connects to a key point of intersectional theory, that there are many ways for people to possess a mixture of advantaging and disadvantaging identities (Collins 2019).

I test for muted and amplified congruence by estimating the average warmth and competence stereotypes at each level of marginalization and comparing them against predictions from i) a linear model of marginalization, where each additional marginalization has the same effect on stereotypes, and ii) a curvilinear model which adds a term for the square of the number of marginalizations. I then judge whether the curvilinear model fits better than the linear model using a likelihood ratio test.

2.4.2 Results

Figure 2 shows the mean warmth and competence stereotypes for profiles at each of four levels of marginalization and overlays the estimated stereotype values using linear and curvilinear models. On average, warmth (b=-.18, SE=.01, p<001) and competence stereotypes (b=-.34, SE=.01, p<.001) were more negative at higher levels of marginalization. The curvilinear models fit the data somewhat better than the linear models (warmth: $\chi^2(1)=11.96$, p<.001; competence: $\chi^2(1)=6.96$, p<.01), with slight

amplification of warmth stereotypes and slight muting of competence stereotypes at higher levels of marginalization. However, the predictions of both the linear and curvilinear models nearly always fall within the 95% CIs of the means for each level of overall marginalization, suggesting that the added benefit of a curvilinear specification is minor at best.

2.4.3 Summary

There was only slight evidence for amplified (Hypothesis 2a) or muted (Hypothesis 2b) congruence. In general, profiles that were marginalized on more social categories tended to be stereotyped as less warm and less competent than more advantaged profiles, but the average effect of one additional marginal category membership neither increased (amplified congruence) nor decreased (muted congruence) to a notable degree with the overall level of marginalization.

This finding is compatible with the previous section's finding that interactions play a major role in warmth stereotypes, with a more minor role in competence stereotypes. A lack of muted or amplified congruence *on average* does not necessarily mean that specific social categories do not interact with each other. Rather, it suggests that these interactions do not consistently become more positive or negative as a function of a profile's total level of marginalization.

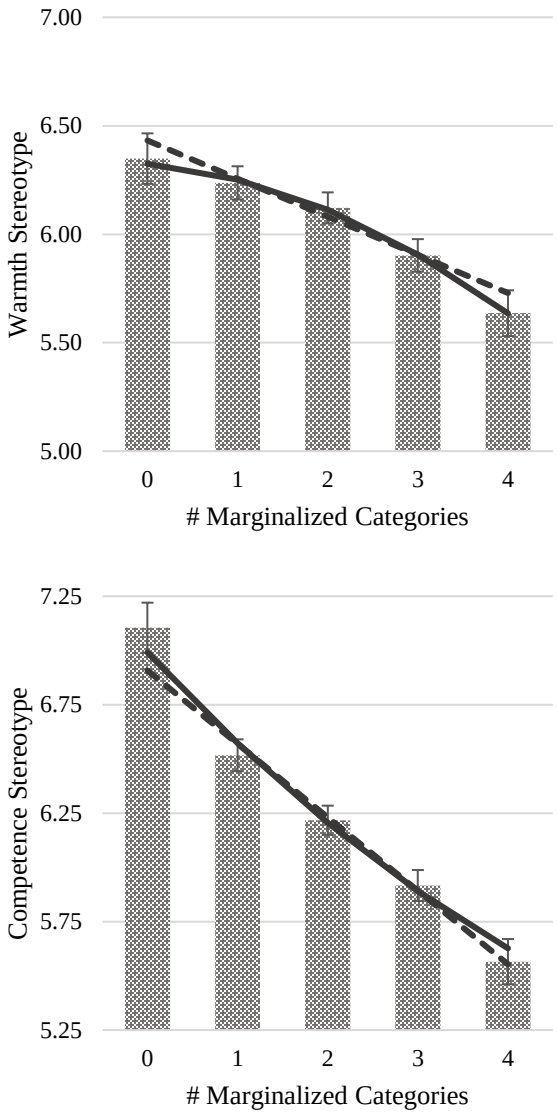


Figure 2.2—Mean warmth (left) and competence (right) stereotypes according to number of marginalized categories presented (bars). Estimated values from linear (dotted line) and curvilinear (solid line) models. Error bars are 95% confidence intervals for the categorical model.

2.4 Stereotype Variability

2.4.1 Analysis Strategy

A core perspective of intersectional theory is that average differences or inequalities between groups often obscure deeper heterogeneity within them (Collins 2019; Monk

2022). One of the most important benefits of the design of this study is that it allows me to estimate not only how different levels of social categories affect stereotypes on average, but also how heterogeneous those effects are across numerous intersectional strata. That is, just as a variable can be characterized by its central tendency (mean) and variability (standard deviation), this design allows me to measure the average effect of a category like Bisexuality (*b*) and how much that effect varies across its intersections with other social categories (*b* SD). The results shed light on which categories, if any, function as a 'master' category, either in the sense of having large and unconditional effects, or of moderating other categorical stereotypes.

In my mixed effects framework, estimating effect variation means the use of random slope models with intersectional strata as the level variable, which allow me to estimate both the mean effect of a variable and its variability across strata. Since it is not possible to estimate random intercepts for both intersectional strata and participant ID at the same time, I implement a hybrid mixed effects modeling approach by subtracting the participant-level mean of the dependent variable from their ratings of each profile, in effect adjusting for participant-level effects in a way similar to a fixed-effects model (Allison 2009).[11]

I then assign a random slope parameter for the levels of each category, with separate models for each social category. These models omit a random intercept while estimating random slopes, which serves the same purpose as omitting a reference category when estimating categorical variables' effects in OLS regression. The random

[11] This type of model was necessary because a crossed-level model with random intercepts for participant ID and strata ID uniquely identifies all observations and does not converge.

slopes in these models, expressed as standard deviations, represent the degree to which the value of a social category's stereotype varies across strata. In essence, they indicate the extent to which stereotyped differences between the baseline and focal category level are prone to interacting with other social categories or otherwise varying from their average value. The random slopes models can then estimate specific slope values for each stratum, which allows the researcher to directly inspect their distribution.

2.4.2 Results

2.4.2.1 Stereotypes On Average

First, I describe the main effects of social categories (Tables 4 and 5). On average, Women were stereotyped as somewhat less warm but more competent than Men (I examine this finding in greater depth later in the analysis). Bisexual and Gay/Lesbian profiles were stereotyped as much less warm and much less competent than Heterosexuals. There were no average differences in stereotypes based on Age. Black and Hispanic profiles were stereotyped as less warm and competent than White profiles, while Asian profiles were stereotyped as less warm, but as competent as Whites. Warmth stereotypes increased with Social Class but plateaued for Middle, Upper Middle, and Upper Class profiles. Higher Social Class was always associated with higher stereotyped competence.

However, each of these effects is actually an average of stereotyped differences across numerous intersections with other categories. Paying attention only to average differences in stereotypes between Men and Women, for example, neglects the fact that both categories are highly heterogeneous. Even though Women are stereotyped as warmer than Men on average, in some groups Men might be stereotyped as similarly

warm or warmer than Women. I therefore turn to measuring intersectional stereotype variability.

2.4.2.2 Stereotype Variability

Results strongly supported Hypothesis 3a, that categorical stereotypes would vary significantly from their average values across intersections with other social categories. Evidence for this variation in stereotypes comes from the random slope SDs. These parameters describe the degree to which an effect varies across different intersectional strata, in much the same way that a variable's SD describes variation in the scores of a variable. If the stereotypes of a social category, like Asian, were always the same, then the SD for Asian effects would be small and not statistically significant. If they tend to be larger for some strata and smaller for others, then the SD will be larger and statistically significant.

The analysis finds statistically significant variation in warmth and competence stereotypes for nearly all social categories (19 out of 24 effect SDs). Four effects—for warmth stereotypes of Bisexuals, Hispanics, and Upper Middle Class profiles, and competence stereotypes of Black profiles—showed marginally significant evidence of variation. Only one effect, for warmth stereotypes of Gay/Lesbian profiles, did not vary significantly at all.

Table 2.4—Effect variation from random slopes models with strata ID as level variable—warmth stereotypes. Separate models for Gender, Sexuality, Age, Race/Ethnicity, and Social Class.

	Main Effects	Random Slopes	Fig. 3
	Mean *b*	*b* SD[f]	Graph
Gender[a]			
- Woman	-.05*	.12**	Panel 1
	(.02)	(.02)	
Sexuality[b]			
- Bisexual	-.34***	.09[†]	
	(.03)	(.03)	Panel 3
- Gay/Lesbian	-.32***	.07	
	(.03)	(.04)	
Age[c]			
- Younger	-.02	.14***	
	(.03)	(.03)	Panel 5
- Older	.01	.11*	
	(.03)	(.03)	
Race/Ethnicity[d]			
- Black	-.08*	.17***	
	(.033)	(.03)	
- Hispanic	-.07*	.09[†]	Panel 7
	(.03)	(.04)	
- Asian	-.08*	.13**	
	(.03)	(.03)	
Social Class[e]			
- Lower	-.37***	.17***	
	(.04)	(.03)	
- Lower Middle	-.26***	.13**	
	(.04)	(.05)	Panel 9
- Upper Middle	-.01	.10[†]	
	(.03)	(.05)	
- Upper	-.05	.15**	
	(.04)	(.03)	

Note: All models also control for the other strata categories.
[a] ref: Man [b] ref: Heterosexual [c] ref: Middle-Aged [d] ref: White [e] ref: Middle Class
[f] *p*-values of random slope parameters determined by likelihood ratio tests.
[†] $p<.10$ * $p<.05$ ** $p<.01$ *** $p<.001$.

Table 2.5—Effect variation from random slopes models with strata ID as level variable—competence stereotypes. Separate models for Gender, Sexuality, Age, Race/Ethnicity, and Social Class.

	Main Effects	Random Slopes	Fig. 3
	Mean *b*	*b* SD[f]	Graph
Gender[a]			
- Woman	.10***	.11**	Panel 2
	(.02)	(.02)	
Sexuality[b]			
- Bisexual	-.44***	.10*	
	(.03)	(.03)	Panel 4
- Gay/Lesbian	-.46***	.12**	
	(.03)	(.03)	
Age[c]			
- Younger	-.02	.11**	
	(.03)	(.03)	Panel 6
- Older	-.04	.14***	
	(.03)	(.03)	
Race/Ethnicity[d]			
- Black	-.09**	.09[†]	
	(.03)	(.03)	
- Hispanic	-.27***	.10*	Panel 8
	(.03)	(.03)	
- Asian	-.04	.11*	
	(.03)	(.03)	
Social Class[e]			
- Lower	-.74***	.13**	
	(.03)	(.03)	
- Lower Middle	-.51***	.14**	
	(.04)	(.03)	Panel 10
- Upper Middle	.29***	.11*	
	(.03)	(.03)	
- Upper	.41***	.15***	
	(.04)	(.03)	

Note: All models also control for main effects of other strata categories.
[a] ref: Man [b] ref: Heterosexual [c] ref: Middle-Aged [d] ref: White [e] ref: Middle Class
[f] *p*-values of random slope parameters determined by likelihood ratio tests.
[†] $p<.10$ * $p<.05$ ** $p<.01$ *** $p<.001$.

Figure 3 shows the distributions, obtained with kernel density analysis, of each of the effects in Tables 4 and 5. Because nearly all effects show evidence of variation, I focus this section on discussing particularly notable patterns. Race stereotypes of warmth (Panel 7) provide a perfect example of the consequences of different levels of variation. Black, Hispanic, and Asian profiles were all seen as less warm than White profiles, and this effect was approximately the same, on average, for all three, but they differed in how variable this effect was. Hispanic profiles were consistently stereotyped as less warm than Whites, with the lowest effect variability. Effects for Asian profiles were more variable, so while they were stereotyped on average as similarly less warm, some Asian profiles were seen as much less warm, and a few were even seen as slightly warmer than similar Whites. Finally, effects for Black profiles were highly variable: some were seen as far less warm than similar Whites but a notable portion were seen as *warmer*. These two effects support Hypothesis 3b, that some stereotypes would vary enough to create stereotypes that countervail, or have the opposite sign of, the typical stereotype. Each racial group has the same average warmth penalty. For some that penalty was consistent and changed only slightly depending on intersecting categories. But for others, that penalty was more variable, sometimes being large, and sometimes even being reversed.

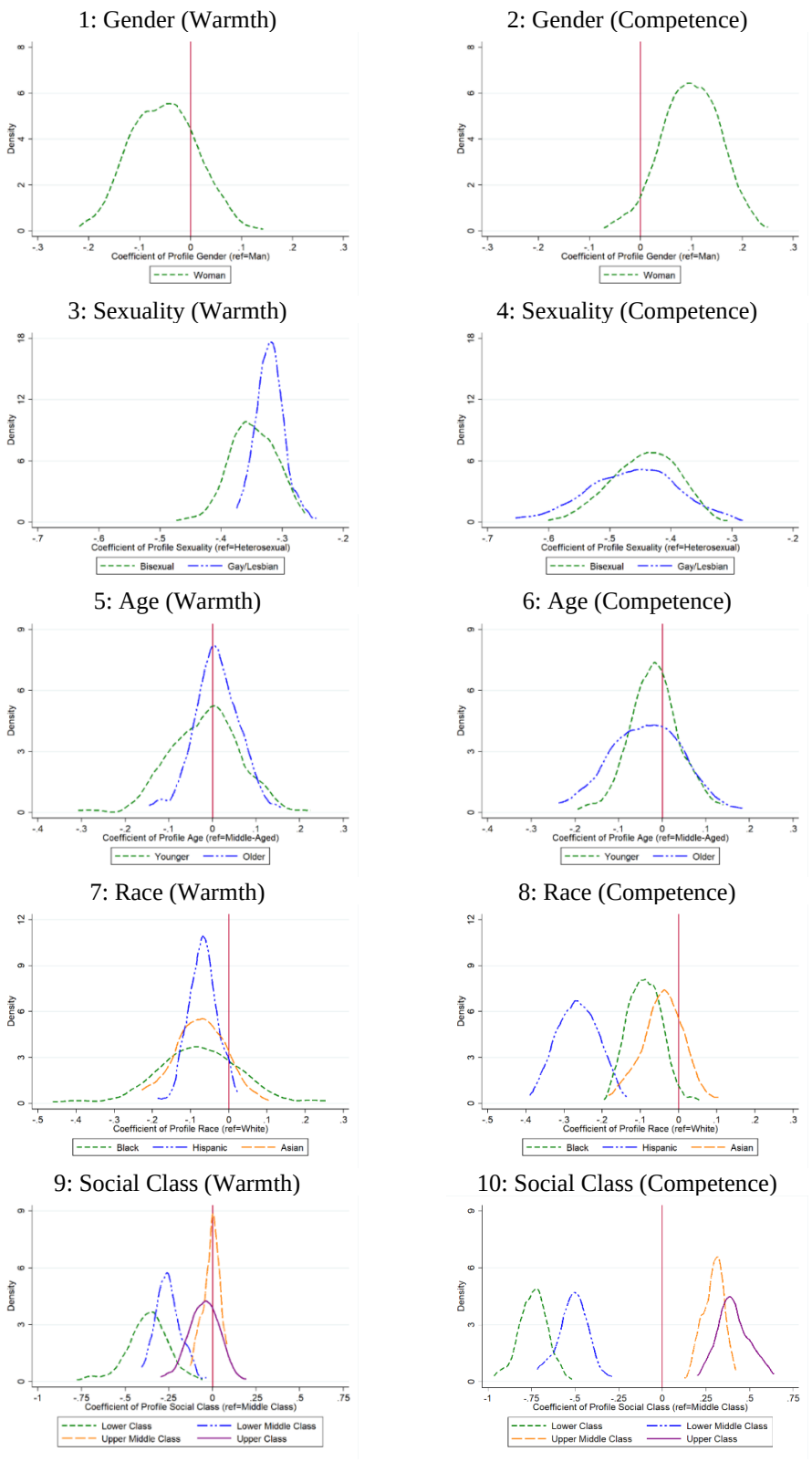


Figure 2.3—Distributions of category main effects on stereotypes.

Race stereotypes of competence (Panel 8) provide another example of countervailing stereotypes. Here, Asian profiles are seen as slightly less competent than Whites on average, but this difference is variable enough that some are stereotyped as equally or even slightly more competent than Whites. Stereotypes of Black and Hispanic profiles are similarly variable, but because they are more negative on average, they produce far fewer countervailing stereotypes.

Panels 1 and 2 show that Gender stereotypes also involve a high rate of countervailing stereotypes, with significant portions of the effect distributions near or crossing 0. This suggests a simple explanation for the counter-intuitive effect that Gender has on average. LGBTQ people tend to be stereotyped negatively compared to Heterosexuals. However, Lesbian and Bisexual women are penalized more on warmth than competence, and Gay and Bisexual men are penalized more on competence than warmth (Mize and Manago 2018). Since only a third of the profiles are Heterosexual, this would lead to women being seen, on average, as more competent and less warm than men – exactly the observed pattern.

To examine this possibility, I tested for interactions of Gender and Sexuality. As shown in Figure 4, this prediction was supported. Heterosexual Women profiles were stereotyped as warmer than Heterosexual Men profiles, but similarly competent overall. Given that most research finds women are stereotyped as less competent than men (e.g. Ridgeway 2011), this finding is interesting. I therefore tested the four competence items separately (Appendix Table A.3) and found a gendered stereotype for Heterosexuals for 'assertiveness' (b=-.14, SE=.05, p<.01) but no other items. This lends some support to recent research finding that explicit gender stereotypes regarding intelligence have waned

while agency stereotypes remain (Eagly et al. 2019). It may also suggest that Gender competence stereotypes are associated with SES, which this study experimentally controls for, or require activation by contextual cues like role conflict (Heilman 2012).

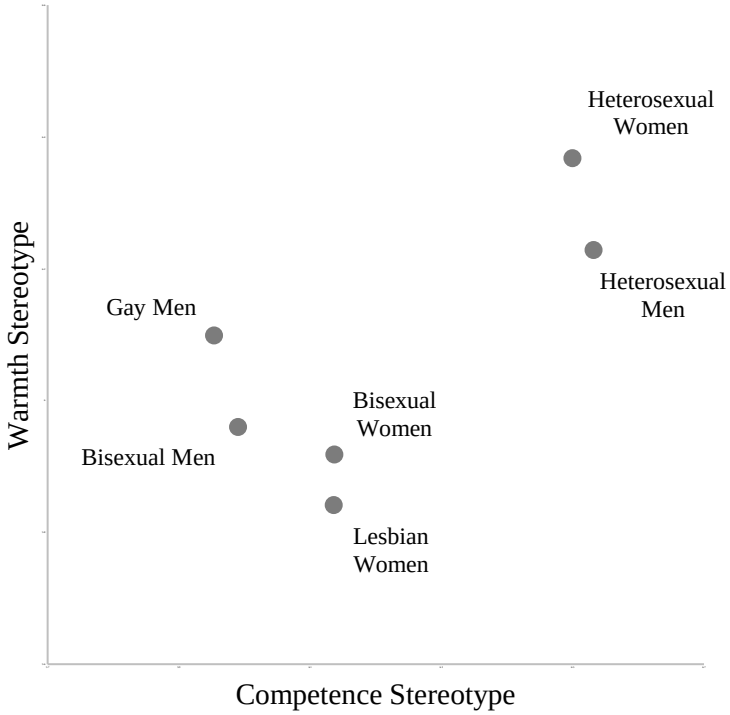


Figure 2.4—Mean warmth and competence stereotypes across Gender and Sexuality.

Lesbian, Gay, and Bisexual profiles were stereotyped as less warm and less competent, but Bisexual and Gay men were penalized more on competence than warmth, while Bisexual and Lesbian women were penalized more on warmth than competence. The result was that Lesbian and Bisexual women were stereotyped as more competent and less warm than Gay and Bisexual men. Since two-thirds of the profile sample was composed of Lesbian, Gay, and Bisexual profiles, this effect dominated the main effect of Gender. This finding is emblematic of intersectional claims: it demonstrates clearly that

when researchers discuss ‘Gender’ stereotypes, they are also necessarily discussing Sexuality.

Social Class stereotypes (panels 9 and 10) also exhibit countervailing stereotypes in the sense that the distributions of effects of adjacent Social Classes often overlap with each other. When this occurs, there are many profiles of the two adjacent Classes that are stereotyped as having similar levels of warmth or competence, and even some profiles of a lower Class that have *higher* warmth or competence than profiles of a Class that have higher average warmth or competence stereotypes. For example, Upper Class profiles are, on average, stereotyped as more competent than Upper Middle Class profiles. However, the distributions of the two overlap so much that some Upper Class profiles are stereotyped as less competent than an average Upper Middle Class profile. Similar overlapping distributions occur throughout Social Class stereotypes.

The variability of Age stereotypes (panels 5 and 6) shows that even when stereotyped differences are null on average, those stereotypes may still show important intersectional variation. Age stereotypes tend to be centered on or near 0, but the tails of their distributions reach values that are large enough to have a detectable impact.

Finally, while stereotyped Gender differences involved many countervailing stereotypes, Bisexual and Gay/Lesbian profiles (panels 3 and 4) did not. These profiles were always stereotyped as less warm and competent than Heterosexual profiles, even though these stereotypes generally varied.

2.4.2.3 Master Statuses?

Social Class and Sexuality stood out at as ‘master statuses’ (or ‘lenses’) in the sense that their effects on warmth and competence stereotypes were on average large. It is notable

that two of the 'primary' categories (Brewer and Lui 1989; Ridgeway 2011; Ridgeway and Kritcheli-Katz 2013) included in the study, Gender and Age, had no such unconditional effects. However, if 'master statuses' are those which shape how other social categories are interpreted, then the fact that most categories show significant variation suggests that no single category specifically controls how other categories are evaluated, and in that sense none are 'master statuses.'

2.4.3 Summary

This analysis supported Hypothesis 3a, that stereotypes vary intersectionally, and provided some support for Hypothesis 3b, that stereotypes would vary enough that they would sometimes reverse in direction. The stereotypes associated with all social categories tended to vary depending on their intersections with other salient categories. This was the case even for Age, which mattered depending on what other categories were salient, but not on its own. Analysis also showed that women can be stereotyped as warmer or cooler than men depending on their Sexuality, with similar effects for competence. Social Class and Sexuality may be considered master statuses in the sense of having large and unconditional effects on stereotypes, but otherwise no single social category stood out as controlling how other social categories were evaluated.

This approach serves as a useful intermediate analysis because it allows the researcher to first gauge which independent variable's effects vary the most, and which vary the least or not at all. This assessment does not require the researcher to first examine (and possibly over-interpret) numerous interaction terms. It also guides subsequent investigations of interactions by pointing to specific, highly variable effects that may be implicated in interactions, and identifying variables whose effects, like those

of Age, might be null on average but significant in some cases, and variables whose effects, like those of Gender and Race, are significant on average, but may reach or cross 0 in some cases.

2.5 Multiple Marginalization, Multiple Standards

2.5.1 Analysis Strategy

The analyses above have demonstrated methods of quantifying and describing intersectional complexity in stereotypes. While useful, these methods are still focused on describing variation in a single variable. This section builds on this foundation to demonstrate ways to use intersectionally rich data to investigate how the relationship between variables, like stereotypes and measures of their consequences, changes across intersectional strata.

Here I focus on the relationship between warmth and competence stereotypes and expectations of social rank (status and power). Work on status would suggest that profiles that are seen as more competent will be expected to have higher social rank. However, research on double standards theory (Foschi 2000; Heilman 2012) shows that members of marginalized groups are often not only seen as less competent, they also often must demonstrate even more competence and warmth than similar members of advantaged groups simply to attain equal levels of status (Heilman 2012).

These types of double standards would produce patterns observable in this study as a larger correlation between competence stereotypes and expected social rank for profiles with few memberships in marginalized categories, and a smaller correlation for profiles with memberships in more marginalized categories. The reverse may occur for the correlation between warmth and expected rank, with low correlations for the more

advantaged, and higher correlations for the marginalized. That is, there should be a trade-off between competence and warmth effects for expected social rank. Perceived membership in a marginalized category should interact with warmth and competence when predicting expectations of overall social rank such that the competence effect is weaker and the warmth effect is stronger for people with memberships in more marginalized social categories.

I test this prediction in two ways: first, I test whether the effects of warmth and competence on expected rank vary (and covary) across strata. Then, I test whether the total number of marginalizations, as calculated in the previous section, interacts with warmth and competence stereotypes when predicting expected rank. As in the previous section, these models center all variables on participant-level means and use strata ID as a level variable. Random slopes therefore refer to variation in effects across intersectional strata.

2.5.2 Results

Model 1 in Table 6 shows that on average, expected social rank was mainly a function of competence stereotypes (b=.87, SE=.01, p<.001), with a much smaller effect of warmth stereotypes (b=.06, SE=.01, p<.001). The clear importance of competence is in line with extensive work on status, which shows that perceived ability and assertiveness reliably predict status allocation in groups (Berger and Webster 2018; Ridgeway 2019; Webster and Walker 2022).

Table 2.6—Effects of warmth and competence stereotypes on expected social rank.		
	Model 1	Model 2
Warmth	.09***	.11***
	(.01)	(.01)
Competence	.77***	.76***
	(.01)	(.01)
Random-Effects Parameters[a]		
Constant SD	.30***	.29***
	(.01)	(.01)
Warmth SD		.16***
		(.01)
Competence SD		.13***
		(.01)
Corr(Warmth, Competence)		-.86***
		(.05)
Corr(Warmth, Constant)		-.22**
		(.08)
Corr(Competence, Constant)		.51***
		(.08)

Note: All variable scores centered on participant mean.
[†] $p<.10$ * $p<.05$ ** $p<.01$ *** $p<.001$.
[a] *p*-values of random slope parameters determined by likelihood ratio tests.

However, both effects varied significantly across strata (warmth SD=.16, SE=.01, $p<.001$; competence SD=.29, SE=.02, $p<.001$) and, importantly, their effects were strongly negatively correlated ($r=-.86$, SE=.05, $p<.01$). Warmth had more positive effects for lower-rank profiles and more negative effects for higher-rank profiles ($r=-.22$, SE=.08, $p<.01$). At the same time, competence effects were larger for higher-rank profiles and smaller for lower-rank profiles (SD=.51, SE=.08, $p<.001$). So not only do warmth and competence have different relationships with expected social rank across strata, but that relationship is likely related to marginalization.

As shown in Figure 5, this was the case (Appendix Tables A.4a-b). In fact, the trade-off is virtually one-to-one. For completely advantaged strata, expected social rank

was entirely a function of stereotyped competence (*b*=.99, SE=.03, *p*<.001) while stereotyped warmth had a *negative* effect (*b*=-.09, SE=.03, *p*<.001). But for completely marginalized strata, the effect of competence is a third smaller (*b*=.66, SE=.03, *p*<.001) while warmth has a significant positive effect (*b*=.17, SE=.03, *p*<.001).

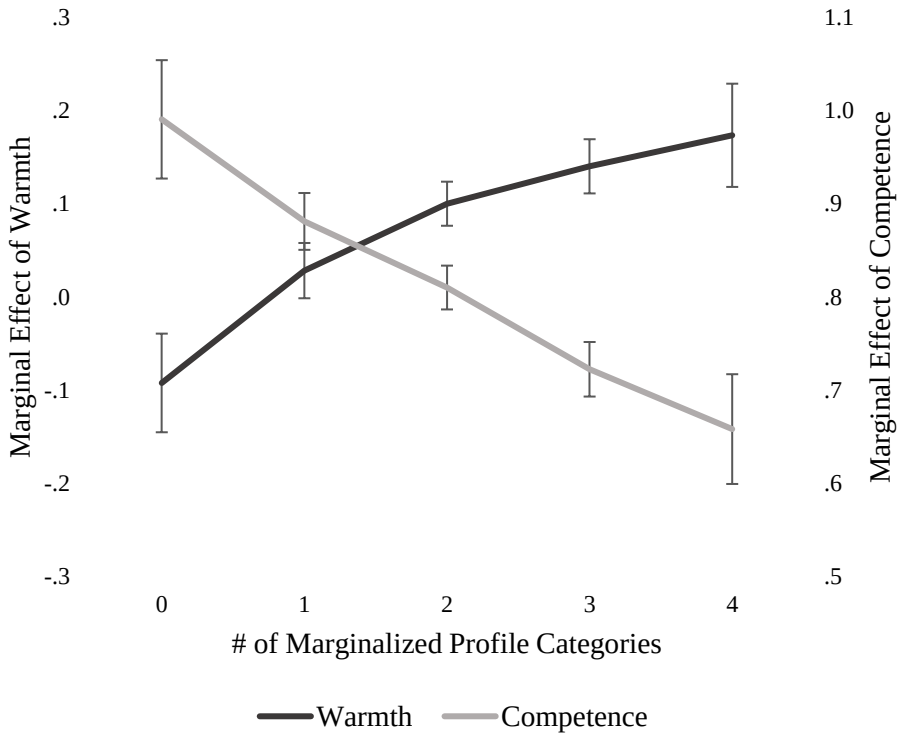


Figure 2.5—Marginal effects of warmth and competence on expected social rank as a function of number of marginalized profile categories. Left vertical axis shows warmth effects, right vertical axis shows competence effects. Error bars are 95% CIs.

Appendix Table A.5 shows that the trade-off between warmth and competence effects occurred for all types of categorical marginalization (Gender, Sexuality, etc.). The trade-off is also of a similar magnitude across categories, with marginalization on a category tending to increase the effect of warmth by .05-.10 and decrease the effect of competence by about .08.

2.5.3 Summary

These analyses strongly supported Hypothesis 4. For more advantaged profiles, expected social rank was clearly and unambiguously dependent on stereotyped competence, while warmth was, if anything, a slight liability. However, for more marginalized profiles, warmth stereotypes became an important predictor of expected rank and crowded out the influence of competence stereotypes.

This reflects double standards: to be expected to have a given social rank, marginalized profiles must be seen as even more competent (since the coefficient of competence is lower for marginalized groups) and warmer (since the coefficient for warmth is positive for marginalized groups vs negative for advantaged ones) than more advantaged profiles. In other words, social rank is less tied to competence and more tied to warmth for marginalized groups than for advantaged ones. This double standard has been noted with gender and race/ethnicity, but these analyses show that the pattern is common to many forms of marginalization.

The previous analyses demonstrated how factorial experiments allow the researcher to identify intersectional complexity within single variables. The double standards analysis shows that the same attention to complexity can be applied to statistical relationships between variables. Random slopes models allow the researcher to examine not only the average correlation of one variable with another, but also the degree to which those correlations vary in strength across numerous intersecting categories

2.6 General Discussion

When people are categorized according to multiple different identities, they are stereotyped in ways that combine multiple kinds of categorical stereotypes (e.g. about

their Sexuality, Race, and Social Class). This study finds that the resulting intersectional stereotypes—in particular, warmth stereotypes—are intersectionally complex: they depend on individuals' many memberships in different social categories. Often, the stereotypes associated with one social category (e.g. Gender) or the effects of those stereotypes (e.g. the effect of competence stereotypes on expectations of status and power) depend in large or small ways on a person's other social characteristics, like their Sexuality.

I used a novel experimental design to measure warmth and competence stereotypes across three hundred and sixty unique profiles that described people by their Gender, Sexuality, Age, Race/Ethnicity, and Social Class in short profiles. I analyzed these data with the aim of quantifying 'intersectional complexity', or the degree to which categorical stereotypes vary depending on how multiple social categories, like Gender and Sexuality, intersect with each other. Results showed that 1) warmth stereotypes are complex, but competence stereotypes are much less so, 2) there was little evidence for amplified or muted congruence, meaning that an additional marginalized category membership tended to have, on average, the same effect regardless of how marginalized a profile already was, 3) most categorical stereotypes varied across their intersections with other social categories, and 4) warmth stereotypes had greater impact on expected status and power for more marginalized profiles, while competence stereotypes had less impact.

Warmth stereotypes were complex, in the sense that interactions between social categories, like the interaction between Gender and Sexuality, explained a similar amount of between-strata variance of warmth stereotypes as their main effects. In contrast, competence stereotypes were not very complex, with most between-strata variance

coming from main effects (more than half associated with Social Class alone) and only a sixth associated with interaction effects. This supports existing theories that emphasize the role of resources in generating competence stereotypes (Fiske et al. 2002; Ridgeway 2018) and generalizes that principle to an intersectional context. No social category stood out as being a 'master status' (Goffman 1963 [1986]) – though Social Class and Sexuality had large average effects on stereotypes, all social categories affected how other categories are interpreted.

On average, additional levels of marginalization neither muted nor amplified (Pedulla 2018) negative warmth or competence stereotypes. However, categorical stereotypes for all five social categories in this study also varied significantly across intersections with other categories. In cases like those of Gender and Race, stereotypes varied enough that they sometimes reversed stereotypes, such that the typically disadvantaged category was sometimes stereotyped more positively than the typically advantaged category (Pedulla 2014). One example is Gender: replicating findings from Mize and Manago (2018), I find that while heterosexual women are seen as warmer than heterosexual men, lesbian and bisexual women are seen as *colder* than gay and bisexual men. Such results show that we should not assume categorical stereotypes always have the same impact regardless of a person's other characteristics.

Finally, I examined the consequences of multiple, intersecting marginalized social categorizations for the status and power people are expected to have. These expectations are critical, since research shows that status is often derived from the expectations others have (Berger and Webster 2018; Webster and Walker 2022). Evidence is consistent with prior theory on double standards (Foschi 2000; Heilman 2012; Phelan et al. 2008): for

fully advantaged people, expectations of status and power depend entirely on competence stereotypes; however, for more marginalized people, competence yields less expected status and power, and warmth stereotypes become much more important. This is consistent with the finding from double standards research that members of marginalized groups (e.g. women, people of color) gain less status from the same level of competence as more advantaged groups (men, White people) even while being held to stricter standards of prosocial behavior.

This study supports the argument, inspired by the large literature on intersectionality (Collins 2009 [2000]; Crenshaw 1989; Kang and Bodenhausen 2015; McCall 2005; Ridgeway and Kritcheli-Katz 2013), that stereotypes vary intersectionally in ways that are not always easily predicted from categorical stereotypes on their own. Researchers should pay as much attention to the ways that social systems like gender, race, and heteronormativity influence each other as we do to how these systems operate on their own. Categorical frameworks, while useful, do not capture many of the meaningful ways that stereotypes differ across people, and the ways in which different kinds of biases operate in similar ways, as suggested by my analysis of multiple standards.

2.6.1 A Framework for Quantitative Intersectionality

In this study, I developed a methodological framework for organizing my analysis of intersectional complexity. Similar methods have been developed for analysis of survey data (e.g. Evans et al. 2018; Merlo 2018), but still have limitations (e.g. imbalanced strata, few or no observations of some intersectional strata). I used a blocked factorial survey experiment (Auspurg and Hinz 2015), a highly efficient way to measure outcomes

across a full or partial factorial set of independent variables. This method is especially useful for studying systemic properties of intersectional stereotypes, like additivity vs complexity or muted vs amplified congruence.

In my analytic framework, I structure analyses as a series of tests for systemic intersectional properties. First are the most general tests, like variance decomposition, which gauge how much variation in a variable comes from social categories' main effects vs interactions between those categories. Analysis then proceeds to narrower tests. For example, random slopes models tested whether (and how much) the stereotypes of specific social categories, like Hispanics, varied depending on the other social categories they intersect with. A similar approach tested whether a statistical effect (e.g. the effect of competence stereotype on expected status and power) varied across numerous intersecting categories.

Importantly, in this framework, intersectionality is a falsifiable hypothesis (Hancock 2013). That is, these analyses can indicate that some things are *not* intersectionally complex – if variance decomposition shows little or no evidence of interactions, or a statistical effect does not vary across intersectional strata, then its effects are purely additive rather than intersectionally complex. Though many assumptions of quantitative research are debated by intersectional theorists (e.g. Bowleg 2008; Else-Quest and Hyde 2016a; Hancock 2013; McCall 2005; Monk 2022; Pedulla 2018), the falsifiability and parsimony afforded by this framework are typically seen as desirable in quantitative approaches and adds to a pluralistic set of intersectional methodologies spanning quantitative and qualitative approaches.

2.6.2 Future Directions

This research provides the basis for a wide range of further investigations. The methods in this study can be applied to study how a much wider variety of important social categories intersect with each other, such as disability, citizenship status, and occupation. The method can also be used to examine sources of within-group stratification, like colorism (Monk 2022; Schachter, Flores, and Maghbouleh 2021) by examining perceptions across skin tones. Methodological variations like tabular or pictorial presentation formats would also address shortcomings of this study's design, such as the use of a fixed adjective order in the profiles shown to participants. Researchers can use these methods to test theoretical predictions about what drives intersectional complexity in many different contexts.

Future work should also examine how complex stereotype content may vary with participants' backgrounds. People with different demographic characteristics or psychological makeup may perceive intersectional stereotypes differently. While I did not examine this question in depth in this study, the possibility of substantial participant by profile category interaction effects remains open.

Scholars may examine the role of Social Class in causing or mediating stereotype content. Race especially is tinged with assumptions regarding social class (Penner and Saperstein 2013), so treating Class as an independent variable may underestimate Race effects on stereotype content.

It is also important to investigate how intersectional stereotypes emerge, such as through socioeconomic inequalities (Fiske et al. 2002; Ridgeway 2018) or occupational segregation (Koenig and Eagly 2014). Existing theories describe the processes that create

stereotypes, and in principle should apply to the intersectional context as well (Koenig and Eagly 2019).

Finally, researchers should study how intersectional stereotypes develop within, and interact with, meso-level organizational and network processes. The social categories that emerge as bases for stratification and differentiation depend in large part on these factors (Tomaskovic-Devey and Avent-Holt 2019). The history, context, and structure of organizations affects which categorical inequalities emerge and persist. Stereotype content does not produce or maintain inequality alone; rather, it interacts with ongoing social systems. Future research must therefore explore how intersectional stereotypes relate to these social systems.

Chapter 3: Where Do Intersectional Stereotypes Come From?

3.1 Introduction

Researchers typically view stereotypes through a categorical lens, studying what people believe about social groups defined by a single shared characteristic, e.g. their gender, race, or social class (Fiske 108; Fiske et al. 2002; Koenig and Eagly 2014, 2019). For example, one can study race stereotypes without necessarily having to bring gender, age, or other social categories into the theoretical or methodological approach because race stereotypes are often assumed to apply equally to anyone within a given racial category.

Researchers have found that categorical stereotypes are strongly tied to broader social conditions (Fiske 2018; Fiske et al. 2002; Koenig and Eagly 2014; Ridgeway 2018). In particular, socioeconomic status drives much of stereotype content, leading to perceptions of the wealthy as highly competent. In addition, groups that are more represented among 'agentic' social roles—roles stressing assertiveness and capability—come to be seen as more competent, while groups more represented among 'communal roles—roles stressing care, empathy, and cooperation—come to be seen as warmer. Finally, when a group is perceived as competing with others, it comes to be seen as less warm. These factors are foremost in explaining why different social categories are associated with stereotypes of differing competence and warmth.

However, these theories of the causes of stereotype content have focused almost exclusively on categorical stereotypes (stereotypes based on a single social characteristic of a person or group), rather than intersectional stereotypes (stereotypes based on multiple characteristics of a person or group). Intersectional stereotypes matter because, when generating and applying stereotypes, people attend to more than just one social category at a time. For example, whether Black men are stereotyped as more threatening than White men depends (at least in some circumstances) on their sexual orientation (Pedulla 2014).

But while the concept of stereotypes can be generalized from categorical to intersectional identities, the theories that describe where stereotypes come from may not. As detailed in later sections, existing research identifies factors like socioeconomic resources as major drivers of groups stereotypes. However, the more separate categories a person is placed into by an observer, the less relevant that observer's broad, assumptions about socioeconomic resources may be to their evaluations. They may instead rely on things like prototypes: complex, ideal-typical images of persons with numerous attributes beyond a single category membership (Lei et al. 2020). The more strongly people use such cultural prototypes to derive intersectional stereotypes, the more likely it is that theories that explain categorical stereotypes may fail to accurately predict intersectional stereotypes.

This chapter has two primary goals. The first is to apply a theoretical model integrating two prominent theories of stereotype content—the Stereotype Content Model (Fiske 2018; Fiske et al. 2002) and Social Role Theory (SRT; Eagly and Steffen 1984; Koenig and Eagly 2014)—to intersectional stereotypes. This entails two interrelated

analyses: the first will test whether perceptions of intersectionally-defined people correlate with the socioeconomic conditions of people who inhabit those intersections. The second analysis tests whether those perceptions predict intersectional stereotypes of warmth and competence, and whether this model applies consistently well across a large number of intersectionally defined profiles.

The second goal is to clarify the conceptual relationship between categorical and intersectional stereotypes. I argue that the two are 'co-constitutive': categorical stereotypes can be thought of as an average of all the intersectional stereotypes applied to individual members of a social category. At the same time, intersectional stereotypes are largely derived from distinct categorical stereotypes. To test this argument, I re-analyze data on intersectional stereotypes, giving weight to stereotypes in proportion to their demographic size. I then compare the resulting category-level weighted averages to patterns of categorical stereotypes observed in prior studies.

In the next sections I review the SCM and SRT and describe how I adapt these theories to an intersectional context.

3.1.1 Two Fundamental Dimensions of Stereotypes

Stereotypes—beliefs about how 'most people' view others—are central to many theories in sociology and related fields. Though different groups have many different and unique stereotypes, two core dimensions of stereotype content emerge independently and repeatedly across research programs: one pertaining to perceptions of others as sociable, good, and friendly, and one pertaining to perceptions of others as capable, intelligent,

assertive, and confident (Abele et al. 2016; Eagly and Steffen 1984; Fiske 2018, Fiske et al. 2002; Koenig and Eagly 2014; Ridgeway 2019).[12]

Status Characteristics Theory (Berger and Webster 2018; Webster and Walker 2022) proposes that status beliefs are largely made up of perceptions of different groups being competent and worthy of respect. Status Construction Theory (Ridgeway 1991, 2018) and the related Spread of Status Value Theory (Berger and Fişek 2006, 2013; Harkness 2016; Walker, Webster, and Bianchi 2011; Webster and Walker 2022) argue that these status beliefs emerge from the misattribution of people's abilities and status in interactions to their category memberships, as opposed to the factors correlated with those category memberships that initially drive status, such as wealth, high-status social connections, and other resources (Berger and Fişek 2006, 2013; Harkness 2016; Overton 2021; Ridgeway 2018, 2019; Walker et al. 2011; Webster and Walker 2022). However, warmth also provides a pathway to status: low-status groups can partially compensate for being seen as less competent by leveraging a prosocial motivation to help the group (Ridgeway 1982).

Social Role Theory (Eagly and Steffen 1984; Koenig and Eagly 2014) links the types of social roles that people in different groups perform with beliefs about their communion and agency. Groups (e.g. women) more concentrated in 'communal' roles (e.g. nursing) come to be seen as kinder and more sociable, while groups (e.g. men) more

[12] Work in Affect Control Theory (Robinson and Smith-Lovin 2018) finds that the affective meanings of many identities and actions can be described by three core dimensions: Evaluation and Potency, which tend to relate to perceptions of goodness and capability (Kervyn et al. 2013; Rogers et al. 2013), and a third dimension, Activity.

concentrated in ‘agentic’ roles (e.g. executive management), come to be seen as more decisive, intelligent, and capable.

Finally, the Stereotype Content Model (Fiske 2018, Fiske et al. 2002) argues that all groups are stereotyped in terms of their warmth (morality, friendliness, and sociability) and competence (drive, intelligence, and ability), and that these stereotypes derive from the perceptions that groups are socially competitive and have higher socioeconomic status, respectively.

This study adopts the SCM’s definitions of ‘stereotypes’, ‘warmth’, and ‘competence’ as a framework with which to study intersectional stereotypes. As shown above, warmth and competence have parallel conceptualizations in numerous research programs and have proven useful within a range of sociological work, including research on discrimination (Hart 2019; Pedulla 2014; Quadlin 2018), inequality (Heiserman and Simpson 2017), politics (Eriksson 2018), and status (Ridgeway 2019). The SCM’s definition of stereotypes as what people believe ‘most people in society’ think of different groups or people fits well with theories like Status Characteristics Theory that argue that such ‘third order beliefs’ impact behaviors above and beyond what individuals personally believe (Berger and Webster 2018; Correll et al. 2017; Webster and Walker 2022).

3.1.2 Causes of Stereotypes

The stereotyping literature shows that the average socioeconomic characteristics (e.g. SES) of social categories’ tend to correlate with what people perceive members of those social categories socioeconomic characteristics to be. Those perceptions then give rise to warmth and competence stereotypes. Figure 3.1 presents a theoretical model integrating

the social structural factors (social categories' mean SES, occupations and social roles, and segregation from other groups) that give rise to key perceptions of social categories' characteristics (perceived SES, role/occupational agency and communion, and the degree to which groups are seen as competing for resources and opportunities), which then generate stereotypes of groups' competence and warmth. Research shows that these structural realities and perceptions give rise to stereotypes of warmth and competence for members of whole social categories, but the same process may also generate stereotypes for intersectionally-defined people. For example, intersectional competence stereotypes of different race, gender, and age identities may covary with perceptions of SES for those same race, gender, and age identities.

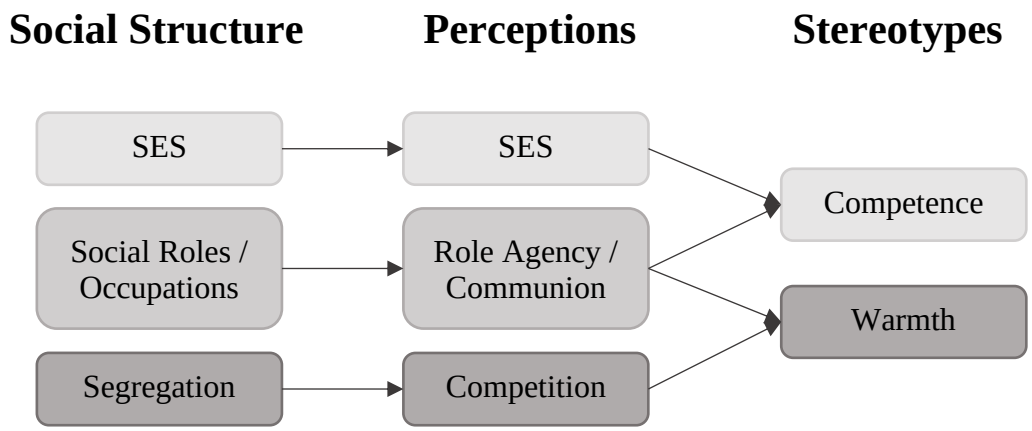


Figure 3.1—Illustration of the integrated theoretical model relating socioeconomic conditions of social categories or intersectional strata to perceptions and stereotypes of people with the corresponding intersectional identities.

But for the social structural causes of stereotypes to generalize from whole social categories to intersectional identities, several assumptions must hold. People must be able to form perceptions of the socioeconomic conditions that people with different intersectional identities experience. Those perceptions must then tend to correlate with

the actual social conditions of people with those intersectional identities. Those perceptions of intersectional social conditions must then lead to similar trait inferences, as they do when individuals evaluate whole groups.

3.1.2.1 Socioeconomic Status

Social categories perceived as having higher socioeconomic status tend to be stereotyped as more competent because people tend to take the possession of economic resources and opportunities as an indicator of ability, drive, and merit (Fiske 2018; Fiske et al. 2002; Ridgeway 2019). Often, competence stereotypes can emerge from simply knowing that a person or social category has more resources (Heiserman and Simpson 2017), possesses more highly-valued rewards than another (Berger and Fisek 2006, 2013; Harkness 2016; Hysom 2009; Ridgeway 1998; Webster and Walker 2022), or even that they have higher-status social connections (Overton 2021).

Though these stereotypes can emerge through spontaneous trait inference, or assumptions about individuals or groups' dispositions based on situational behaviors or characteristics (Hamilton et al. 2015), they can become entrenched and spread via interaction. Social categories that are not initially seen as any more capable than others can acquire such perceptions whenever category membership is correlated with factors that increase the ability of people to attain status in face-to-face groups, like economic resources or education (Ridgeway 1991, 2018). These factors create a spurious correlation between membership in that category and social status, which observers misinterpret as indicating that category membership per se is what makes these individuals more competent than others. Thus, economically advantaged people (i.e. people of higher socioeconomic status) and members of social categories that tend to be

more advantaged on the whole (e.g. Whites, men) come to be stereotyped as more competent than others.

The effect of category SES on its competence stereotypes hinges on the assumption that people's perceptions of category members' SES is at least somewhat correlated with actual social inequalities. Research suggests these perceptions do correlate with actual inequalities, though often imperfectly. In interaction, people evaluate social class quickly and relatively reliably, even from subtle cues like clothing or speech style (Kraus et al. 2017), and occupation, which is closely tied to social class (Koenig and Eagly 2014, 2019). This is not to say that perceptions of inequality are accurate per se: extensive evidence suggests that people often misperceive levels of inequality (Hauser and Norton 2017; Kraus et al. 2019), especially when perceptions are measured quantitatively (Heiserman and Simpson 2021). Despite inaccuracies and biases, when individuals under-estimate the level of inequality between groups, as White Americans do with racial inequalities (Kraus et al. 2019), they nevertheless tend to perceive the actually-wealthier group as wealthier, just to the incorrect extent. The result is a correlation between perceptions and reality, which is sufficient to give rise to competence stereotypes that make the wealthier group seem more competent than the poorer group.

Intersectional competence stereotypes may derive from the same processes that generate categorical stereotypes. The same spontaneous trait inferences occur when people judge individuals as when they judge whole groups (Hamilton et al. 2015), and so similar inference processes are likely to occur when people evaluate intersectionally complex individuals or groups as whole social categories. And, while the core

interactional mechanisms of Status Construction Theory and the Spread of Status Value Theory (Berger and Fisek 2006, 2013; Ridgeway 1991, 2018; Webster and Walker 2022) typically focus on the origin of beliefs about single-trait categories (or 'diffuse status characteristics'), they also assume that multiple such characteristics may be salient in any given situation, affect perceptions of self and others, and thus imply that intersecting social inequalities may affect beliefs of multiple status characteristics at a time.

> *Hypothesis 1: Participants' perceptions of the SES of intersectionally-defined people will correlate positively with the income, education, and occupational prestige of people inhabiting those intersections in the U.S.*
>
> *Hypothesis 2: Intersectionally-defined people will be stereotyped as more competent when they are seen as having higher socioeconomic status.*

3.1.2.2 Social Roles/Occupations

People do not interact solely according to their socioeconomic status. Rather, their social status is deeply intertwined with the types of social roles, such as occupations, they perform. Social roles impose clear expectations on social behavior and constrain people to act in certain ways congruent with their role. Flight attendants, for example, must project hospitality regardless of their actual emotional states (Hochschild 2012).

Social Role Theory (SRT; Eagly and Steffen 1984; Koenig and Eagly 2014) argues that stereotypes reflect the types of social roles that groups tend to perform because people infer inherent characteristics from the behaviors they observe, regardless of whether those behaviors reflect individuals' actual preferences or dispositions. Thus, because flight attendants appear to be friendly and welcoming to passengers, passengers are likely to assume that flight attendants are simply warm and friendly people.

In SRT, social roles differ in the degree to which they require communal (warm, friendly, prosocial) or agentic (assertive, skilled) behavior. The more members of a group tend to be concentrated in communal (agentic) roles, the more they are stereotyped as warm (competent). A key example is gender: even today, women tend to have occupations that are seen as stressing communal or warm characteristics more than agentic or competent characteristics (Cech 2013; England, Levine, and Mishel 2020; Koenig and Eagly 2014). As occupational gender segregation has slowly declined, stereotyped differences between men and women have tended to narrow (Eagly et al. 2020). This relationship holds with many social groups: groups more concentrated in agentic occupations are seen as more competent; groups more concentrated in communal occupations are seen as warmer (Koenig and Eagly 2014).

As with SES, this same process may occur with intersectional identities. Spontaneous trait inference is likely to occur with intersectional identities in the same way that it occurs with whole social categories. Role expectations may come to be associated with clusters of intersecting identities in the same way that perceptions of SES may be. In fact, perceptions of SES for different intersectional identities likely implies specific kinds of expected roles. Koenig and Eagly (2019) argue that social roles often push stereotypes in the same direction as SES: people with higher SES tend to have relatively more agentic than communal occupations, while people with low SES are more likely to have occupations that are higher in communion than agency. Thus, in addition to predicting intersectional stereotypes, occupational agency and warmth may help to explain why perceived SES generates stereotypes.

Finally, intersectional identities may be associated with specific 'prototypes'—intersectionally complex and culturally recurrent notions of different kinds of people (Lei, Leshin, and Rhodes 2020). For example, Collins (2009 [2000]) notes several examples of intersectional prototypes of Black women, including the 'Mammy' and 'Jezebel', which are associated with socioeconomic conditions and social behaviors that either uphold or threaten existing racial hierarchies, and thus have positive or negative associations in the dominant White culture.

Hypothesis 3: Participants' perceptions of the occupational agency and communion of intersectionally-defined people will positively correlate with the occupational agency and communion of people inhabiting those intersections in the U.S.

Hypothesis 4: Intersectionally-defined people will be stereotyped as more competent when they are expected to hold more agentic occupations, and warmer when they are expected to hold more communal occupations.

3.1.2.3 Competition

Finally, work on the Stereotype Content Model argues that warmth stereotypes are predicted by the degree to which a group is seen as being in competition with other groups for resources and opportunities (Fiske 2018; Fiske et al. 2002). That is, groups are seen as less good and sociable when their gain is thought to come at the expense of others.

The SCM does not typically link perceptions of competition to socioeconomic realities like economic inequality or occupational segregation. However, sociological and social psychological theory suggests that there may be such links. Group Position Theory

(Blumer 1958; Bobo 1999) argues that intergroup prejudices (specifically racial prejudice) derive, in part, from the sense that a marginalized group threatens the advantages of a dominant group. Anti-Black racism thus represents Whites' resistance to the advancement of Blacks in society from a lower socioeconomic position. Such threats lead to a tendency for Whites to see race relations as zero-sum (Norton and Sommers 2011) as well as shift towards conservatism in response to growing populations of people of color (Craig and Richeson 2014; Wetts and Willer 2018). Even among Blacks, intergroup competition matters: Abascal (2015) finds that exposure to the prospect of increasing Hispanic populations leads Blacks to identify more with dominant groups.

Importantly, Group Position Theory connects prejudice and perceived competition with patterns of segregation. White Americans reacted particularly negatively to policies that led to greater interracial contact, like busing and affirmative action, and tended to frame these as allowing Blacks to gain only at Whites' loss (Bobo et al. 2012). In contrast, the racial hierarchy was maintained, and perceptions of threat reduced, when segregation was maintained. This suggests that perceptions of competition may be related to the segregation of groups and intersectional identities: the more people of a given intersectional identity are segregated, either geographically or occupationally, the less they will be seen as competing with others, and vice versa.

Extending these predictions to intersectional identities requires adjusting the concept of competition to the level of individuals. Work on intergroup prejudice and competition typically defines competition as being between groups, with one group's gain coming at the expense of the other group. This is a zero-sum version of competition. Since this study examines stereotypes of intersectionally-defined individuals, I define

competition slightly differently than prior research on social categories. Instead of representing the perception that a group has zero-sum relationships with other groups, I define perceived competition as the perception that people with a given intersectional identity relate to others around them (who are likely to have different intersectional identities) in a zero-sum way: gaining from others' loss, having the ability to exploit others, etc.

Hypothesis 5: Participants' perceptions of the zero-sum competitiveness of intersectionally-defined people will correlate negatively with the geographic and occupational segregation of those intersectional groups in the U.S.

But another line of research suggests that the opposite effect may occur. Intergroup Contact Theory (Pettigrew and Tropp 2006; Pettigrew et al. 2011) finds that social contact between members of different groups tends to reduce prejudice. This effect is strongest when members of different groups have equal status, share goals, cooperate with each other, and when their interaction is socially legitimated. When intergroup contact takes place under these conditions, interactions tend to invalidate pre-existing beliefs about groups' hostility or incompetence, and reinforce beliefs of the groups' equality and ability to cooperate. In this view, segregation maintains a sense of threat while desegregation reduces it. When this view is generalized to the context of intersectional identities, it implies that intersectional identities that are less segregated from other intersectional identities across geography and occupation should be seen as less competitive in a zero-sum sense, while those that are more segregated should be seen as more competitive.

Hypothesis 6: Participants' perceptions of the zero-sum competitiveness of intersectionally-defined people will correlate positively with the geographic and occupational segregation of those intersectional groups in the U.S.

As with perceptions of SES and social roles, it is an open question whether perceptions of intersectional identities' competitiveness will relate at all to patterns of segregation. In addition to the above hypotheses, it is possible that patterns of intergroup contact and threat counteract each other such that the overall correlations between segregation and perceived threat are null. It is also possible that segregation simply does not matter for intersectional identities in the same ways that it does for social categories like Whites and Blacks.

However segregation relates to perceived competition, research in the SCM is clear that when people perceive members of a group as more socially competitive with other groups, they will stereotype those group members as less warm. In other words, when a group is seen as gaining at the expense of another group, or as having the ability to exploit less powerful groups, then people perceive members of that group as less friendly, less moral, and more hostile. The same is likely to be true of perceptions of intersectionally-defined individuals: when these people are seen as having competitive, zero-sum relationships with people around them, they are likely to be stereotyped as less warm.

Hypothesis 7: Intersectionally-defined people will be stereotyped as less warm when they are seen as competing with others in a zero-sum way.

Perceptions of competition may not be independent of SES and occupational characteristics. A person may be seen as more competitive if they have more economic

power, or are in an occupation that affords them greater ability to act agentically or less communally. So, while competition will likely matter on its own, it may also mediate effects of SES and occupational characteristics on stereotypes.

3.1.3 Averages and Variation in Causes

Perceptions of SES, social roles, and competition lead to stereotypes of warmth and competence. However, the above theoretical reasoning has thus far been applied to these effects *on average*. That is, existing work suggests that these factors should *tend* to give rise to stereotypes across a large set of intersectionally-defined profiles. But intersectionality stresses both differences as well as similarities in how axes of difference operate (Collins 2019). A perception, like SES, may tend to affect competence stereotypes on average, but that effect may also vary across different intersectional profiles, perhaps to the extent that it has a much smaller effect than it does on average, or even has the opposite sign effect for some groups of intersectional profiles. Thus, in this analysis I make a distinction in interpretation of effects based on both the average size of the effect and how much it varies across the whole set of intersectional profiles defined by a combination of social categories. Table 3.1 shows differences in the interpretation of effects depending on average size and variability across intersectional profiles.

A small effect size with low effect variability represents a truly negligible factor. Here the independent variable consistently has little impact on the dependent variable. On the other hand, a small effect size that is highly variable represents a factor that may be statistically impactful under some circumstances, or that can have notable positive *or* negative effects in different contexts.

Likewise, the interpretation of a large effect also depends on its variability. A large effect with low variability is highly robust; in these circumstances, a variable consistently has the same, large effect under most or all circumstances. But when a large effect also has large variability, that can mean its effects span all the way from the very small, to medium, to large depending on the intersectional identities in question.

Table 3.1—Interpretations of effects depending on average effect size and variability.

		Effect Variability	
		Low	High
Average Effect Size	Small	Variable is consistently a minor predictor; it generally has the same effects under different circumstances	Variable is typically a minor predictor but may be a major predictor under some circumstances; it may sometimes have the opposite effect that it does on average
	Large	Variable is consistently a major predictor in all or nearly all contexts; it generally has the same effects under different circumstances	Variable is usually a major predictor; it may sometimes be a minor predictor depending on circumstances

Analysis that focuses on just the average effects of perceived SES, social role agency and communion, and competition on warmth and competence stereotypes will be incomplete if it does not recognize and test for variation in those effects as well. So, in this chapter I will test not only for average effects of these four perceptions on stereotypes, but also analyze the degree to which those effects vary across different intersectional profiles. The results may show that they consistently impact stereotypes in the same ways regardless of the intersecting category memberships of a profile, but they may also reveal that factors have widely varying effects, and that quite different processes occur for different sets of intersecting categories.

3.1.4 Categorical Stereotypes as Aggregations of Intersectional Stereotypes

Connecting stereotypes to social structure also suggests a novel[13] way of thinking about the relationship between categorical and intersectional stereotypes. All people can be seen categorically (a member of a social category defined by a single characteristic) as well as intersectionally (a person who is a member of multiple social categories simultaneously). Social categories are composed of individuals who may be perceived intersectionally in day-to-day life according to multiple social category memberships. In face-to-face interactions, the stereotypes that apply to these individuals are likely intersectional because, in most social situations, more than one category membership will tend to be salient. So, when people form stereotypes about whole categories, they draw upon their experiences with a variety of people with different intersectional identities, but who share one categorical membership. The resulting categorical stereotypes are likely more strongly affected by the stereotypes of intersectional identities that the observer has had the most experience with, with more categorical stereotypes falling closer to the stereotypes of more prevalent intersectional identities. In other words, categorical stereotypes may be an aggregation of the intersectional identities of people within a social category, with the more prevalent identities holding more weight than less prevalent ones. I refer to this as the intersectional aggregation hypothesis.

Figure 3.2 illustrates this argument. On the left are intersectional stereotypes of warmth, represented as separate colored squares (ranging from red [low] to green [high])

[13] I am unaware of any publications making this argument regarding intersectional and categorical stereotypes, but conceptually similar arguments have been made in prior work. For example, Clausell and Fiske (2005) argued that stereotypes of gay men are explained by the combination of stereotypes of subgroups of gay men.

with their size corresponding to their demographic prevalence in the U.S. On the right are two squares, representing men and women of all four racial groups. The color of the categorical stereotypes represents the average of the intersectional stereotypes for men and women across all four racial groups. The categorical stereotypes are more heavily influenced by the stereotypes of the more demographically prevalent intersectional identities.

Though people may aggregate categorical stereotypes from the intersectional identities of people that they personally encounter in the world, data on interaction frequencies between people of different intersectional identities are rare. So, as a first test of the intersectional aggregation hypothesis, I will test whether intersectional stereotypes resemble categorical stereotypes when each intersectional identity is given statistical weight proportional to its population proportion and used to generate weighted averages for each social category. In other words, I will test whether we can model categorical stereotypes as the 'average' intersectional stereotype applied to members of a given social group.

> *Hypothesis 8: When stereotypes of intersectional strata are weighted in proportion to the size of the population of those strata in the U.S., weighted averages of category-level stereotypes will correspond to category-level stereotypes observed in prior research.*

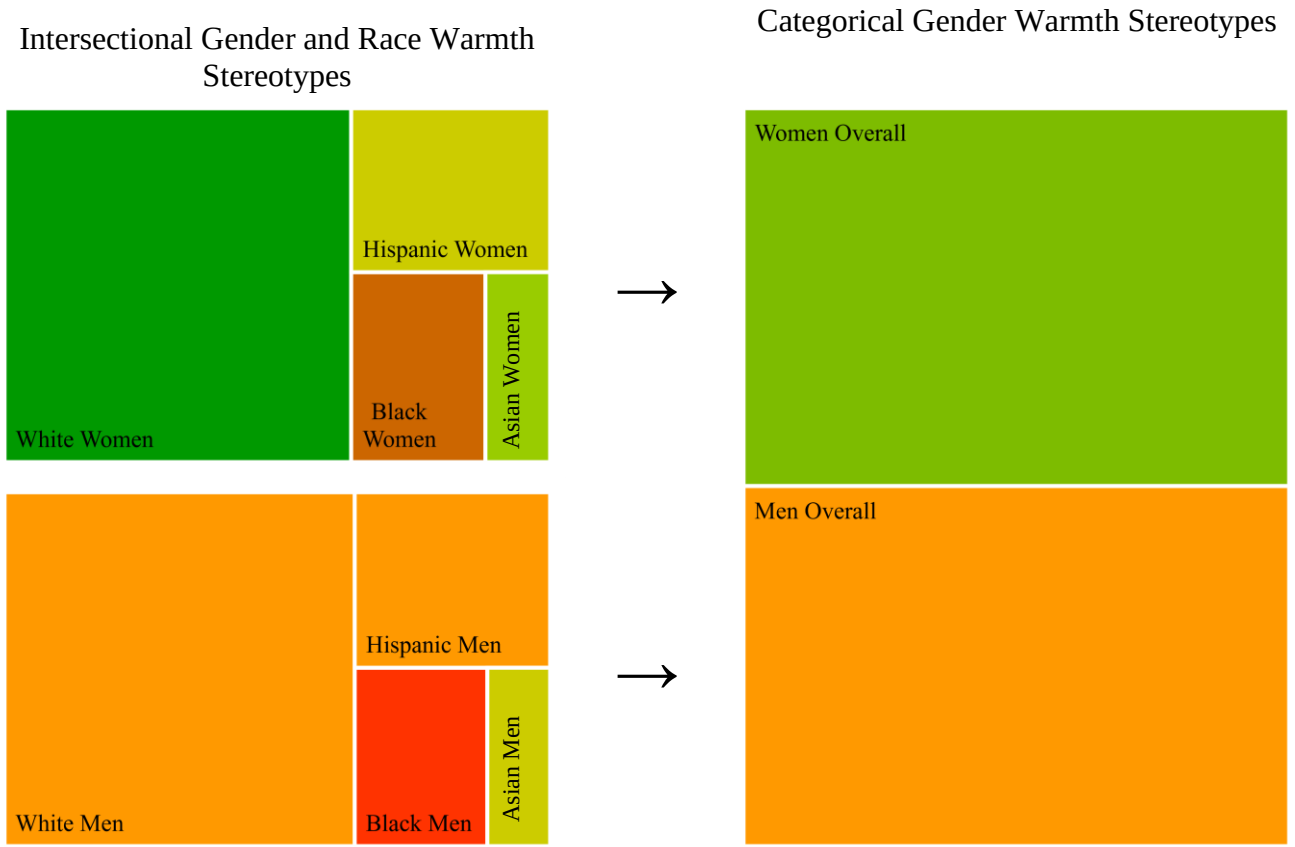


Figure 3.2—Illustration of the intersectional aggregation hypothesis. Box size corresponds to demographic prevalence, and box color corresponds to warmth stereotypes (red=low, yellow=moderate, green=high).

For example, stereotypes of women as warmer than men do not necessarily mean that all women, in all intersectionally definable groups, are stereotyped as warmer than similar men. In fact, lesbian women are stereotyped as significantly colder than gay men (Mize and Manago 2017). But, because the LGBTQ population is much smaller than the heterosexual population, the latter will tend to have a larger influence on gender stereotypes writ large.

In this view, both assessments of stereotypes are valid – women are stereotyped as warmer than men, and lesbian women are stereotyped as colder than gay men – because they operate at different levels of analysis: categorical stereotypes describe views of whole categories, and intersectional stereotypes describe views of groups or individuals that comprise the larger category. That is, categorical and intersectional stereotypes are co-constitutive because intersectional stereotypes are formed through the interaction of social categories and beliefs about them, and categorical stereotypes are formed through the averaging of beliefs about the more intersectionally contingent groups that comprise the category.

The final analysis will test the intersectional aggregation hypothesis and compare average stereotypes when intersectional stereotypes are weighted equally vs when they are given weight according to the size of the population with those intersectional characteristics. The hypothesis will be supported if the resulting categorical stereotypes resemble categorical stereotypes observed in prior research in terms of categories' relative placement on a warmth-competence graph. However, the hypothesis will not be supported to the extent that categorical stereotypes do not correspond to their relative placement as found in prior research.

3.1.5 Plan of Analysis

In the next sections, I will carry out four distinct sets of analyses, utilizing data from two linked sources: data on perceptions of intersectionally-defined people gathered using a novel survey experiment, data on the socioeconomic characteristics of people inhabiting those intersections in the U.S. from the 2015-19 ACS Five-Year Estimates (Ruggles et al. 2021), and data on occupational characteristics from the Department of Labor (O*NET 2020).

The first section of the analysis will review several key measures of intersectional complexity for each dependent variable from the survey experiment. This will test the claim that intersectional warmth and competence stereotypes are not merely the result of 'adding up' different categorical stereotypes.

The second will examine the correlation between the "objective" measures of socioeconomic characteristics across different intersectional groups in the ACS data and the "subjective" perceptions of survey experiment participants of intersectionally-defined people. This will test the claim that participants' perceptions of others are correlated with actual socioeconomic conditions.

The third will test how these participant perceptions predict intersectional stereotypes, and measure whether these effects vary across intersectional strata. This will test how well intersectional stereotypes are explained by perceptions of SES, occupations, and competition. It will also test whether this explanatory power is robust across different intersectional groupings.

Finally, the fourth section tests the intersectional aggregation hypothesis, that categorical stereotypes can be reproduced using intersectional stereotypes weighted by the population prevalence of each intersectional identity.

3.2 Method

The simultaneous salience of multiple social categories in a person's identity or presentation is often called an 'intersection', but the term can also refer to many other social processes involving multiple identities (Choo and Ferree 2010; McCall 2003). For clarity, this study adopts the term 'intersectional social stratum' (Evans et al. 2018) to refer to the simultaneous salience of states of multiple different social categories, and 'profile' to refer to a text vignette describing a person in an intersectional stratum.

Table 3.2—Experimental categories and levels

Categories	# Levels	Levels
Gender	2	Man, Woman
Sexuality	2	Heterosexual, Gay/Lesbian
Race/Ethnicity	4	White, Black, Hispanic, Asian
Age	6	16-25, 26-35, 36-45, 46-55, 56-65, 66-75
Total # of Strata	96	
Example Profile:	"Please take a moment to imagine a **gay Asian man** between **16-25**."	

Intersectional strata were defined by crossing two Gender levels (Man, Woman), two Sexuality levels (Heterosexual, Gay/Lesbian), four Race/Ethnicity levels (White, Black, Hispanic, Asian), and six Age levels (16-25, 26-35, 36-45, 46-55, 56-65, 66-75), resulting in $2^2 4^1 6^1 = 96$ strata (Table 3.2). In the secondary data, strata were denoted by a categorical variable indicating which stratum a respondent inhabits. In the experiment,

short profiles for each stratum described a person according to those categories, which participants then rated.

3.2.1 Secondary Data

Secondary data on the U.S. population came from the 2014-2019 American Community Survey Five-Year estimates, conducted by the Census Bureau and obtained from the Integrated Public Use Microdata Series (IPUMS; Ruggles et al. 2021). Each year of the ACS constitutes a 1% random sample of the U.S. population. Thus, the 5-year estimates provide a sample of 5%, or nearly 16 million people. Data were weighted to provide more accurate population estimates. The 96 intersectional strata defined above covered more than 11 million ACS respondents, who represented more than 230 million Americans.

The sample size is important because it allows estimation of population means of even the lowest-population intersectional strata. For example, despite the very large sample size, the smallest stratum—Lesbian Hispanic women between 16 and 25—contains only 108 responses. At around a thousandth of a percent of the population, it is extremely unlikely that this stratum of people would be observed at all in any but the largest population-representative datasets.

3.2.1.1 Sexuality in the ACS

Sexuality was measured with a variable indicating whether a respondent was part of a same-sex partnership (married or unmarried). This cannot distinguish between lesbian/gay relationships and those involving bisexuals, transgender individuals, or other sexual minorities, and it cannot identify any LGBTQ individuals who are not cohabiting. However, despite the drawbacks, this strategy has been used in previous research to good

effect, for example yielding insights on the distribution of sexuality groups across occupations (Tilcsik et al. 2015).

3.2.1.2 ACS Measures

The characteristics of different intersectional strata in the ACS are linked to the survey experiment by first calculating population-weighted means for each variable within each of the 96 intersectional strata. These means will then be compared against strata-level means of participant perception variables in the survey experiment.

Income was measured as the total personal earned income, excluding only individuals with 0 or negative income. **College completion rate** was measured as the proportion of people with a 4-year college degree or higher.

Several types of segregation were measured using the index of dissimilarity. This measure represents the proportion of a group that would have to move to a new area (for geographic segregation) or occupation (for occupational segregation) for all areas or occupations to have the same group proportions as the population overall. **Geographic segregation** was calculated with the index of dissimilarity of 96 strata across 982 Public Use Microdata Areas (PUMAs)[14] and **occupational segregation** was measured across 529 occupations using SOC codes.

Additional data on occupations were then linked to the ACS sample via SOC occupation codes. **Occupational prestige** ratings came from Hout, Smith, and Marsden (2014).[15] Data on sixteen 'job styles' were taken from O*Net, a database of occupational

[14] PUMAs are much larger than neighborhoods or census tracts, with the median PUMA representing about 157,000 Americans.

[15] Specifically, I used the prestige variable `occprestige_10plus`, which uses a threshold calculation method and removes rater effects. Analyses using this variable yield virtually identical results as the Nakao and Treisman or Siegel prestige ratings included in the IPUMS file.

characteristics maintained by the Department of Labor (O*NET 2020). Job styles indicate the extent to which an occupation involves the use of different kinds of personal characteristics or activities, e.g. "initiative" or "social orientation." Factor analysis (Appendix Section B.2) showed that most job style variables loaded on to two factors which strongly corresponded to **agency** (with strong loadings from items like "achievement and effort", "initiative", and "analytical thinking") and **communion** (with strong loadings from "social orientation", "self-control", and "cooperation"). Because the factor structure was not as cleanly defined as it might be for a purpose-designed scale, summary factor scores were generated using exploratory factor analysis.[16]

3.2.2 Survey Experiment

Measurements of intersectional stereotypes and other variables came from a blocked factorial survey experiment[17] (Auspurg and Hinz 2015) using CloudResearch's Prime Panels service (Chandler et al. 2019; Litman and Robinson 2021; Litman et al. 2017.) This service distributes studies to survey panel companies, each of which recruits participants from the general public and compensates them through a variety of reward plans. This participant pool is much larger than other online participant pools, tends to be more representative, and is less familiar with common social science methods (Chandler et al. 2019; Litman and Robinson 2021).

[16] The EFA was conducted at the respondent level in the ACS. However, EFAs using occupations rather than workers as unit of analysis resulted in essentially the same factor solution, and the two sets of factor scores correlate with each other nearly perfectly (*r*s>.99) when linked to individuals in the ACS.
[17] Data were collected at the very beginning of the COVID-19 pandemic, March 18-22, 2020. Data collection was initially planned to take place later but was moved up to minimize potential disruption from the pandemic.

The sample was large (*N*=1,481). Participants were excluded from the analytic sample if they failed an attention check (*N*=120), or a bot check (*N*=79). In all, 184 participants (12.4% of the sample) were excluded, leaving an analytic sample of *N*=1,297. The sample was quite diverse, though somewhat Whiter, more educated, and less likely to be working full-time than U.S. adults in general (Table 3.3, full demographics in Appendix Section B.1).

Table 3.3—Survey experiment demographics, analytic sample (*N*=1,297)

	Mean (SD) or %
Age	48.2 (17.2)
Women (%)	52.2
LGBTQ (%)	9.4
Non-Hispanic White (%)	74.8
College Degree (%)	36.1
Employed, Full or Part-Time (%)	48.6
Family Income (Thousands USD)	70.3 (66.3)
Subjective SES (1-10)	5.6 (2.0)
Conservatism (1-7)	4.1 (1.8)

As noted above, 96 profiles described a person according to Gender, Sexuality, Race/Ethnicity, and Age. Those profiles were then assigned to one of 15 'blocks' of six profiles each (mean *N* per block=81.1, SD=.7). Using a block-design program in SAS, these blocks were designed to minimize correlations between factors both within and between blocks, minimize design effects on SEs, maximize statistical power, and allow estimation of 2- and 3-way interactions. Upon beginning the study, participants were randomly assigned to one of the sixteen blocks, with profiles presented in random order. Because each participant completed multiple profiles, the sample size of profile ratings is much larger at *N*=7,782. This design also ensures that while some participant

demographics have average effects on study variables (Appendix Table B.2), demographic effects are not correlated with experimental factors.

3.2.2.1 Experiment Measures

After reading each profile, participants completed measures of perceived SES (α=.93), competition (α=.94), occupational agency (α=.93) and communion (α=.89), and warmth (α=.93) and competence (α=.88) stereotypes.[18] Table 3 provides detail on the scale items and response options for all variables. All items used 9-point Likert scales.

The **perceived SES** index used two items that asked how successful the person in the profile is and which social class they are in, and three items that asked whether the types of job that this person *might* do (whether or not the participant thought they did have a job[19]) would involve high income, education, and prestige.

The **occupational agency** and **communion** indexes were measured with items that asked participants about the kinds of jobs the person in the profile might have. As much as possible, these items mirrored the language of O*Net job styles items. All four agency items (achievement, leadership, innovation, and analytical thinking) were parallel to job styles items. Only one communion item was taken directly from job styles items because many communion job styles were potentially unclear (e.g. 'social orientation'). However, all communion items used terms and concepts found prominently in the definitions of communion job styles.

[18] Scales were also highly reliable after removing participant effects using variables centered on their participant-level mean: perceived SES (α=.91), competition (α=.87), occupational agency (α=.89) and communion (α=.82), and warmth (α=.86) and competence (α=.79) stereotypes.

[19] Participants also completed a measure of expected employment status. I do not include analysis of employment status because it does not feature strongly in SCM or SRT research. However, because it relates to SES perceptions, Appendix Section B.3 reviews analyses which show that the likelihood that participants expect a profile person to be employed correlates strongly with strata-level employment rates in the ACS.

The **competition** index used four items asking whether the person in the profile would tend to interact with others in a zero-sum, exploitative manner. As noted in the introduction, this index generalizes the concept of competition to the level of individuals by focusing on zero-sum relations (when the profiled person gains, it is at a cost to others) and exploitation (using power to extract resources from others), both of which parallel prior measures of intergroup competition (e.g. "The more power members of this group have, the less power people like me are likely to have" and "Resources that go to members of this group are likely to take away from the resources of people like me" from Fiske et al. 2002). But while this operationalization makes it possible to study perceptions of competition for people of different intersectional identities, it is also possible that aspects of intergroup competition may be 'lost in translation' to the individual level. Future work may address such effects of different operationalizations.

Finally, **warmth** and **competence stereotypes** were measured with four-item scales (see Chapter 2 for discussion of these measures) that were designed to conserve questionnaire space and equally-weight the two sub-factors' stereotype content (Abele et al. 2016): sociability and morality for warmth; agency and intelligence for competence.

3.2.2.2 Intersectional Complexity in Study Variables

In quantitative analyses, intersectional perspectives typically argue that outcomes, like the dependent variables in this study, are not adequately explained by the additive main effects of separate social categories (Chapter 2; McCall 2003; Pedulla 2018). Rather, they are likely to be more 'complex', i.e. explained in large part by the interactions between social categories. So, an important initial step in this study's analysis is to estimate the degree to which the dependent variables are intersectionally complex.

Table 3.4a–Survey experiment questionnaire items.			
Item Text	Response Options	Measures…	Compared to ACS…
Overall, how economically successful is this person (“[profile text]”)?	1 (not successful at all) – 9 (very successful)	Perceived SES	Income College Completion Rate Occupational Prestige
Overall, which social class is this person (“[profile text]”) in?	1 (lower class) – 9 (upper class)		
Assuming this person has a job, what kinds of jobs would most people expect this person (“[profile text]”) to do? How much do these jobs involve each of the following? - A high income - A high education - Prestige	1 (not at all) – 9 (very much)		
- Achievement - Leadership - Innovation - Analytical thinking		Occupational Agency	
- Being pleasant to others - Cooperation - Helpfulness - Avoiding conflict		Occupational Communion	

Table 3.4b–Survey experiment questionnaire items, continued			
Item Text	Response Options	Measures…	Compared to ACS…
How much would most people agree or disagree with the following statements regarding (“[profile text]”)? - The more power this person has, the less power others are likely to have - Resources that go to this person are likely to take away from the resources of others - When this person gains, it is usually at the expense of others - This person is able to exploit others for their own benefit	1 (strongly disagree) – 9 (strongly agree)	Perceived Competition	Residential and Occupational Segregation
How would most people see (“[profile text]”)? - Trustworthy - Good-natured - Warm - Friendly	1 (not at all) – 9 (very much so)	Warmth Stereotypes	None
- Confident - Assertive - Capable - Intelligent		Competence Stereotypes	None

To estimate intersectional complexity in study variables, I decomposed variation in the strata-level means of perceived SES, occupational agency and communion, competition, and stereotypes of warmth and competence into components of variance associated with main effects of the experimental categories (Gender, Sexuality, Age, and Race/Ethnicity), their interactions, and strata-unique effects.[20] It is relatively uncommon for an interaction effect to explain as much variation as the main effects that it builds on, so I argue that the total variance explained by main effects serves as a justifiable benchmark for a 'large' amount of variance associated with interactions. Thus, in this study, a variable will have a 'large' level of intersectional complexity if interactions are associated with more variation than the main effects, 'moderate' complexity if interactions are associated with at least half as much variation as main effects, and 'low' complexity if they are associated with less than half as much variation as main effects. Table 3.5 decomposes between-strata variance for all five survey variables.

By these standards, perceived SES, occupational agency and communion, and competence stereotypes were all low in intersectional complexity, with interaction effects explaining only 8.3%, 9.5%, 33.8%, and 15.5% of between-strata variance, respectively (and somewhat less explained by significant interaction effects). In fact, for perceived SES, agency, and competence, main effects of Race stereotypes alone explained more than half, and up to two-thirds, of the between-strata variance.

[20] Statistical significance for interaction effects was determined through a model-trimming approach: beginning with models with all interactions, I tested for significance using likelihood ratio tests of models with individual interactions removed vs models with the interactions present. I removed non-significant interactions with the highest *p*-values and re-estimated significance of the remaining interactions. Model trimming ended when removing any interaction would result in a statistically significant drop in model fit.

Table 3.5—Decomposition of between-strata variance in study variables.						
	SES	Agency	Communion	Competition	Warmth	Competence
Main Effects						
- Gender	1.6	1.9	.0	1.4	.1	.3
- Sexuality	1.6	1.8	10.6	.0	10.5	9.8
- Race	65.2	64.2	21.8	14.3	16.3	52.2
- Age	18.6	16.1	27.9	10.9	18.9	14.9
All Main Effects	87.0	84.0	60.3	26.6	45.9	77.3
All 2-Way Interactions	5.4	5.9	16.0	21.5	22.8	10.0
- Significant 2-Way Effects	5.3	4.1	15.5	19.2	22.8	8.7
All 3-Way Interactions	1.8	2.1	4.4	12.8	4.8	2.0
- Significant 3-Way Effects	.8	.4	2.6	5.6	.0	.0
All Interaction Effects	7.2	8.0	20.4	34.3	27.6	12.0
- All Significant Interactions	6.1	4.5	18.1	24.8	22.8	8.7
Total %	100.0	100.0	100.0	100.0	100.0	100.0

Warmth stereotypes had a moderate level of complexity, with interaction effects explaining 60.1% of between-strata variance (though significant interactions reduce this to 49.7%, slightly below half). Perceived competition was the most intersectionally complex variable, with interaction effects explaining more between-strata variance than main effects (significant interaction effects still explain nearly as much variance as main effects, 93.2%).

In general, warmth stereotypes and the variables expected to predict them (competition and occupational communion) tended to be more intersectionally complex than competence stereotypes and the variables expected to predict them (SES and occupational agency). For the latter, Race alone was clearly the single most important factor while interactions play a relatively small role. However, for the former, interactions played a much larger role. Appendix Section B.4 provides further detail on specific interaction effects and random slopes models that detail the average effects of each category and the degree to which those effects vary across intersectional strata. Given the focus of this chapter on theory-testing and the sheer amount of information contained in these models, I do not discuss these results further here, but anticipate that the results will be relevant for a future project.

3.3. Do Participants' Perceptions Relate to Actual Social Conditions?

3.3.1 Socioeconomic Status

Hypothesis 1 predicts that participants will tend to perceive intersectionally-defined people as having higher SES when the people who actually inhabit those intersectional strata in the U.S. have higher income, education, and occupational prestige. Table 3.5 shows that this is the case: participants strongly tended to perceive profiles as having

higher SES when the people with those intersectional identities in the ACS had higher incomes (r=.68, p<.001), college completion rates (r=.74, p<.001), and occupational prestige (r=.78, p<.001).[21] Thus, Hypothesis 1 is supported: participants' perceptions of the SES of intersectionally-defined profiles correlates well with the actual SES of people who have those intersectional identities. Hypothesis 2, that these perceptions will predict competence stereotypes, will be tested in a later section.

Table 3.6—Correlations between strata-level means of variables in ACS and survey experiment, N=96

Survey Experiment	American Community Survey	r
SES	Income	.68***
	College Completion	.74***
	Occ. Prestige	.78***
Occ. Agency	Occ. Agency	.65***
Occ. Communion	Occ. Communion	.04
Competition	Geographic Segregation	-.28**
	Occupational Segregation	-.16

3.3.2 Social Roles/Occupations

Next, Hypothesis 3 predicts that participants will tend to perceive intersectionally-defined people as having higher occupational agency and communion when people who actually inhabit those intersectional strata tend to have higher occupational agency and communion. As Table 3.6 shows, this hypothesis was strongly supported for occupational agency (r=.65, p<.001), but not occupational communion (r=.04, p=ns). Participants were good at recognizing when people in a specific intersection were likely to have more agentic occupations, but their ideas of when those people were likely to have more

[21] Since sexuality in the ACS was inferred from couple characteristics which may be related to SES and other socioeconomic characteristics, correlations between perception variables and ACS variables may differ based on sexuality. Appendix section 5 provides correlations separately based on sexuality.

communal jobs were not associated with intersectional identities' occupational communion as measured in the ACS.[22]

Why should occupational communion not correlate with participants' beliefs about occupational communion, when agency is so strongly correlated? One possibility is that perceptions of communion may have more to do with non-occupational social roles that are not measured by occupation, such as marriage or stay-at-home parenting. Appendix Table B.7 is consistent with this: perceived occupational communion correlated with the proportion of people in each strata who are married (r=.51, p<.001), and the proportion of people, especially heterosexuals, in each strata who were stay-at-home parents, i.e. in a couple, have their own children at home, and are not in the labor force (total r=.26, p<.05; perceptions of heterosexuals r=.44, p<.01).

These findings provide moderate support for Hypothesis 3. Perceptions of occupational agency strongly correlated with the occupational agency of people with different intersectional identities, and while there was no such relationship for occupational communion, preliminary analysis suggests this may be because of the importance of non-occupational roles. Hypothesis 4, that perceptions of agency and communion predict warmth and competence stereotypes, will be tested in a later section.

The relationship between perceived occupational characteristics and their reality is somewhat more complicated than the relationships for SES, but the evidence generally suggests that people tend to effectively perceive occupational characteristics for intersectionally defined profiles.

[22] Appendix Section B.5 finds that there is still no correlation even when I restrict analysis to the most parallel survey and O*NET communion items. The null correlation is thus not an artifact of differences in how communal occupations were described in the survey vs O*NET.

3.3.3 Competition

Hypotheses 5 and 6 give competing predictions about how segregation will relate to perceptions of competition. Hypothesis 5 is based on the argument that when places and occupations are integrated, outgroups pose more of a threat to advantaged ingroups, which leads to the perception that outgroups are gaining at the expense of others. In a similar way, Hypothesis 5 argues that when people with specific intersectional identities are more evenly distributed across geography or occupations, they may be seen as competing more with others around them. However, intergroup contact often reduces prejudice, and the same may be true of contact with individuals with specific intersectional identities. Hypothesis 6 therefore predicts the opposite effect: that participants will tend to perceive intersectionally defined people as *less* competitive when they are more integrated with others across geography or occupations.

Table 3.6 shows some support for Hypothesis 5 and none for Hypothesis 6. When people in different intersectional strata were less segregated across geography, they tended to be seen as more competitive (r=-.28, p<.01).[23] However, there was no significant correlation between occupational segregation and perceived competition (r=-.16, p=ns). In other words, when people were less intersectionally segregated across geographical areas, but not occupation, they tended to be seen as more likely to compete for resources and opportunities in a zero-sum way. One possible reason for the difference

[23] Appendix Table B.7 shows that this correlation is actually larger (r=-.38, p<.05) when controlling for occupational segregation and the means of strata SES and occupational variables. However, strata means of SES variables and occupational agency were highly collinear, so I do not conduct similar analyses for SES and occupational perceptions. Since I have little ability to control for other characteristics of people in different intersectional strata in the ACS, these analyses should be interpreted as strictly correlational—it is entirely possible that other structural factors mediate or explain these correlations.

in these effects, and the ways that it might differ from the effects of segregation of whole social categories, is the individual, strata-level framing of competition and segregation in this study. Future work should further examine the differences between category-level perceptions of competition and individual- or strata-level perceptions.

3.3.4 Summary

Participants' perceptions of intersectional targets' SES, occupational characteristics, and competition tended to correlate with actual socioeconomic conditions across the 96 intersectional strata of Gender, Sexuality, Age, and Race, as measured in the ACS. The correlation was strongest for perceptions of SES: participants' perceptions of the SES of intersectionally defined people correlated strongly with the income, college completion rates, and occupational prestige of people with those intersectional identities in the ACS. There was a similarly strong correlation between perceptions of occupational agency and measures of agency in the ACS, but participants' perceptions of occupational communion were not significantly related to occupational characteristics of intersectional groups in the ACS. Finally, participants tended to see intersectionally defined people as more competitive when they were less geographically (but not occupationally) segregated from others. Overall, this supports theoretical arguments that stereotypes stem from people's assumptions of where different kinds of people stand in society. These perceptions, in turn, were related to actual socioeconomic conditions in such a way that facts like intergroup inequalities tend to give rise to rationalizing stereotypes.

Of course, none of this means that participants perceive socioeconomic realities *accurately*. For one, these analyses are strictly correlational, and do not capture any of the causal processes (such as education, social sampling, exposure through social media, etc.)

that may connect structural realities and individuals' perceptions of those realities. In addition, the measures in the experiment (measured with Likert scales) cannot be clearly and objectively matched to 'equivalent' values of social statistics like income (measured in, for example, dollars). And even when perceptions correlate with objective statistics, participants may still consistently misperceive socioeconomic realities, like racial inequality (Kraus et al. 2019). Rather than implying that participants have a clear sense of the extent of inequalities, occupational trends, or other social facts, these perceptions may instead reflect cultural beliefs learned through media, social networks, or past interactions (Ridgeway 2018). Consistent with this possibility, for each profile, participants were asked whether they imagined a person they knew or met, someone they knew of through media, or neither. Across the nearly 8,000 profile ratings, half (50.2%) were of a person the participant knew or had met, about a quarter (29.0%) were from media, and only a fifth (20.9%) were neither. This suggests that the sensitivity of participants' perceptions to social conditions, and the stereotypes that result from them, owe much more to social sampling than to direct knowledge of socioeconomic conditions.

3.4 Explaining Intersectional Stereotypes

The prior section demonstrated that participants' perceptions of the SES, occupational characteristics, and competitiveness of intersectionally-defined people are related to the actual socioeconomic conditions experienced by people who inhabit those intersections in the United States. While notable on its own, this fact is only relevant if those perceptions then predict the kinds of intersectional stereotypes of warmth and competence that participants believe apply to those individuals. This section tests whether such perceptions do in fact lead to intersectional stereotypes in the predicted ways: perceiving

an intersectionally defined person as having higher SES and/or greater occupational agency should lead stereotypes of greater competence (Hypotheses 2 and 4); perceiving them as having greater occupational communion and/or lower zero-sum competitiveness should lead to stereotypes of greater warmth (Hypotheses 4 and 7).

These analyses use mixed effects models to estimate not only the average effect of independent variables, but also the variability of those effects across intersectional strata. Each model includes a strata-level random intercept as well as random slope parameters for each independent variable. The effect of a factor is expressed as both its average effect (*b*) and the standard deviation of that effect (*b* SD). In much the same way that the distribution of a variable's scores in a sample can be described by its central tendency (mean) as well as its dispersion (standard deviation), these analyses are able to identify the effect of a variable on average, across all 96 strata (the regression coefficient, *b*), as well as the degree to which that effect varies across those strata (the standard deviation of the coefficient, *b* SD). As explained in the introduction, the interpretation of variables' effects depends on both their average effect size and their variability.

In all models, random slopes parameters are allowed to correlate; for space, correlations among random slope parameters are reported in Appendix Table B.9. Clustering at the participant level is accounted for by centering all variables on their participant-level mean.[24]

[24] It is not possible to include a random intercept for participant ID in these models because cross-nesting participant and strata ID random intercepts fully identifies all observations and prevents the model from converging. Mean-centering on participant ID adjusts for consistent participant effects in the same way as a fixed or random effect (Allison 2009) but does not adjust SEs for participant clustering. Nevertheless, the SEs obtained by these models tend to be larger than those obtained by models with only a participant ID random intercept, suggesting that they are at least as conservative.

3.4.1 Warmth Stereotypes

Tables 3.7 and 3.8 present the results of random-slopes regression models predicting warmth and competence stereotypes, respectively. Effects of SES, occupational characteristics, and competition on their own are presented in separate models, and models 4 and 8 present their effects together in the same model. Each model includes both the average effect (*b*) and effect standard deviation (*b* SD) for each predictor and the constant. To illustrate both average effect size and effect variability in models 4 and 8, Figure 3.3 presents the distributions of predictor effects in model 4 (top graph) and model 8 (bottom graph), which were created using kernel density analysis of the 96 individual slopes of each variable.

Models 1-3 present effects of perceived SES, occupational characteristics, and competition by themselves. As predicted, on average, perceived occupational communion (*b*=.54, SE=.01, *p*<.001) and perceived competition (*b*=-.23, SE=.02, *p*<.001) were both associated with warmth stereotypes. Interestingly, perceived SES was also associated with stereotyped warmth (*b*=.35, SE=.02, *p*<.001), but perceived occupational agency had a much smaller effect (*b*=.13, SE=.01, *p*<.001). When all four predictors were considered together (Model 4), the effect of SES was dramatically reduced (*b*=.05, SE=.02, *p*<.01), and the effect of perceived competition is nearly cut in half (*b*=-.13, SE=.01, *p*<.001), while the effects of perceived occupational agency and communion remain similar (agency: *b*=.10, SE=.01, *p*<.001; communion: *b*=.50, SE=.01, *p*<.001).

Table 3.7—Mixed effects models predicting warmth stereotypes, with random slopes estimating effect variation across intersectional strata, N=7,781.

	Model 1		Model 2		Model 3		Model 4	
	b	*b* SD	*b*	*b* SD	*b*	*b* SD	*b*	*b* SD
SES	.35***	.16***					.05**	.10***
	(.02)	(.01)					(.02)	(.02)
Occ. Agency			.13***	.10***			.10***	.13***
			(.01)	(.01)			(.02)	(.02)
Occ. Communion			.54***	.08***			.50***	.09***
			(.01)	(.01)			(.01)	(.01)
Competition					-.23***	.13***	-.13***	.09***
					(.02)	(.01)	(.01)	(.01)
Constant	.01	.15***	.004	.09***	.003	.22***	.01	.08***
		(.02)		(.01)		(.02)		(.01)

†p<.10 *p<.05 **p<.01 ***p<.001

Note: Variables centered on participant-level means. *P*-values for random effects obtained from likelihood ratio tests. Correlations among random slopes reported in Appendix Table B.9.

Table 3.8—Mixed effects models predicting competence stereotypes, with random slopes estimating effect variation across intersectional strata, N=7,781.

	Model 1		Model 2		Model 3		Model 4	
	b	*b* SD	*b*	*b* SD	*b*	*b* SD	*b*	*b* SD
SES	.53***	.07***					.20***	.14***
	(.01)	(.01)					(.02)	(.02)
Occ. Agency			.52***	.09***			.35***	.14***
			(.01)	(.01)			(.02)	(.02)
Occ. Communion			.07***	.06***			.07***	.07***
			(.01)	(.01)			(.002)	(.01)
Competition					-.03*	.12***	.002	.06***
					(.01)	(.01)	(.01)	(.01)
Constant	-.0003	.09***	-.004	.09***	.002	.30***	-.003	.09***
		(.01)		(.01)		(.02)		(.01)

†$p<.10$ *$p<.05$ **$p<.01$ ***$p<.001$

Note: Variables centered on participant-level means. *P*-values for random effects obtained from likelihood ratio tests. Correlations among random slopes reported in Appendix Table B.9.

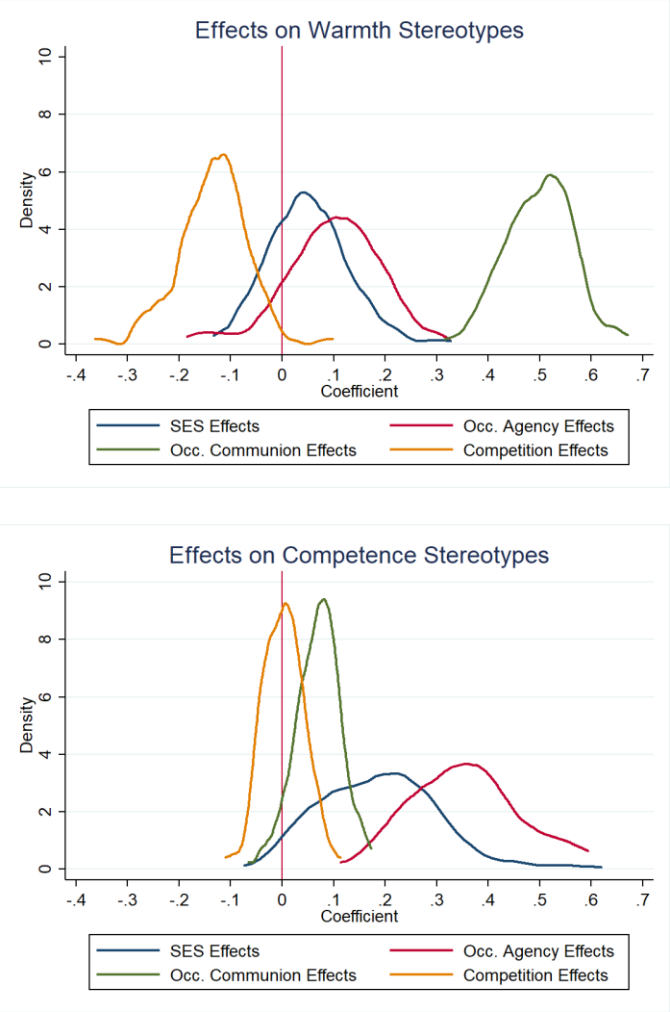


Figure 3.3—Distributions of random slopes for Models 4 and 8 in Tables 3.7 and 3.8 using kernel density analysis.

Notably, while perceived competition had significant effects on warmth stereotypes, the effect is smaller than in prior categorically-oriented stereotype content research (e.g. Fiske et al. 2002). This may be due to the fact that competition is operationalized here in individual, rather than group terms.

The differences between models 1-3 and 4 suggest that perceived occupational characteristics may confound or mediate the effects of perceived SES and competition.

Since stereotypes are heuristics that simplify cognition, it may be that participants first develop assumptions about the SES of profile persons, then infer likely occupation from that SES using cultural knowledge of the kinds of occupations that are typical of a given social class. The correlations between random slopes across strata (Appendix Table B.9) suggest that these effects may simply be confounded. SES and agency effects are negatively correlated (r=-.61, SE=.14, p<001), such that when SES had a larger effect, agency had a smaller effect, and vice versa. Likewise, communion and competition were positively correlated (r=.69, SE=.14, p<.01), such that when communion had a stronger positive effect, competition had a more positive (less strong, since the average competition effect was negative) effect, and vice versa. All other random slope correlations were non-significant (ps>.05).

The strength of all four effects varied to a similar degree in Model 4 (SES: b SD=.10, SE=.02, p<.001; agency: b SD=.13, SE=.02, p<.001; communion: b SD=.09, SE=.01, p<.001; b SD=.09, SE=.01, p<.001) across the 96 strata. Figure 1 displays the distributions of these effects. Despite variability, the effects of perceived occupational communion and perceived competition were consistent: effects of occupational communion were typically positive and ranged between .40 and .60, and effects of competition were typically negative and ranged between -.35 and .00. On the other hand, the range of perceived SES and agency effects more often crossed 0, meaning that while their effects were on-average positive, they were also often null or even negative.

Overall, these results support Hypotheses 4 and 5: on average, perceived occupational communion was associated with higher warmth stereotypes and perceived competition was associated with lower warmth stereotypes. Perceived SES and

occupational agency had minor effects. Examination of the variability of these effects further reinforces the argument that perceived communion and competition were the clearest predictors of warmth stereotypes because their effects, unlike those of perceived SES and agency, were significant and rarely null or reversed from their average effect.

3.4.2 Competence Stereotypes

Models 5-7 present effects of perceived SES, occupational characteristics, and competition by themselves. As predicted and on average, higher perceived SES (*b*=.53, SE=.01, *p*<.001) and occupational agency (*b*=.52, SE=.01, *p*<.001) were both strongly associated with higher competence stereotypes. Effects of perceived occupational communion (*b*=.07, SE=.01, *p*<.001) and competition (*b*=-.03, SE=.01, *p*<.05) were both much smaller. When all four variables are considered together (Model 8), the effects of SES (*b*=.20, SE=.02, *p*<.001) and agency (*b*=.35, SE=.02, *p*<.001) are both reduced, though the SES effect is reduced more, while the communion (*b*=.07, SE=.01, *p*<.001) and competition (*b*=.002, SE=.01, *p*=ns) effects remain small.

As with warmth, the differences between Models 5-7 and 8 suggest that agency may mediate or confound SES effects. Just as with warmth in Model 4, in Model 8 SES and agency effects were negatively correlated (*r*=-.78, SE=.07, *p*<.001), and communion and competition effects were positively correlated (*r*=.57, SE=.22, *p*<.05). All other random slope correlations were non-significant (*p*s>.05).

Model 4 also shows that the SES and agency effects varied much more across strata (SES: *b* SD=.14, SE=.02, *p*<.001; agency: *b* SD=.14, SE=.02, *p*<.001) than the communion and competition effects (communion: *b* SD=.07, SE=.01, *p*<.001; competition: *b* SD=.07, SE=.01, *p*<.001). As shown in Figure 1, this led to stark

differences between these factors. Agency effects were large and consistently positive despite variability, ranging between .20 and .60. SES effects were typically positive, but ranged from around 0 to .40, with a few even larger effects. And because SES and agency effects were negatively correlated, when one effect was weaker, the other tended to be stronger. In contrast, the effects of communion and competition were far less variable, with communion effects consistently positive but small, and competition effects universally null or close to null.

These results support Hypotheses 2 and 4: on average, perceived SES and occupational agency both increase stereotypes of competence. Though the effects of these factors varied, they were robustly positive across intersectional strata. In contrast, perceived occupational communion and competition had invariably small or null effects.

3.4.3 Summary

In this analysis, intersectional stereotypes of competence came primarily from perceiving a person as having higher SES and a more agentic occupation/role. Intersectional stereotypes of warmth came primarily from perceiving a person as having a more communal occupation/role, and from seeing that person as less socially competitive. While these effects tended to differ somewhat, the same core process appears to be present in a similar form across 96 intersectional stereotypes. Overall, the results suggest that the same factors that predict stereotypes of whole social categories (Fiske et al. 2002; Fiske 2018; Koenig and Eagly 2014, 2019; Ridgeway 2018, 2019) predict intersectional stereotypes in much the same way.

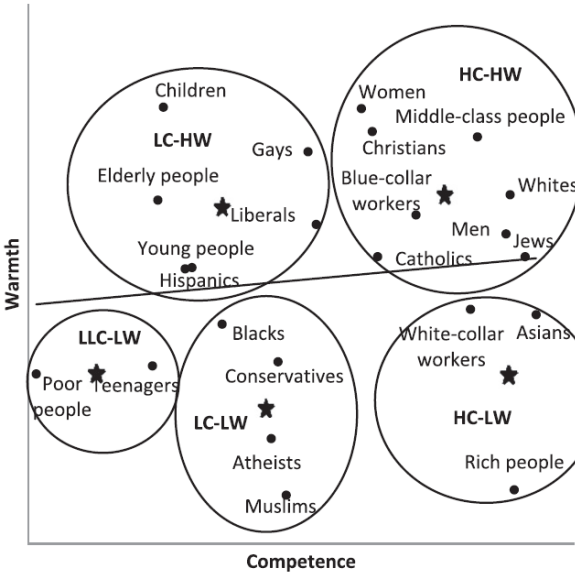
3.5 Can Intersectional Stereotypes Aggregate Into Categorical Stereotypes?

Results so far have shown that intersectional stereotypes have distinct and complex content and that the theories that predict categorical stereotype content still hold for predicting intersectional stereotypes. The previous sections have focused on quantifying the degree to which stereotypes and the factors that predict them might vary across different intersectional strata. However, in this section, I pivot to examine the conceptual and empirical connections between categorical and intersectional stereotypes, rather than their differences.

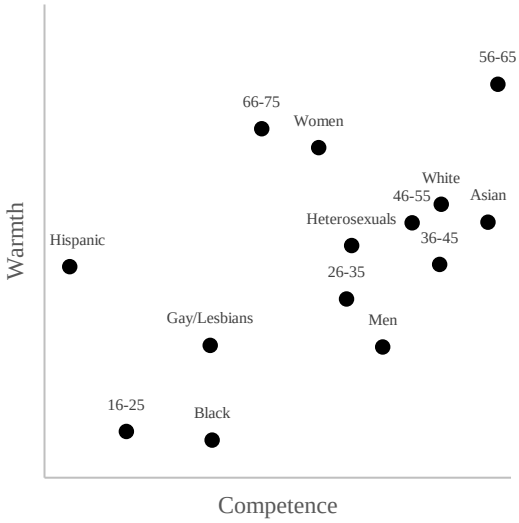
As described in the Introduction, the intersectional aggregation hypothesis is my argument that categorical stereotypes can be thought of as the average of intersectional stereotypes across members of a social category. In other words, a categorical stereotype, such as competence stereotypes of Hispanics, might be seen as the average level of competence that any randomly selected Hispanic person might be stereotyped as having. Undoubtedly, there is significant variation in how specific, intersectionally complex Hispanic individuals get stereotyped, as demonstrated in this study. But stereotypes of Hispanics in general may be seen as an average of all the intersectional stereotypes applied to individual group members. Crucially, in this view, if a particular intersectional group is more demographically prevalent, like young heterosexual Hispanic women, then the intersectional stereotype of that intersectional group will have a larger impact on the stereotypes of Hispanics in general than for less prevalent groups, like older gay Hispanic men.

To test the intersectional aggregation hypothesis, I created analytic weights using the demographic size of each of the 96 intersectional strata in the 2014-19 ACS. This

results in precise estimates of the size of each stratum in the US population.[25] I then estimated weighted averages of warmth and competence stereotypes for each individual category measured in the experiment. In essence, these weighted averages represent the average stereotype that might be applied to a member of that social category. Appendix Sections 7-8 analyze the differences between categorical stereotypes, including their sub-factors, estimated using equal strata weighting vs demographic weighting.



Categorical stereotypes, from Durante et al. (2017).



Categorical stereotypes estimated from intersectional stereotypes with demographic weights, current study.

Figure 3.4—Comparison of categorical stereotypes from prior research (Durante et al. 2017; U.S. sample) vs demographic weighting in current study.

The categorical stereotypes estimated with demographic weights recreated key patterns of categorical stereotypes from prior research (Figure 2). Here I highlight

[25] The ACS significantly under-estimates the size of the LGBTQ population. However, estimates of categorical stereotypes using this method are virtually identical when the size of lesbian/gay strata are multiplied by 3x and 10x (Appendix Section B.7).

Durante et al's (2017) findings on stereotypes from a large, population-representative survey in the U.S. All comparisons are made between the relative positions of groups on the warmth-competence graph, not in measured scores.

Many patterns are consistent across samples: (heterosexual) women are seen as much warmer and slightly less competent than (heterosexual) men;[26] gay and lesbian people are seen as less competent than heterosexuals; Whites and Asians are seen as more competent than Blacks and Hispanics; compared to Whites, Blacks are seen as much less warm, with Hispanics somewhat less warm; young people start out stereotyped with low warmth and competence, then older groups gain warmth and competence stereotypes, until finally stereotypes of competence fall significantly for the elderly.

A few differences are worth noting. Compared to Durante et al. (2017), the current study finds higher warmth stereotypes for Asians, lower warmth stereotypes for gay men, and higher warmth and competence stereotypes for the 56-65 Age group than might be expected given existing work on ageism (e.g. Wilson and Rosçigno 2018).

Nevertheless, the stereotypes estimated using demographic weights are remarkably similar to categorical stereotypes observed in prior research. This provides strong support for the intersectional aggregation hypothesis. Categorical stereotypes might therefore be understood as the average intersectional stereotype applied to members of a given social category.

[26] Consistent with recent research on changing gender stereotypes (Eagly et al. 2020), I find that the small difference in Gender competence stereotypes conceals different patterns based on the sub-types of competence (Appendix Table B.12). While women are not stereotyped as less intelligent (capable and intelligent) than men (b=-.05, SE=.07, p=ns), they are stereotyped as less agentic (assertive and confident; b=-.15, SE=.07, p<.05).

3.5.1 Summary

The data support the intersectional aggregation hypothesis. By weighting intersectional stereotypes according to the population size of each stratum, this analysis generated estimates of categorical stereotypes of Gender, Sexuality, Race/Ethnicity, and Age groups that corresponded to categorical stereotypes observed in prior research. This supports the idea that intersectional stereotypes 'aggregate up' to categorical stereotypes, and that categorical stereotypes can be understood as the average intersectional stereotype applied to members of a given social group.

3.6 General Discussion

Theories of stereotypes point to four factors that explain why different groups are stereotyped as more or less warm and competent: perceptions of those groups' socioeconomic status, competition with others, and the ways in which the roles they perform emphasize agentic or communal behavior (Eagly and Steffen 1984; Fiske 2018; Fiske et al. 2002; Koenig and Eagly 2014). But these theories were developed and applied to stereotypes of whole social categories, and until this study it has been largely an open question whether they also explain intersectional stereotypes—stereotypes of people defined by multiple social characteristics.

Using Census data and a large online experiment, I found strong evidence that a model integrating the Stereotype Content Model (Fiske 2018; Fiske et al. 2002) and Social Role Theory (Eagly and Steffen 1984; Koenig and Eagly 2014) does, in fact, account for the content of intersectional stereotypes across 96 intersections of Gender, Sexuality, Age, and Race/Ethnicity. These findings show that existing theories of stereotype content generalize to the intersectional context. Even when people are

stereotyped according to multiple social categories at once, the same social psychological processes affect the content of those stereotypes.

In the integrated theoretical model, people sample from their environment to first develop expectations about the social positions that intersectionally-defined others hold in society, e.g., their SES, occupations, and competitive relations to those around them. In this study, these perceptions are correlated with actual social conditions: when people in a given Gender-Sexuality-Age-Race intersection had higher income, education, and occupational prestige in Census data, participants tended to expect those people to have higher SES; when people in a given intersection had more agentic occupations, participants tended to expect them to have more agentic occupations (though there was not a similar correlation for occupational communion, perhaps because of a greater importance of non-occupational roles like parenting); and when people in a given intersection were more segregated from others across geography (though not occupations), participants tended to see them as less likely to be in zero-sum competition with others. In short, participants perceived people as having positions within social structure that tended to correlate with the realities of social structure.

This does not necessarily imply knowledge of social structure on the part of participants, in the sense that might be expected by a statistical discrimination perspective (Arrow 1973; Tilcsik 2021). Indeed, extensive research has shown that Americans misunderstand many structural facts, including racial inequality (Kraus et al. 2019) and economic inequality in general (Hauser and Norton 2017; Heiserman and Simpson 2021). Most participants sampled people fitting an intersectional description from their social environment, such as their social network (50.2% of responses) or media (29.0% of

responses). Despite their perceptions correlating with actual social conditions, participants were sampling from their own environment, not deriving their perceptions from more objective data.

However participants came upon their beliefs about the SES, competition, and occupational characteristics of intersectionally defined people, those beliefs related to their stereotypes about those people. Profiles perceived as having higher SES tended to be stereotyped as more competent and (to a lesser extent) warmer; profiles higher in perceived occupational agency and communion primarily tended to be stereotyped as higher in competence and warmth, respectively; and profiles with higher perceived competition tended to be stereotyped as less warm. Analyses also suggested that perceptions of competition and occupational characteristics may mediate much of the effects of perceived SES on stereotypes.

Not only did these effects occur on average, but they also occurred robustly across the 96 intersectional groups in this study. That is, while effects did tend to vary, the core predictors outlined by the integrated model tended to remain strong predictors regardless of intersection, and generally weaker predictors did not tend to become strongly important for any intersections. So, while stereotype content is complex in many ways, the theoretical processes that underlie it appear to be consistent.

Overall, this study found that while intersectional stereotypes can be quite complex, with about a quarter of between-strata variation in warmth stereotypes and an eighth of between-strata variation in competence stereotypes coming from interactions rather than main effects, neither the theoretical mechanisms that give rise to intersectional stereotypes nor the analytic techniques used to make sense of them need to be similarly

complex. This bodes well for researchers who wish to explore intersectional approaches but see parsimony as a virtue in theory and methodology (Healy 2017).

3.6.1 Categorical Stereotypes as an 'Aggregation' of Intersectional Stereotypes

This study also demonstrated a way of integrating the concepts of categorical and intersectional stereotypes. I argued that categorical stereotypes, as beliefs about how whole groups or categories of people are seen in society, might best be conceived of as an 'average' of all the myriad intersectional stereotypes that are applied to the smaller intersectional groups, or even individuals, that comprise that category.

Evidence for this 'intersectional aggregation hypothesis' came from an analysis that estimated category-level averages of stereotypes after assigning each intersectional profile an analytic weight equal to the proportion of the U.S. population with that intersectional identity, as measured in the ACS. The weighted-average stereotypes estimated by this procedure reproduced group-level stereotypes observed in prior research (Durante et al. 2017; Mize and Manago 2018): e.g. Whites and Asians were seen as competent but had middling warmth, while Blacks and Hispanics were seen as less warm and competent; young people were seen as not warm or competent, while middle-aged people were seen as both, and the elderly were seen as warm, but not competent; and women were seen as warmer and slightly less competent than men. In other words, treating categorical stereotypes as an average of the intersectional stereotypes applied in the population recreated exactly the kinds of categorical stereotypes known to exist.

Intersectional aggregation shows the ways in which categorical and intersectional stereotypes are 'co-constitutive' of each other. Intersectional stereotypes derive from the confluence of different categorical biases, plus more specific intersectional 'lenses'

(Petsko et al. 2022). At the same time, categorical stereotypes are generated from the aggregation of the intersectional stereotypes applied to the individual members of that social category. This view gives researchers the best of both worlds: the ability to conceptualize stereotypes at the level of whole groups, and the ability to conceptualize how intersectional groups or individuals are stereotyped in subtler ways that depend on multiple identities or social categories.

3.6.2 Future Directions

The methodologies used in this study are themselves part of a growing toolkit for studying intersectional questions effectively and simply. Factorial survey experiment designs like the one employed here can gather data across a very large number of intersectional strata, making it possible to 'leave no stone unturned' in experimental research. In studies with data from a completely observed factorial of intersectional strata, random slopes models provide a simple and parsimonious way to test for intersectional variation in the aggregate.

Using these methods, this study shows that despite the intersectional complexity of stereotypes, theories of stereotype content can be easily generalized to intersectional contexts. It also further develops the methodological and analytical tools for studying intersectional social perceptions. Future work can build on these contributions in several ways. One is to improve on the intersectional aggregation method used in this study. For example, while the ACS is the largest representative dataset that identifies lesbian and gay populations, the way it measures sexual orientation— inferring it from same-sex couple status—is indirect and fails to identify most LGBTQ individuals. A more accurate

dataset would almost certainly result in giving greater statistical weight to LGBTQ intersections when estimating categorical stereotypes.

Further, while this study assumed that the effect of intersectional stereotypes on categorical stereotypes is simply a matter of population size, other factors are likely to play a role. Among these are the general tendency for advantaged intersectional identities to feature more prominently in group prototypes, even within disadvantaged groups, e.g. the privileging of men in the Black identity, or Whiteness in the woman identity (Collins 2009). This argument and related research about the relative 'invisibility' of women of color vs White women and men of color (Purdie-Vaughns and Eichbach 2008) would suggest that even though the populations of men and women are about equal, intersectional stereotypes of men may have greater influence over categorical stereotypes of race, age, or other categories than intersectional stereotypes of women. Other factors that structure the kinds of intersectional identities that people are exposed to more often, like homophily (McPherson and Smith-Lovin 2001), may skew the social sampling and interactional processes that give rise to perceptions of others and subsequent stereotypes.

Future research should examine other key intersecting group memberships, especially those that structure self-concepts or intergroup conflicts like occupation, disability, weight, and religion (Grigoryan et al. 2022). This will also provide an additional test of the intersectional aggregation hypothesis: for example, researchers may test whether stereotypes of different racial groups are sensitive to the prevalence of intersectional groups defined partly by weight and weight stigma.

More broadly, future research should test whether theories of stereotype content continue to describe intersectional stereotypes outside of the four social categories used

in this study. Stereotype research often refers to dozens of different social groups, which may intersect with each other in myriad ways. While this study found that the integrated model of stereotype content fits well across the intersections of Gender, Sexuality, Age, and Race, it is nevertheless still possible that the model does not describe stereotypes across intersections with other important social categories, like political identities or the urban-rural divide.

Theorists should redouble efforts to incorporate intersectional approaches into existing and new theories. In particular, researchers working with theories that refer to warmth stereotypes or prejudices relating to warmth (e.g. theories of gender role conflict and workplace backlash) should heed the finding that warmth stereotypes are highly complex. Researchers should take care to specify how these biases may change and interact across important intersections. For example, gender researchers may pay more attention to the ways in which assumptions of women's warmth are (as found in this study) more evident for White heterosexual women than for women of color or lesbians.

This study also points to the ways in which theories may *not* need to change, i.e. when a variable, like competence stereotypes, exhibits little intersectional complexity a simple additive model will suffice to account for its variation across intersectional strata. This is because the 'meaning' of a social category generally remains the same regardless of the other social categories it intersects with. Some research programs, like Status Characteristics Theory (Berger and Webster 2018; Webster and Walker 2022), already make this assumption, and this study suggests that SCT may not need to revise this assumption in order to make accurate intersectional predictions.

Finally, researchers should examine how intersectional stereotypes affect behaviors and social inequalities. In small groups and organizations, advantaged and disadvantaged groups are often defined not only categorically, but intersectionally (Tomaskovic-Devey and Avent-Holt 2019). For example, a firm might be structured by clusters of intersectional identities, with management dominated by older White men and lower ranks more heavily populated by younger or middle-aged people, people of color, and women. Taking an intersectional view towards the stereotypes that benefit or harm these groups serves as a step towards building effective intersectional coalitions aimed at reducing many different inequalities (e.g. gender, race, and others) at once.

3.6.3 Conclusion

People are stereotyped not only according to membership in broad, single-characteristic categories like Gender or Race, but also according to the specific intersection of multiple categories that they inhabit. These intersectional stereotypes are complex, and often are not equal to the sum of their categorical parts.

Despite this complexity, this study suggests intersectional stereotypes are produced by the same perceptions as categorical stereotypes: people tend to perceive the SES, occupational characteristics, and social competitiveness of intersectionally-defined individuals in ways that correlate with actual social conditions of class, occupation, and segregation. In turn, intersectionally-defined people are stereotyped as more competent when they are seen as higher in SES and occupational agency, and they are stereotyped as warmer when they are seen as higher in SES and occupational communion and as less likely to compete with others in zero-sum ways. These relationships re-appear consistently and clearly across the intersections of Gender, Sexuality, Age, and Race.

Theories of stereotype content, and this study's integration of them, therefore apply not only to categorical but also to intersectional stereotypes.

Finally, categorical stereotypes can be viewed as 'co-constitutive': intersectional stereotypes are derived from categorical biases and the ways they interact, while categorical stereotypes are a kind of 'average' of the intersectional stereotypes experienced by all the varied members of a social category. Both views are important for gaining a full account of stereotype content.

Chapter 4: Conclusion

4.1 Key Findings

This project presents the most comprehensive analysis of intersectional stereotypes to date. While prior 'small-N' work on intersectional stereotypes rarely explores more than a handful of unique intersection identities (Kang and Bodenhausen 2015), the two 'large-N' studies in this project measured and analyzed stereotypes of 96 (Chapter 3) and 360 (Chapter 2) intersectional identities based on Gender, Sexuality, Age, Race (Chapters 2 and 3) and Social Class (Chapter 2).

4.1.1 Large-N Methods for Measuring Intersectional Complexity

In this project I developed a methodology for 'large-N' intersectional analyses of participants' perceptions of intersectional identities described through short profiles. This methodology has three core components, which together resolve many of the perennial methodological difficulties faced by quantitative intersectionality (Cole 2009; Else-Quest and Hyde 2016b; Hancock 2013; McCall 2005).

4.1.1.1 Blocked Factorial Survey Experiments

One of the major problems faced by intersectional analyses is that it is difficult to adequately observe a large number of intersectional identities. In population data, this is because the social categories are highly demographically unbalanced: in 2022, non-Hispanic Whites made up 59.3% of the U.S. population with the next largest ethnicity

being all Hispanics, at 18.9%. Many ethnicities, like Native Americans, make up less than 5% of the population, and consequently make up very small portions of population-representative surveys. It is difficult for researchers to estimate even the average characteristics of these groups, let alone identify characteristics of intersectional subgroups within them (McCall 2005). Worse, many of these low-prevalence intersectional identities, like Asian American sexual minorities, are unlikely to be observed at all in many datasets. Analyses like those of Evans et al. (2018) that construct intersectional strata using such unbalanced population data are nevertheless still limited by the lack of observations of low-prevalence groups and intersections.

Even though experimental social psychologists are not as constrained by these drawbacks of population-representative datasets, experimental research also faces problems when pursuing intersectional research questions. In a factorial experimental design, the total number of conditions rises exponentially as the researcher crosses more factors with each other. As the number of conditions rises, so too does the number of participants required for the researcher to have adequate statistical power to detect pairwise differences between conditions. Few researchers have the funding to pursue factorial experiments with dozens, scores, or hundreds of cells. As a result, few experiments employ ‘large-N’ intersectional designs.

Blocked factorial survey experiments (Auspurg and Hinz 2015) resolve these problems for researchers studying social perceptions. As detailed in the prior chapters, this method allows the researcher to create vignettes defined by a large number of experimental factors. Vignettes are then assigned to blocks of multiple vignettes that are

rated by individual participants, with vignette characteristics held uncorrelated within blocks. Unlike naturalistic data, these designs allow the researcher to measure perceptions of rare or implausible intersectional identities with equal observations for every intersectional identity. Implementation of blocked survey experiments is also quite simple. Once vignettes have been assigned to blocks, blocks can be easily programmed in Qualtrics with minimal survey complexity.

But while factorial survey experiments are ideal for the study of perceptions, there are many research questions that they are not as amenable to. The amount of within-subjects repeated measurements in this approach mean that any research involving behavioral interactions, like the standard experimental setting in Status Characteristics Theory (Berger 2014; Manago, Mize, and Doan 2021) would likely not be feasible because of the far greater amount of time required and the likely resulting exhaustion, potential for participant suspicion, and cost. Nevertheless, for research on social perceptions, the flexibility and ability to fully measure perceptions of partial or full factorial sets of intersectional identities means that this method is indispensable for researchers interested in how intersectional complexity affects how people are viewed.

4.1.1.2 Decomposition of Variance

As demonstrated by Chapters 2 and 3, blocked factorial survey experiments allow the researcher to fully observe every intersectional stratum (within cost constraints) defined by a set of social categories, with equal numbers of participant evaluations for each intersectional identity. This fact opens up a critical tool for characterizing intersectional complexity: decomposition of variance. When the full factorial is observed, and when the

data are balanced across intersectional strata, variance explained by the experimental factors and their interactions serves as a heuristic measure of their overall statistical importance.[27]

Using mixed effects models to account for consistent participant effects, the total amount of variation explained by the entire factorial of a set of intersecting categories can be obtained by predicting the dependent variable with a set of dummy variables, one for each unique intersectional stratum. This amount of explained variance can then be subdivided into components attributable to the main effects of the experimental categories and their interactions.

This allows the researcher to test for the overall importance of interactions between independent variables for a particular dependent variable while sidestepping many of the problems of extensive interaction testing, like the possibility of false positives. This is because, while individual interaction effects may or may not be statistically significant depending on sample size, the overall proportion of variance explained by a set of interactions remains steady as sample size increases, all else held constant (Snijders and Bosker 2011). Assuming that total sample size is adequate to reliably estimate the proportion of variance attributable to certain kinds of interactions (e.g. two-way, three-way), that estimate should be similar at different sample sizes.

[27] This is not the case when data are unbalanced across intersectional strata, which tends to depress the variance explained by a categorical variable. For example, the categorical difference in simulated data (N=1000) between two equal-N (N=500 each) normally distributed variables with a half standard deviation difference between them accounts for 6.2% of variance. But when one category has only 100 observations and the other 900, that categorical difference explains only 2.3% of variance. Analyses like MAIHDA (Evans et al. 2018; Merlo 2018) that construct intersectional strata from unbalanced data may thus significantly under-estimate the statistical importance of both categorical and intersectional effects.

After identifying the overall proportion of variance attributable to different orders of interaction effects (two-way, three-way, etc.), the researcher can then subdivide variance into portions associated with statistically significant interactions. One way to accomplish this is through model-trimming: beginning analysis with a model with all interactions of a given order (e.g. all two-way interactions, all three-way interactions) and removing them one by one, retaining only interaction effects that contribute significantly to explaining variance. This step heuristically measures the overall prevalence of interactions that are large enough to be notable. When there are more or larger interaction effects of experimental categories, this portion of variance will be larger. Such a result suggests that, at a systemic level beyond individual intersectional strata, the variable in question exhibits a high level of intersectional complexity. Researchers may then wish to examine results more closely in order to identify possible explanations for this complexity. However, this analysis should be carried out cautiously, since statistical significance is a function of sample size, and researchers rarely have concrete reasons to expect specific higher-order interaction effects a priori. Researchers may prefer to pre-register predictions for specific effects as well as apply statistical techniques like decision tree or chi-square-based methods for detecting interactions (Bauer et al. 2021).

Though prior work has used variance decomposition in intersectional analyses of population data (Evans et al. 2018; Merlo 2018), this project is the first to apply the approach to experimental data. This is important because variance decomposition is a tool better suited to balanced, experimental data than unbalanced population data. In population data, intersectional strata are highly unbalanced, which can lead researchers to

adopt problematic re-weighting procedures to attempt to construct an analysis where all strata have equal statistical weight (Lizotte et al. 2020). Further, because non-experimental data suffers from a greater chance of omitted variable bias, it is possible that intersectional strata will differ from each other in many ways beyond those captured by the factors composing the strata, which may then skew their effects. Finally, simulation studies have questioned the usefulness of multi-level modeling for identifying intersectional effects in population data (Bell et al. 2019; Lizotte et al. 2020), especially when they are used to generate strata-specific predictions to be compared against observed strata means (a practice I have not used in this project). Experimental approaches avoid these issues by creating strata-balanced data structured only by the experimental factors. However, one path for future research may be to conduct similar simulations tests of experimental data.

4.1.1.3 Random Slopes Models

A third technique offers another way of measuring intersectional complexity. Like other factorial designs, blocked factorial designs allow the researcher to estimate the average, main effects of experimental categories on dependent variables. However, unlike most other designs, the large number of intersectional strata allows the estimation of effect variability as well through random slopes models.

As shown in Chapter 2, random slopes models can estimate the degree to which the effect of a specific category on the dependent variable varies across intersections with other categories. As with decomposition of variance, this is a way of testing whether a social category may tend to interact with others: an effect that is highly variable may be

interacting with other categories, but an effect that is invariant is unlikely to have notable interactions with other categories. In designs with a large number of intersectional strata within each category (as in Chapter 2), these models can also provide slopes for each stratum that can be displayed using kernel density analysis and used to test, for example, whether social categories that typically have negative stereotypes can sometimes have positive stereotypes (e.g. Pedulla 2014).

Random slopes models can also be used to provide intersectional context for analyses of continuous predictors. As shown in Chapter 3, the average effect of a continuous variable can be estimated while estimating random slopes across intersectional strata. Especially when displayed using kernel density analysis, these models allow the researcher to test for a statistical association not only on average across intersectional strata, but also its variance across those strata. That analysis, as in Chapter 3, helps to demonstrate whether a particular effect or set of effects is consistent enough to judge that a theory applies across the whole set of intersectional strata or whether different processes matter for some social categories or sets of strata.

4.1.2 Generalizing Stereotype Theories to Intersectional Stereotypes

Categorical warmth and competence stereotypes are related to the socioeconomic conditions of groups in society. Groups are stereotyped as more competent when their members tend to have higher SES and more agentic social roles, and they are stereotyped as warmer when they are seen as having more communal social roles and less zero-sum competition with other groups. And because people's perceptions of group socioeconomic characteristics, like SES and occupations, tend to correlate with actual

socioeconomic differences between groups, stereotypes tend to rationalize those socioeconomic differences.

This project has shown that these relationships between stereotypes, perceptions of socioeconomic characteristics, and actual social conditions hold not just for categorical stereotypes, but intersectional identities. In Chapter 3, participants tended to perceive people with a given intersectional identity as having socioeconomic characteristics (e.g. income, education, occupational prestige and agency) similar to the conditions experienced by people who actually have that intersectional identity in the U.S., as measured by Census data. Their perceptions then gave rise to warmth and competence stereotypes in the ways predicted by the integrated model. Even after testing for variation in effects across intersectional strata, perceived SES and occupational agency were the main factors predicting competence stereotypes, and perceived occupational communion and competition were the main factors predicting warmth stereotypes.

The perspectives offered by intersectionality help identify ways in which the social world is complex, which researchers must reckon with. This project has shown that intersectional stereotypes are complex in a variety of ways. However, this complexity is not necessarily at odds with parsimonious theorizing. Chapter 3 shows that a relatively simple theory can hold up when generalized from a categorical context to an intersectional one. This finding bodes well for future work hoping to synthesize intersectional perspectives with more categorically-oriented existing theories.

4.1.3 Intersectional Aggregation

Finally, Chapter 3 suggests a way in which categorical and intersectional stereotypes may be related, or, in a sense, mutually constructed. I argued for the intersectional aggregation hypothesis: that categorical stereotypes are a kind of 'average' of the intersectional stereotypes of intersectionally-complex people within a given social category. This is because, when people interact with or evaluate others day-to-day, they are typically aware of multiple social category memberships for both themselves and those around them. This is likely to be the case even when people only know others' names, since names often convey information about a person's gender, race, and age (Gaddis 2017; Social Security Administration 2023). When it is more common for people to [encounter people with some intersectional identities (e.g. heterosexuals vs LGBTQ individuals), they are likely to activate the intersectional stereotypes of the more common intersectional identities more often. So, when people then generalize about whole social categories, the experiences they use to generate those beliefs come from intersectional stereotypes, specifically the intersectional stereotypes of the intersectional identities that they most frequently encounter.

This hypothesis implies that categorical stereotypes tend to be more heavily influenced by the intersectional stereotypes of more demographically-prevalent intersectional identities; for example, stereotypes of men and women skew more heavily towards stereotypes of heterosexual men and women. A test of this prediction in Chapter 3 found that when intersectional stereotypes are given analytic weights proportional to their demographic prevalence, and categorical stereotypes are estimated using those

weights, the results replicate patterns of categorical stereotypes observed in prior research, and thus supports the intersectional aggregation hypothesis.

This test is not conclusive, of course. As phrased above, the hypothesis pertains to the kinds of intersectional identities people encounter in life, but people are not equally likely to encounter all intersectional identities throughout the population. Many factors skew who people interact with, including homophily and segregation (McPerson and Smith-Lovin 2001; Stainback and Tomaskovic-Devey 2012). A more in-depth test of the hypothesis would require data on the interaction frequencies of people with different intersectional identities.

4.2 Comparing the Two Studies

The two survey experiments presented in Chapters 2 and 3 used highly parallel methods. They both measured stereotypes across intersectionally-identified profiles and used the same stereotype measures. In addition to the results of the analyses provided in those chapters, comparing the findings of the two studies reveals several facts that further improve our understanding of intersectional stereotypes.

4.2.1 Warmth is More Complex Than Competence

Both experiments found that warmth stereotypes are much more intersectionally complex than competence stereotypes. Intersectional competence stereotypes are reasonably well-approximated by simply adding together the separate mean effects of social categories, with relatively little further adjustment required to account for interactions between these categories. Table 4.1 shows that more than three-quarters of the intersectional variance in

competence stereotypes comes from category main effects, but only about a seventh comes from interactions between those categories.

Table 4.1—Summary of decomposition of variance into main and interaction effects, Chapters 2 and 3.

	Warmth		Competence	
	Chapter 2	Chapter 3	Chapter 2	Chapter 3
Main Effects	35.6%	45.9%	76.1%	77.3%
Interaction Effects	42.7%	27.6%	15.7%	12.0%

Notably, this supports models of status influence in Status Characteristics and Expectations States Theory (Berger and Fisek 2018; Berger et al. 1977, 1992; Whitmeyer 2003; Webster and Walker 2022). In these models, expectations of individuals' influence and task ability in groups derive from their diffuse status characteristics (social categories like Race or Gender with associated competence stereotypes), whose impacts combine together in a largely additive fashion, with the status value (positive or negative) of a status characteristic like race being the same regardless of whatever other status characteristics are salient in a situation.[28] Similar to this process, I find that social categories tend to have similar competence stereotypes regardless of other intersecting category memberships.

In contrast, warmth stereotypes are highly intersectionally complex. Table 4.1 shows that across the two studies the main effects of social categories accounted for about 40% of the intersectional variance of warmth stereotypes. Interactions between the

[28] In SCT the status aggregation process is not strictly additive. Rather, it uses the 'organized subsets' principle, in which same-signed information is summed separately, with the influence of additional same-signed status information having a diminishing marginal effect, then the two subsets are summed together (Berger and Fisek 2018; Berger et al. 1977, 1992; Webster and Walker 2022; Whitmeyer 2003). However, in a situation like the one in these studies, with the total number of social categories held constant, status aggregation reduces to a simple additive process (see Footnote 6).

social categories accounted for nearly as much variance, around a third. These results suggest that stereotype research should not ignore interactions between social categories or assume that social categories typically have the same associations with warmth across intersections with other categories as they do on their own, or on average. While competence stereotypes may be reducible to a categorical view, the same cannot be said of warmth stereotypes, which may be best seen as inherently intersectional.

4.2.2 Gender and Sexuality

In both studies, and across both warmth and competence stereotypes, one of the largest intersectional effects came from the intersection of Gender and Sexuality. Figure 4.1 presents these intersectional stereotypes for both experiments[29] and shows that the content of Gender stereotypes varies radically depending on profiles' Sexuality (and vice versa). For stereotypes of Heterosexual profiles, women are stereotyped as warmer and slightly less competent than men.[30] However, for stereotypes of Lesbian, Gay, and Bisexual profiles the opposite is true: here it is men who are stereotyped as the warmer and less competent gender. Also notably, Gender and Sexuality stereotypes were more strongly differentiated in Chapter 3 than Chapter 2, suggesting that Social Class and Age

[29] I include estimates from both studies in the same graph because I used the same measures and response scales in both studies.

[30] Notably, though Gender stereotypes have in the past been found to describe women as less competent than men, both of my studies find that this effect among heterosexuals is surprisingly small. (Chapter 2: *b*=-.031, SE=.038, *p*=ns; Chapter 3 (pop. weights): *b*=-.098, SE=.065, *p*=ns; Chapter 3 (no weights): *b*=-.101, SE=.054, *p*=.060). Examining the sub-factors of competence, assertiveness and intelligence, I find Gender stereotypes only for assertiveness (Chapter 2: *b*=-.080, SE=.043, *p*=.062; Chapter 3 (pop. weights): *b*=-.150, SE=.070, *p*=.032; Chapter 3 (no weights): *b*=-.133, SE=.057, *p*=.020), not intelligence (Chapter 2: *b*=-.018; SE=.042, *p*=ns; Chapter 3 (pop. weights): *b*=-.047, SE=.069, *p*=ns; Chapter 3 (no weights): *b*=-.071, SE=.057, *p*=ns). These results together support recent research (Eagly et al. 2019) finding that Gender stereotypes have weakened over time, with stereotypes about intelligence (though perhaps not some forms of intelligence, like different ideals of brilliance; see Leslie et al. 2015) becoming very weak, while stereotypes about assertiveness persist in somewhat weaker form.

(the two factors that differed between the two studies) may be related to these stereotypes. These interactions show how Gender and Sexuality stereotypes are inherently intertwined. To accurately describe the stereotypes of Gender categories, researchers must address Sexuality as well.

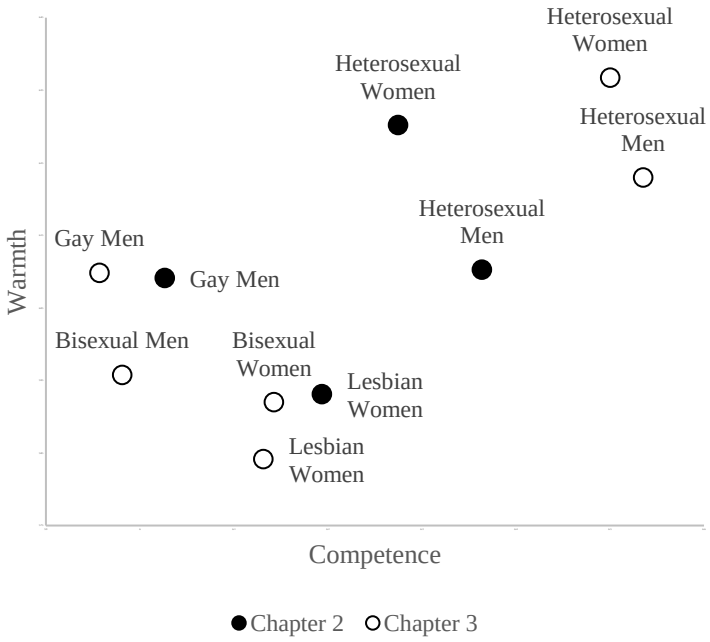


Figure 4.1—Gender and Sexuality stereotypes in Chapters 2 and 3 (using unweighted data).

In addition to replicating findings from prior research and building on existing literature (Mize 2015, 2016; Mize and Manago 2018), this study also contextualizes the intersection of Gender and Sexuality by allowing comparisons against other kinds of intersectional effects. That is, not only do I show that Gender and Sexuality intersect with each other in this domain, I also show that even when compared to other possible intersectional effects involving Gender, Sexuality, Age, Race, and Social Class, the

Gender X Sexuality intersection still stands out as one of the largest and more reliable intersectional effects.

4.2.3 Class and Race in Intersectional Stereotypes

As discussed in Chapter 2, Social Class plays a complicated role in theories of stereotype content. On the one hand, it is itself a social category that people can be placed in by observers (e.g. Kraus et al. 2017), e.g. a person might be seen (or see themselves) as having an upper (e.g. Rivera 2015; Sherman 2017) or lower (e.g. Hochschild 2016) class identity. Social class identity carries its own stereotypes, e.g. people in the upper class are stereotyped as more competent but less warm (Durante and Fiske 2017; Fiske et al. 2002; Heiserman and Simpson 2017). Seen this way, social class is simply another social category that might intersect with other salient social categories such as Race or Gender. This is the approach to social class that I take in Chapter 2.

On the other hand, social class is also a driver of stereotype content. When members of a social category tend to have higher or lower social class than members of other social categories (e.g. Whites having higher average income and wealth than Blacks), the social category that has higher average social class will tend to be stereotyped as more competent (Fiske 2018; Fiske et al. 2002; Ridgeway 2018). Social class is also related to differences in the types of social roles, especially occupations, that people perform (Koenig and Eagly 2019): people in higher social class positions tend to perform social roles characterized by relatively more agency than communion, while people in lower social class positions tend to perform social roles that are characterized by relatively more communion than agency. These differences impact stereotypes: higher

perceived agency leads to competence stereotypes and higher perceived communion leads to warmth stereotypes (Eagly and Steffen 1984; Koenig and Eagly 2014, 2019). In this view, social class is not so much an identity or social category as it is a structural factor that biases the life chances, positions, and interaction outcomes of people in different groups in a way that induces beliefs about social categories' differential ability, sociability, and morality. This is the approach I take to social class in Chapter 3.

Both ways of understanding class are important in their implications for how we understand racial stereotypes. The experience of race is intertwined with the experience of economic and social inequality in such a way that means controlling for or holding social class constant can neglect one of the key facts of racial inequality. In other words, class stratification between racial groups is a defining characteristic of racial inequality, not a confounder.

Comparing findings regarding Race and Class across the two chapters sheds light on the tensions between the two. In Chapter 2, I manipulated both Race and Class categories and found that Class tended to have much larger statistical impacts on intersectional stereotypes than Race. In fact, Social Class by itself accounted for more than half of the intersectional variance in competence stereotypes. However, in Chapter 3 I manipulated Race but not Class, thereby allowing participants to infer profiles' Social Class characteristics from other categories like Race. In these data, Race played the primary role, explaining more than half of the intersectional variance in competence stereotypes. These stereotypes derived from large differences in perceptions of Class and occupational agency based on Race. In other words, racial stereotypes were driven by

racialized assumptions about Class. Participants stereotyped Black and Hispanic profiles as less competent than White and Asian profiles largely because they saw people with those identities as lower in Social Class. When those Class expectations are controlled, as they are in Chapter 2, racial stereotypes are significantly reduced.

Does this mean that racial stereotypes are merely class stereotypes by another name? I argue that it does not. Social Class overrides Race in stereotyping when Class is especially salient as an identity distinct from Race, as it is in Chapter 2. But this is not always the case in social interaction. In many situations, Race and Class differences are salient simultaneously, reinforcing the association between the two rather than diminishing it. In other situations, like in workplaces where coworkers share occupations and class backgrounds, Race may be the most salient distinction between people, while Class differences are minimally salient. Race stereotypes and their impacts will not simply disappear whenever Social Class is not salient because, even though Class may be in a larger structural sense the reason why Race categories acquire their stereotype content (e.g. Fiske 2018; Fiske et al. 2002; Ridgeway 2011, 2018), those stereotypes do not require Class to be salient in order to be activated. Rather, once Race has its own stereotypical connotations (or status value in Status Characteristics Theory; Ridgeway 1991, 2018), only Race need be activated for those stereotypes to have an effect.

In addition, real world racial inequalities mean that even if racial stereotypes were entirely reducible to Class, Black and Hispanic people would still be stereotyped more negatively than White and Asian people because of their, on average, lower class position in the United States. In other words, because of broader racial inequalities, the impacts of

social class stereotypes fall more heavily on Black and Hispanic communities than on White and Asian ones.

These relationships between race and class demonstrate some of the ways in which these two social categories are mutually constitutive. That is, the concepts of race and social class are related to each other: ideas about race influence our ideas about class and vice versa. Future research and theory on stereotypes must keep these tensions in mind if it is to provide a complete picture of how the two affect stereotypes and behaviors together.

4.2.4 Which Age Groups are Marginalized by Stereotypes?

In both Chapters 2 and 3, I manipulated Age experimentally but found different effects due to differences in how the levels of Age were defined. In Chapter 2, I defined Age using three levels (Young, Middle-aged, and Older) and found virtually no impact of Age on stereotypes. However, in Chapter 3, I defined Age according to six specific Age ranges (16-25, 26-35, 36-45, 46-55, 56-65, 66-75) and found that Age played a significant role in stereotypes, both on its own and through interactions with other categories. The difference appears to be due to the specific Age groups that are marginalized by stereotypes. Chapter 3 showed that negative stereotypes are most clearly associated with the two most extreme Ages, 16-25 year-olds, and 66-75 year-olds, rather than large groups of, for example, 'young' people. This suggests that the groups most marginalized by Age are the groups nearest the two end points of working age, with those too young to work and those too old to work both stereotyped more negatively than those

in the middle of their working years. If researchers wish to study Age stereotypes, they must define Age in ways that will pick up on stereotypes of specific Age groups.

4.3 Future Directions

4.3.1 Intersectional Stereotypes Across Demographic Groups

Research on stereotypes typically argues that they are consensually held; that is, while individuals' belief in stereotypes may vary from person to person and group to group, their knowledge of what the stereotypes are is relatively constant across groups (Berger and Webster 2018; Fiske 2018; Fiske et al. 2002; Ridgeway 2019; Webster and Walker 2022). This claim is bolstered by findings that categorical stereotypes typically do not vary across demographics (Fiske 2018; Fiske et al. 2002). However, a similar analysis is yet to be done with intersectional stereotypes. It is possible that there is more room for individual variation in intersectional stereotypes than there is with categorical stereotypes. Thus, one important task for future research is to test whether intersectional stereotypes covary with individual characteristics.

Several methodological challenges make such an analysis more complex than that of categorical stereotypes. To test for variation in categorical stereotypes, a researcher can test for interactions between participants' demographic characteristics and stereotypes of different groups. However, the sheer number of intersectional strata makes this approach untenable for intersectional stereotypes. For example, in Chapter 2, interacting participant gender with each individual intersectional profile would yield 360 main effects (359 profile effects and one Gender effect) and 359 interaction effects. Interpreting this wealth of interaction effects would be problematic because of the

number of comparisons and associated alpha error, and because it is unlikely that any individual contrast is of practical or theoretical importance.

A better approach is one which mirrors my approach to interactions between strata characteristics, and which applies best practices for cross level interactions in multi-level models (Aguinis, Gottfredson, and Culpepper 2013; Gelman and Hill 2007, Snijders and Bosker 2012). First, each sociodemographic should be included in a hybrid mixed effect model like those used in Chapter 2, with a random intercept for profile ID and dependent variable centered on participant level mean. In this model, continuous sociodemographics will have no average effect, since participant-mean centering controls for consistent participant effects. Next, adding the random slope of a demographic in this model will test whether there is any variation in stereotypes across profiles according to that demographic. Like the random slopes models used in Chapter 2, this does not test for a specific interaction, but rather tests for whether there might be interactions to be found at all. Any demographic that does not have a significant random slope can be ignored in further analyses (Aguinis et al. 2013). Further tests for demographic interactions should be guided by substantive questions in order to prevent capitalization on chance.[31] Below I outline several possible avenues for such analyses, focusing on variables that can be tested using the already existing data from Chapters 2 and 3.

[31] Approaches like variance decomposition would be inappropriate for demographic interactions. Experimental factors in these studies were highly controlled, and their potential interactions clearly defined and limited. Neither are true regarding demographic characteristics.

4.3.1.1 Similarity

People may hold more positive intersectional stereotypes of people who are more like themselves. This is a generalization of the principle of ingroup bias: that people act more cooperatively towards, prefer to associate with, and hold more positive views of people who share their groups and characteristics (Balliet et al. 2014; Grigoryan et al. 2022; McPherson 2001). The more social categories a participant shares with a profile, the more positively they may think that profiled person is seen by society.

Ingroup biases are rare in studies of stereotypes and related concepts, in part because stereotypes are distinct from individual beliefs. Individuals may personally hold prejudices or preferences for their ingroups, but they tend to be aware of positive or negative stereotypes to the same extent regardless of their own personal views. So, while there is good reason to expect the intersectional stereotypes would not vary with how similar participants are to the person they're evaluating, an absence of such similarity effects has not yet been documented with intersectional stereotypes, and so remains a possibility.

4.3.1.2 Age

Stereotypes of some groups may vary depending on participants' age. Recent research analyzing trends in implicit biases finds that reduction in bias over time has occurred primarily through cohort effects (Charlesworth and Banaji 2019). That is, where biases are decreasing (many biases are steady over time rather than decreasing), that decline appears to be due to lower bias in younger cohorts rather than changing levels of bias in older cohorts. This suggests that bias and perhaps stereotypes are heavily influenced by

socialization, and so they may vary depending on respondents' age, which indicates when they were socialized.

Age may relate to stereotypes of social categories whenever there has been significant change in the stereotypes or socioeconomic conditions of those social categories over time. For example, the increase in gender inequality in the second half of the 20th century (England et al. 2020) could mean that older participants stereotype men and women as much more different than younger participants. There may be a smaller age effect regarding race stereotypes given the slower pace of change in racial inequality over the same period (Manduca 2018). In contrast, the much more recent and dramatic shift in public attitudes towards LGBTQ people (Gallup 2022) could mean a sharper distinction between the LGBTQ stereotypes of younger participants socialized during this period of change and older participants socialized prior to it.

4.3.1.3 Politics

Intersectional stereotypes may vary according to respondents' political orientation. Conservatives are more likely to score higher on personality traits like social dominance orientation and system justification, which indicate a belief in the desirability and naturalness of social inequalities and hierarchies and are related to a greater likelihood of negatively stereotyping low-status groups (Jost and Banaji 1994; Jost, Federico, and Napier 2009). Thus, conservatives may be more motivated to negatively stereotype marginalized people than liberals. Political differences may be concentrated on stereotypes of groups that are the most politically divisive in current American politics, e.g. groups based on race and sexuality. There may also be a divide in stereotypes of

social class mirroring the different approaches to inequality found across America's political divide: liberals may stereotype the wealthy more negatively and the poor more positively than conservatives.

4.3.1.4 Geography

Stereotypes may differ depending on where participants are located.[32] If, as I argue in Chapter 3, stereotypes are rooted in social sampling processes, then it matters what kinds of people a participant encounters in their own environment. Since stereotypes are related to the location of others in social structure, the varying nature of those social structures, like inequality and occupational segregation, across geographic areas may very well matter.

Geography also matters because of past and current institutionalized inequalities. For example, anti-Black implicit bias is higher in areas of the U.S. which had the highest density of enslaved people (Payne et al. 2019), and areas with high anti-Black bias tend to have more disproportionate use of police violence against Black communities (Hehman, Flake, and Calanchini 2018). The same inequalities that continue to fuel stereotypes have their roots in generations of institutionalized discrimination, segregation, and even violence, all of which are rooted in the histories of specific places.

4.3.2 Intersectional Invisibility

A recurrent theme in intersectionality work is that people with multiple subordinate identities often experience 'invisibility', in the sense that others are less likely to pay attention to their experiences, interests, and contributions as compared to people with

[32] Participants' location was measured with a question asking for their ZIP code.

fewer subordinate identities. Indeed, the movement grew out of the dissatisfaction of women of color, and others, with the ways in which they were ignored by mainstream feminism and anti-racist activism. Modern research has taken up the idea of 'intersectional invisibility' and found that it also describes a surprisingly literal experience: women of color and their contributions are more likely to be forgotten or misattributed to others (Purdie-Vaughns and Eichbach 2008; Sesko and Biernat 2010). The survey experiments I conducted offer a chance to analyze another form of intersectional invisibility: participants' ability to adequately and clearly imagine a person with a given intersectional identity. The intersectional identities that they find easy to imagine are, literally, more visible to them.

I am able to test for this form of intersectional invisibility because, in addition to the other perceptions detailed in this project, in both survey experiments I asked participants how easy or difficult it was to picture each profile. In future work, I will use the tools detailed in this project (e.g. decomposition of variance, random slopes models, etc.) to quantify the extent to which this form of invisibility is intersectionally complex (as opposed to being primarily associated with difficulty imagining whole categories, like Asian people), and which intersectional identities are most heavily subject to invisibility. I will then explore whether invisibility is associated with negative stereotypes.

4.3.3 Masculinity and Femininity

As with social class, gender is intersectionally complex because not only is it a social category with its own stereotypes, but the very concepts of gender, masculinity and femininity, form part of the conceptual underpinnings of other social categories. Ideas of

masculinity and femininity are associated with many social categories other than just Gender and Sexuality and underlie many of the stereotypes and perceptions that people have of those social categories. For example, race is gendered, with Blacks associated with masculinity and Asians associated with femininity (Galinsky et al. 2013; Hall et al. 2015). The gendered associations with race help to explain why Black women are seen as non-prototypical for Blacks, but Asian men are seen as non-prototypical for Asians (Schug, Alt, and Klauer 2015).

My data allow me to characterize perceptions of masculinity and femininity for the intersectional strata in both of my studies. In my survey experiments, I also asked participants how masculine and feminine they thought each profile would be seen as being. Simply plotting the strata means of these variables (Figure 4.2) shows that they fall on a clear axis, and that there are clusters of identities along different points of this axis. Future analysis of these variables will test, for example, how intersectionally complex masculinity and femininity are (as opposed to being primarily associated with Gender and Sexuality), whether they are differentially associated with warmth and competence, and whether they mediate or explain the stereotypes of different social categories or intersections.

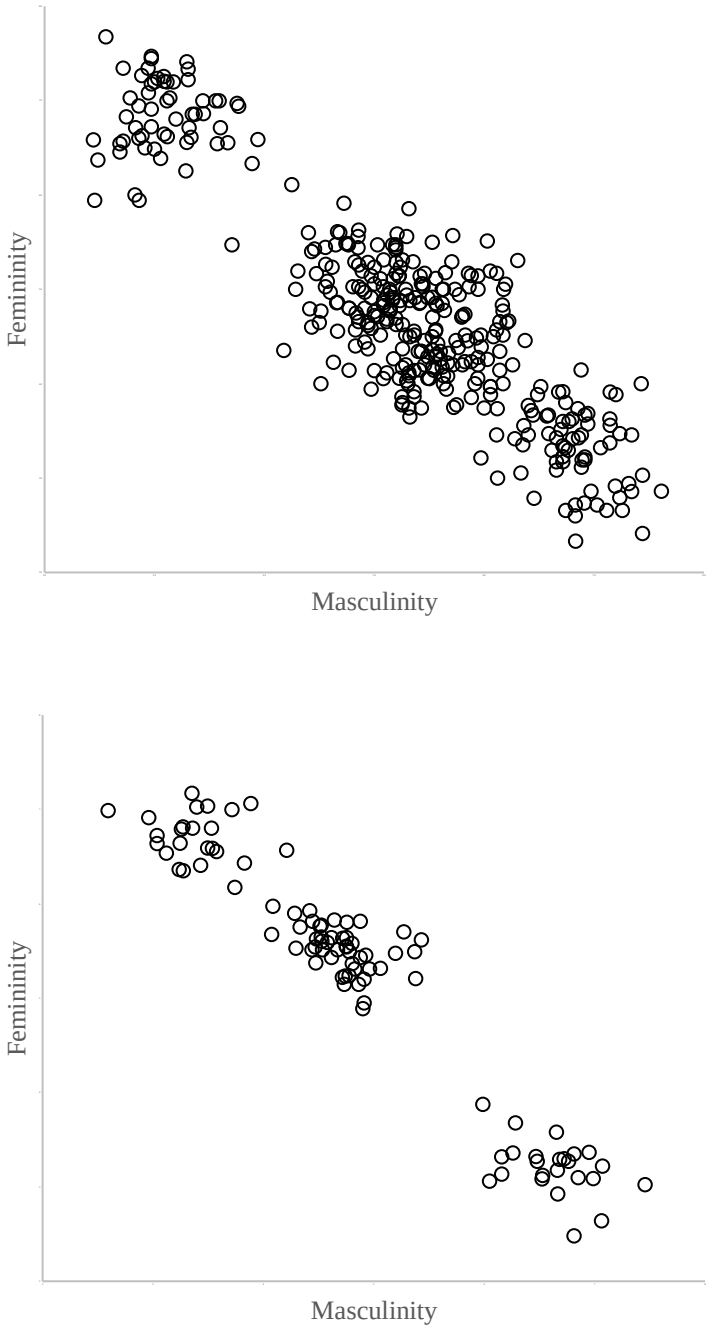


Figure 4.2—Strata means for perceived masculinity and femininity, Chapter 2 (top) and 3 (bottom).

4.3.4 Future Projects

This project is intended to be the beginning of a long-term research program examining the implications of intersectionality for social psychological understandings of stereotypes. Thus, while several of the projects described above might be pursued using data from this dissertation, many projects will require going beyond it. Below, I highlight several topics that future projects in this research program will examine.

4.3.4.1 Color, Weight, and Attractiveness

Several characteristics of interest are salient in social interaction but are not often addressed by sociological research. For example, Monk (2022) argues for greater attention to colorism—more negative attitudes and behavior toward darker-skinned individuals, even within groups of color—as a prejudice that helps explain inequalities both between racial groups and within them. Likewise, anti-fat bias shows little sign of decreasing over time and continues to affect millions of people, especially in their interactions with the medical system (Elran-Barak and Bar-Anan 2018; Charlesworth and Banaji 2019; Sabin, Marini, and Nosek 2012). Notably, research already suggests that these two biases intersect in ways that are not reducible to the simple sum of two separate prejudices; in fact, Reece (2019) found that darker-skinned Black people were *less* affected by weight stigma than Whites or lighter-skinned Black people.

Attractiveness more broadly remains a major factor that affects how people are perceived, and the advantages or constraints they face. More attractive individuals tend to be seen more positively, granted higher status, and are treated better than the less-attractive (Dion, Berscheid, and Walster 1972; Eagly et al. 1991; Frevert and Walker

2014). However, the effects of attractiveness are not universal: in some situations, attractiveness can be a liability (e.g. Kuwabara and Thébaud 2017). Attractiveness is also heavily dependent on racialized, gendered, and age-specific standards as well as individual vs societal preferences, and so the outcomes of attractiveness may vary across intersections with other social categories in ways that are hard to predict.

Studying these kinds of social characteristics and their associated intersectional stereotypes may require methodological refinement. Instead of presenting participants with a vignette describing a person verbally, it may be more appropriate to present pictures drawn from standardized databases like the Chicago Face Database (Ma, Correll, and Wittenbrink 2015) of people varying in skin tone and weight, as well as other social categories like gender and age.

4.3.4.2 Concealable Stigmas: Disability and Mental Illness

In contrast to characteristics like skin tone and weight, some characteristics carry significant stigmatizing stereotypes, but are not always readily visible to observers. Many forms of disability and mental illness are 'concealable' stigmas (Jones and King 2014; Ragins 2008), which may negatively affect how people are treated if they are revealed. Knowledge of these stigmas may lead people with these characteristics to hide them from those around them or to avoid seeking out resources out of a fear of being stigmatized after disclosure. The need to manage a concealable stigma can lead to distinct behaviors. For example, Tilcsik et al. (2015) argue that gay and lesbian people self-select into certain types of occupations that allow them to more directly manage who learns about their sexual orientation.

4.3.4.3 Role Congruity

Social roles, including occupations, include expectations of the kinds of person who would perform that role. These expectations interact with stereotypes in ways that can make it easier for members of a group to hold that role or create conflicts between the role and other aspects of their identity. For example, leaders are expected to be assertive and forceful, but women are expected to be caring and sociable. This creates a dilemma for women leaders: either be assertive and forceful to uphold the expectations of their role while violating the expectations of their gender, or be caring and sociable to uphold the expectations of their gender while sacrificing the expectations of their role. Meanwhile, men do not face this dilemma because assertiveness upholds both the leader role and their masculinity. These dilemmas and their consequences are described by Role Congruity Theory.

Role Congruity Theory can be generalized beyond gender to incorporate a more intersectional perspective. Indeed, recent studies have begun to do just this, by examining how perceptions of masculinity, femininity, and role fit varies as a function of both gender and race (Hall et al. 2015), and the consequences of these perceptions for rates of discrimination against different gender/race groups (Di Stasio and Larsen 2020).

The methods of this project allow Role Congruity Theory to be generalized even further across a large set of intersectional identities. Stereotypes affect men and women's perceived compatibility with different roles, but they likely also do the same across other social categories like Age. Thus, for example, intersectional variation in stereotypes across Race and Age likely help to explain differences in ageism and ageist

discrimination across racial groups (Wilson and Rosçigno 2018). A future project may compare perceptions of fit as well as expected warmth and competence for profiles of people with the same intersectional identities but performing different roles, to identify why some intersectional identities are seen as 'fitting' those roles to a greater or lesser extent.[33]

This type of analysis would not just demonstrate that role congruity can be studied intersectionally, but it would also help to identify the greatest sources of role incongruity from among many possibilities, including the role holders' gender, race, sexuality, or their intersections. Understanding the exact intersectional factors that generate role conflict will refine organizational work that argues that gender, race, class, and other characteristics have distinct impacts on outcomes depending on widely varying organizational characteristics (Acker 1990, 2006; Ray 2019; Tomaskovic-Devey and Avent-Holt 2019; Wingfield 2019).

4.4 Concluding Remarks

This project has provided, to my knowledge, the first 'large-N' survey of stereotype content across a large number of intersectionally complex identities. Incorporating perspectives from intersectional scholarship, I developed methodology for measuring and analyzing intersectional stereotypes, using blocked factorial surveys, secondary data, decomposition of variance, and random slopes models. These methods revealed numerous ways in which intersectional stereotypes are 'complex', with the stereotypes of

[33] A similar analysis could be carried out using Affect Control Theory (Robinson and Smith-Lovin 2018), comparing the predictions of the ACT simulation program INTERACT against data on perceptions from an experiment.

social categories varying or changing depending on their intersections with the other social categories in which a person is placed. Despite the complexity of intersectional stereotypes, I also found that theories of intersectional stereotype content need not also be complex: a theoretical model integrating the major social psychological theories of stereotype content generalized very well from the context of categorical stereotypes to that of intersectional stereotypes, and accounted for intersectional stereotypes in the same ways across nearly a hundred distinct intersectional identities. A final preliminary test supported the idea that categorical and intersectional stereotypes are 'co-constitutive', with categorical stereotypes being a kind of 'average' of the intersectional stereotypes that apply to individuals within that social category. Overall, this project shows that even research on such a well-studied concept as stereotypes can benefit from incorporating intersectional perspectives and developing more intersectional methodologies by making it possible to answer everyday questions, like how individuals' multiple identities shape others' perception of them and how others act towards them.

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Appendix A: Supplemental Analyses for Chapter 2

A.1 Sample Characteristics

Table A.1—Main effects of participant demographics on warmth and competence stereotypes.

	Warmth	Competence
Age	-.003	-.004*
	(.002)	(.002)
Woman	-.01	.01
	(.03)	(.03)
Race/Ethnicity[a]		
- Black	.07	.10
	(.10)	(.09)
- Hispanic	-.07	-.08
	(.14)	(.13)
- Asian	-.31	-.36*
	(.16)	(.15)
- Other race	.40	.30
	(.20)	(.19)
Education[b]		
- Some college, trade school, 2-year college	-.03	.10
	(.09)	(.08)
- 4-year college	.04	.13
	(.10)	(.09)
- Post-graduate	.16	.27
	(.13)	(.12)
Household Income (thousands $)	.01	.01
	(.01)	(.01)
Subjective SES	-.01	-.03
	(.02)	(.02)
Employment Status[c]		
- Part-Time	-.08	-.06
	(.11)	(.10)
- Unemployed/Laid off	-.03	.07
	(.17)	(.16)
- Otherwise not working	-.08	-.08
	(.09)	(.08)
Conservatism	-.08***	-.08***
	(.02)	(.02)
Constant	6.07	6.09

Note: All models are mixed-effects modes with a random effect for participant ID. Age, income, subjective SES, and conservatism mean-centered.

[a] ref: White, [b] ref: HS or less, [c] ref: Full-time

[†] $p<.10$ * $p<.05$ ** $p<.01$ *** $p<.001$

Table A.2—Main effects of study categories and participants demographics on DVs.

	Warmth		Competence	
Gender				
- Woman	-.05*	-.05*	.10***	.10***
	(.02)	(.02)	(.02)	(.02)
Sexuality				
- Bisexual	-.36***	-.36***	-.45***	-.46***
	(.03)	(.03)	(.03)	(.03)
- Gay/Lesbian	-.33***	-.33***	-.47***	-.48***
	(.03)	(.03)	(.03)	(.03)
Age				
- Younger	-.02	-.02	-.02	-.02
	(.03)	(.03)	(.03)	(.03)
- Older	.01	.004	-.04	-.04
	(.03)	(.03)	(.03)	(.03)
Race				
- Black	-.08*	-.08*	-.09**	-.09**
	(.03)	(.03)	(.03)	(.03)
- Hispanic	-.07*	-.06*	-.26***	-.26***
	(.03)	(.03)	(.03)	(.03)
- Asian	-.08*	-.08*	-.04	-.04
	(.03)	(.03)	(.03)	(.03)
Social Class				
- Lower	-.38***	-.38***	-.76***	-.76***
	(.03)	(.04)	(.03)	(.03)
- Lower Middle	-.26***	-.26***	-.53***	-.53***
	(.03)	(.03)	(.03)	(.03)
- Upper Middle	-.01	-.01	.30***	.30***
	(.03)	(.03)	(.03)	(.03)
- Upper	-.05	-.06†	.42***	.42***
	(.03)	(.03)	(.03)	(.03)
Demographics				
Age		-.003		-.004†
		(.002)		(.002)
Woman		-.019		.007
		(.034)		(.032)
Non-White Race		.003		.0001
		(.079)		(.074)
College Degree		.074		.080
		(.077)		(.071)
Income ($1000s)		.007		.008
		(.007)		(.007)
Subjective SES		-.010		-.032†
		(.018)		(.017)
Working		.051		.066
		(.076)		(.071)
Conservatism		-.083***		-.081***
		(.019)		(.018)
Constant		6.481		6.621

Note: All models are mixed-effects modes with a random effect for participant ID.
[a] ref: Man [b] ref: Heterosexual [c] ref: Middle-Aged [d] ref: White [e] ref: Middle Class
† $p<.10$ * $p<.05$ ** $p<.01$ *** $p<.001$

A.2 Stereotype Variability

Table A.3—Interactions between strata gender and sexual orientation, all competence items tested separately.

	Confident	Assertive	Capable	Intelligent
Gender[a]				
- Woman	-.02	-.14**	-.03	.07
	(.05)	(.05)	(.05)	(.05)
Sexual Orientation[b]				
- Bisexual	-.56***	-.65***	-.58***	-.38***
	(.05)	(.05)	(.05)	(.05)
- Gay/Lesbian	-.55***	-.80***	-.58***	-.39***
	(.05)	(.05)	(.05)	(.05)
Gender X Sexuality				
- Woman X Bisexual	.16*	.52***	.15*	-.11
	(.07)	(.07)	(.07)	(.07)
- Woman X Gay/Lesbian	.16*	.71***	.08	-.10
	(.07)	(.07)	(.07)	(.07)
Constant	6.87	6.49	6.93	6.75

Note: All models are mixed-effects modes with a random effect for participant ID.
[a] ref: Man [b] ref: Heterosexual
[†] $p<.10$ * $p<.05$ ** $p<.01$ *** $p<.001$

A.3 Multiple Marginalization, Multiple Standards

Table A.4a—Interactions between warmth/competence and total number of marginalized strata category memberships predicting expected social rank.

	Model 1	Model 2
Warmth	.11***	-.03
	(.01)	(.05)
Competence	.76***	.91***
	(.01)	(.04)
# of Marginalized Categories[a]		
- One	-.33***	-.30***
	(.07)	(.07)
- Two	-.54***	-.51***
	(.07)	(.07)
- Three	-.70***	-.70***
	(.07)	(.07)
- Four	-.86***	-.88***
	(.08)	(.08)
Warmth X # of Marginalized Categories		
- Warmth X One		.08†
		(.05)
- Warmth X Two		.15**
		(.05)
- Warmth X Three		.16**
		(.05)
- Warmth X Four		.19**
		(.06)
Competence X # of Marginalized Categories		
- Competence X One		-.09†
		(.04)
- Competence X Two		-.17***
		(.05)
- Competence X Three		-.22***
		(.05)
- Competence X Four		-.24***
		(.06)
Constant	.51	.49

Note: Results are from hybrid mixed effects models with strata ID random effect and variable scores centered on participant mean.

[a] ref: Zero

† $p<.10$ * $p<.05$ ** $p<.01$ *** $p<.001$

Table A.4b—Random effects parameters for interactions between warmth/competence and total number of marginalized strata category memberships predicting expected social rank.

	Model 1	Model 2
Constant SD	.21	.21
	(.01)	(.01)
Warmth SD	.16	.15
	(.01)	(.01)
Competence SD	.12	.11
	(.01)	(.01)
Corr(Warmth, Competence)	-.87	-.87
	(.05)	(.06)
Corr(Warmth, Constant)	-.06	-.03
	(.09)	(.09)
Corr(Competence, Constant)	.29	.25
	(.10)	(.10)

Table A.5—Interactions between warmth/competence and marginalized strata category memberships predicting expected social rank.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Warmth	.10***	.05***	.06***	.07***	.06***	-.03*
	(.01)	(.01)	(.01)	(.01)	(.01)	(.02)
Competence	.76***	.81***	.81***	.80***	.83***	.96***
	(.01)	(.01)	(.01)	(.01)	(.01)	(.02)
Woman Strata[a]	-.02	-.02	-.01	-.02	-.02	-.01
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Warmth X Woman Strata		.10***				.09***
		(.01)				(.01)
Competence X Woman Strata		-.09***				-.08***
		(.01)				(.01)
LGB Strata[b]	-.25***	-.24***	-.25***	-.25***	-.24***	-.22***
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Warmth X LGB Strata			.06***			.05***
			(.02)			(.02)
Competence X LGB Strata			-.08***			-.08***
			(.02)			(.02)
Non-White Strata[c]	-.15***	-.15***	-.15***	-.15***	-.14***	-.14***
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Warmth X Non-White Strata				.06***		.05**
				(.01)		(.01)
Competence X Non-White Strata				-.09***		-.08***
				(.01)		(.01)
L/LM Class Strata[d]	-.48***	-.48***	-.48***	-.48***	-.51***	-.50***
	(.02)	(.01)	(.02)	(.02)	(.02)	(.02)
Warmth X L/LM Class Strata					.11***	.10***
					(.02)	(.02)
Competence X L/LM Class Strata					-.18***	-.17***
					(.02)	(.02)
Constant	5.93	5.92	5.91	5.92	5.90	5.87

Note: All models are mixed-effects modes with a random effect for participant ID. Warmth and competence centered on sample grand mean.

[a] ref: Man, [b] ref: Heterosexual, [c] ref: White, [d] ref: Middle-Upper Class

[†] $p<.1$ * $p<.05$ ** $p<.01$ *** $p<.001$

Appendix B: Supplemental Analyses for Chapter 3

B.1 Experiment 2 analytic sample demographics

Table B.1—Experiment 2 analytic sample demographics.

	Mean (SD) or %	
	Experiment Participants	2014-19 ACS Adults
Age	48.2 (17.3)	47.5 (18.5)
% Woman	52.2	50.8
Sexuality		
- Heterosexual	90.6	-
- Gay/Lesbian	3.3	-
- Bisexual	4.6	-
- Queer	.2	-
- Asexual	.6	-
- Other	.7	-
% in Same-Sex Couples	-	.6
Race/Ethnicity		
- White	74.8	63.6
- Black	7.0	12.0
- Hispanic (any race)	11.2	15.9
- Asian	4.8	5.8
- Native American	.9	.6
- Multiracial	.6	1.8
- Other	.6	.2
Education		
- Less than HS	2.5	10.3
- High School	23.2	36.1
- 2-Year Degree, Some College	38.2	24.2
- 4-Year Degree	21.9	18.6
- Postgraduate	14.2	10.9
Employment Status		
- Working Full-Time	38.2	47.6
- Working Part-Time	10.4	12.0
- Temp. Not Working	3.7	1.2
- Unemployed	4.9	3.3
- Otherwise not in labor force	42.9	35.4
Family Income (in thousands $)	70.3 (66.2)	92.4 (98.9)
Subjective SES	5.6 (2.0)	-
Conservatism	4.1 (1.8)	-

Table B.2—Effects of participant demographics on study variables.

	SES	Agency	Communion	Competition	Warmth	Competence
Age	-.01***	-.01***	.001	-.02***	.0005	-.003
	(.002)	(.002)	(.002)	.003	(.002)	(.002)
Woman	-.15*	-.05	-.02	-.52***	-.05	.01
	(.06)	(.07)	(.07)	(.10)	(.07)	(.07)
LGBTQ	.02	.17	.14	-.57**	.13	.20
	(.11)	(.13)	(.12)	(.17)	(.13)	(.12)
Non-White Race	.13†	.14†	.16*	.02	.07	.12
	(.07)	(.08)	(.08)	(.11)	(.08)	(.08)
Working	.35***	.38***	-.10	.37***	-.30***	.16**
	(.08)	(.07)	(.06)	(.07)	(.06)	(.06)
College	.02	.01	.04	.17	-.02	-.04
	(.07)	(.08)	(.08)	(.11)	(.08)	(.08)
Income	.001*	.001	.0004	.001	.001	.0005
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
SSES	.09***	.08***	.05**	.05†	.06**	.04*
	(.02)	(.02)	(.02)	(.03)	(.02)	(.02)
Conservatism	-.03†	-.04*	-.06**	.11***	-.06**	-.04*
	(.02)	(.02)	(.02)	(.03)	(.02)	(.02)
Constant	5.41	5.56	5.99	4.74	6.15	6.13

† $p<.10$ * $p<.05$ ** $p<.01$ *** $p<.001$

B.2 Factor Analyses of Job Styles

Job styles imported from O*Net into 2014-19 ACS, linking by SOC codes. In cases where job styles data were provided for lower-level occupation codes but the ACS file included only higher level codes, job styles data for the lower-level occupations were averaged together.

An exploratory factor analysis (EFA) was conducted on individual-level data in the ACS. Factor analyses of occupation-level data from O*Net shows similar factor structure and loadings. In initial analyses, four job styles (adaptability, attention to detail, integrity, and independence) did not strongly load onto the first two factors, and loaded more strongly onto other factors. They were therefore dropped. Since this factor analysis is being applied to data that were not necessarily constructed with this factor structure in mind, the EFA was used to generate factor scores rather than a more restricted CFA which would not account for small cross-loadings

Table B.3—Exploratory factor analysis of job styles in 2014-19 ACS.

Job Style Variable	Agency	Communion	Uniqueness
Achievement and Persistence	**.87**	-.04	.27
Persistence	**.99**	-.06	.08
Initiative	**.92**	.04	.11
Leadership	**.61**	.33	.30
Innovation	**.72**	.08	.40
Analytical Thinking	**.90**	-.14	.30
Cooperation	.14	**.78**	.25
Concern for Others	-.13	**.97**	.17
Social Orientation	-.12	**.96**	.20
Self-Control	-.005	**.95**	.11
Stress Tolerance	.35	**.65**	.21
Dependability	**.45**	**.49**	.32
Eigenvalue	6.38	6.03	
% Variance Explained	68.9%	65.1%	

Loadings greater than |.40| in bold.

B.3 Analyses of Expected Employment Status

For each profile, participants were also asked whether they thought that the person in the profile would have a job, if they were a student, if they were retired, or if they were otherwise not working. The likelihood of participants' expecting a profile to be employed correlates strongly with the actual employment rates of the 96 strata in the ACS (total r=.82, p<.001). Linear probability models with population weights as described in the third analysis section to simplify analysis find that age is the largest factor driving expectations of each different type of employment (Table B.4). Also notable is that participants were less likely to expect Black and Hispanic profiles to be employed, with a parallel increase in the chance of seeing them as being 'Otherwise unemployed.'

Table B.4—Linear probability models predicting employment statuses (0,1) by experimental categories using population size weights.

	Working	Student	Retired	Other
Gender[a]				
- Woman	-.02	.002	-.01	.03**
	(.02)	(.01)	(.01)	(.01)
Sexuality[b]				
- Gay/Lesbian	-.02[†]	.01	.01	.01
	(.01)	(.01)	(.01)	(.01)
Race/Ethnicity[c]				
- Black	-.06***	-.002	.01	.05***
	(.02)	(.01)	(.01)	(.01)
- Hispanic	-.05**	-.002	-.001	.06***
	(.02)	(.01)	(.01)	(.01)
- Asian	-.02	-.004	.02	.01
	(.02)	(.01)	(.01)	(.01)
Age[d]				
- 16-25	-.36***	.33***	.002	.03**
	(.03)	(.03)	(.01)	(.01*)
- 36-45	-.02	.003	-.01	.02*
	(.02)	(.01)	(.01)	(.01)
- 46-55	-.03	-.01	.01	.03*
	(.02)	(.01)	(.01)	(.01)
- 56-65	-.18***	-.02	.16***	.04*
	(.03)	(.01)	(.02)	(.01)
- 66-75	-.63***	-.03*	.61***	.05**
	(.03)	(.01)	(.03)	(.02)
Constant	.96	.04	.01	-.01

[a] Reference is Man [b] Reference is Heterosexual [c] Reference is White [d] Reference is 26-35

[†] $p<.10$ * $p<.05$ ** $p<.01$ *** $p<.001$

B.4 Analyses of Intersectional Complexity in Study Variables

Table B.5a—Main and random effects of categories on study variables. Separate models for Gender, Sexuality, Age, and Race/Ethnicity.

	SES		Competition	
	Main Effects	Random Slopes	Main Effects	Random Slopes
	Mean *b*	*b* SD[f]	Mean *b*	*b* SD[f]
Gender[a]				
- Woman	-.160***	.218	-.062[†]	.109***
	(.041)	(.031)	(.033)	(.032)
Sexuality[b]				
- Gay/Lesbian	-.159***	.220***	-.003	.000[g]
	(.041)	(.033)	(.029)	(.000)
Age[c]				
- 26-35	.702***	.121***	.053	.086***
	(.055)	(.049)	(.054)	(.058)
- 36-45	.786***	.162***	.003	.121***
	(.061)	(.049)	(.058)	(.052)
- 46-55	.820***	.138***	-.050	.038
	(.057)	(.047)	(.051)	(.107)
- 56-65	.818***	.136***	-.139*	.129***
	(.046)	(.048)	(.050)	(.052)
- 66-75	.583***	.240***	-.208***	.126***
	(.075)	(.056)	(.059)	(.042)
Race/Ethnicity[d]				
- Black	-.795***	.172***	-.145**	.077***
	(.051)	(.040)	(.044)	(.053)
- Hispanic	-1.110	.198***	-.181***	.087***
	(.055)	(.042)	(.044)	(.049)
- Asian	.040	.222***	-.251***	.000[g]
	(.059)	(.045)	(.041)	(.000)

Note: All models also control for the other strata categories.
[a] ref: Man [b] ref: Heterosexual [c] ref: 16-25 [d] ref: White
[f] *p*-values of random slope parameters determined by likelihood ratio tests.
[g] for unclear reasons, the model was unable to estimate non-zero random slopes for these effects, either in a model estimating all age random slopes together or separately. This problem persisted regardless of which category was treated as the reference category, if multiple were possible.
[†] $p<.10$ * $p<.05$ ** $p<.01$ *** $p<.001$.

Table B.5b—Effect variation from random slopes models with strata ID as level variable—warmth stereotypes. Separate models for Gender, Sexuality, Age, and Race/Ethnicity.

	Job Agency		Job Communion	
	Main Effects	Random Slopes	Main Effects	Random Slopes
	Mean *b*	*b* SD[f]	Mean *b*	*b* SD[f]
Gender[a]				
- Woman	-.150***	.189***	-.001	.169***
	(.038)	(.030)	(.035)	(.027)
Sexuality[b]				
- Gay/Lesbian	-.148***	.158***	-.113***	.202***
	(.035)	(.031)	(.030)	(.045)
Age[c]				
- 26-35	.590**	.072**	.590***	.133***
	(.050)	(.062)	(.047)	(.049)
- 36-45	.649***	.146***	.611***	.095***
	(.059)	(.049)	(.047)	(.052)
- 46-55	.649***	.133***	.649***	.167***
	(.058)	(.049)	(.047)	(.051)
- 56-65	.669***	.095***	.646***	.157***
	(.053)	(.052)	(.051)	(.041)
- 66-75	.395***	.167***	.414***	.146***
	(.063)	(.051)	(.051)	(.040)
Race/Ethnicity[d]				
- Black	-.643***	.157***	-.294***	.181***
	(.050)	(.041)	(.051)	(.040)
- Hispanic	-.886***	.146***	-.177***	.040[†]
	(.049)	(.040)	(.036)	(.067)
- Asian	.144*	.202***	.067	.210***
	(.056)	(.045)	(.055)	(.043)

Note: All models also control for the other strata categories.
[a] ref: Man [b] ref: Heterosexual [c] ref: 16-25 [d] ref: White
[f] *p*-values of random slope parameters determined by likelihood ratio tests.
[†] $p<.10$ * $p<.05$ ** $p<.01$ *** $p<.001$.

Table B.5c—Effect variation from random slopes models with strata ID as level variable—warmth stereotypes. Separate models for Gender, Sexuality, Age, and Race/Ethnicity.

	Warmth Stereotypes		Competence Stereotypes	
	Main Effects	Random Slopes	Main Effects	Random Slopes
	Mean *b*	*b* SD[f]	Mean *b*	*b* SD[f]
Gender[a]				
- Woman	.020	.193***	.039	.089***
	(.037)	(.029)	(.026)	(.025)
Sexuality[b]				
- Gay/Lesbian	-.191***	.122***	-.209***	.077***
	(.030)	(.027)	(.025)	(.027)
Age[c]				
- 26-35	.250***	.141***	.309***	.053**
	(.054)	(.043)	(.041)	(.053)
- 36-45	.238***	.159***	.335***	.053**
	(.057)	(.044)	(.041)	(.053)
- 46-55	.350***	.070***	.389	.000[g]
	(.045)	(.052)	(.039)	(.000)
- 56-65	.365***	.157***	.346***	.078***
	(.056)	(.045)	(.043)	(.043)
- 66-75	.406***	.151***	.180***	.101***
	(.056)	(.044)	(.046)	(.041)
Race/Ethnicity[d]				
- Black	-.260***	.171***	-.322***	.085***
	(.048)	(.038)	(.036)	(.035)
- Hispanic	-.221***	.096***	-.548***	.075***
	(.039)	(.037)	(.035)	(.035)
- Asian	-.068	.170***	.006	.024
	(.048)	(.039)	(.032)	(.081)

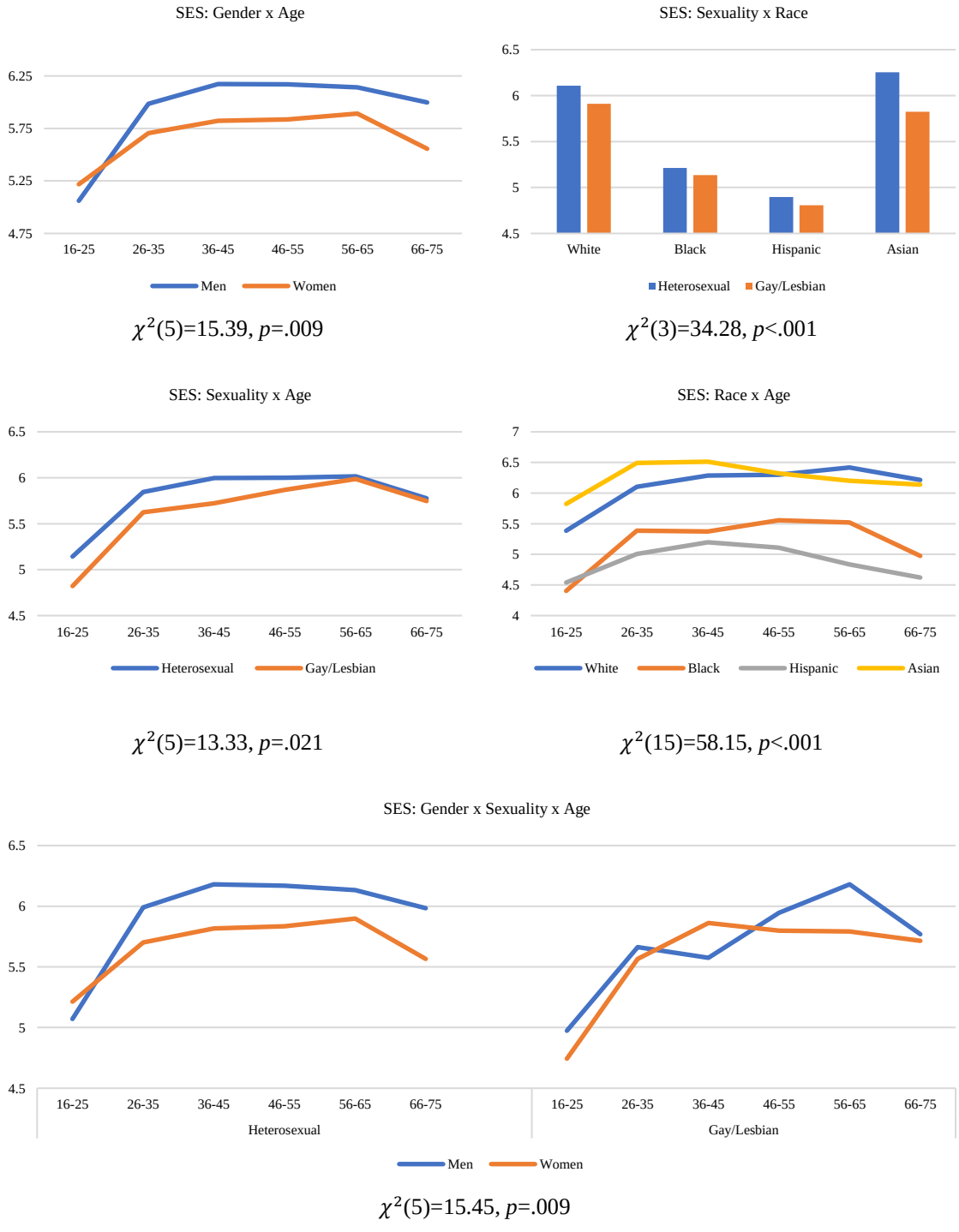
Note: All models also control for the other strata categories.
[a] ref: Man [b] ref: Heterosexual [c] ref: 16-25 [d] ref: White
[f] *p*-values of random slope parameters determined by likelihood ratio tests.
[g] for unclear reasons, the model was unable to estimate non-zero random slopes for these effects, either in a model estimating all age random slopes together or separately. This problem persisted regardless of which category was treated as the reference category, if multiple were possible.
[†] $p<.10$ * $p<.05$ ** $p<.01$ *** $p<.001$

In the next section, interactions are estimated using demographic weights, as detailed in the analysis. Statistical significance levels are for the total contribution of the interaction to model fit, as judged by likelihood ratio tests. Three-way interaction models include all 2-way interactions, significant or not. Table B.6 details which interaction effects were significant in after this model trimming process.

Table B.6—Statistically significant interaction effects for each study variable.

	SES	Agency	Communion	Competition	Warmth	Competence
2-Way Interactions						
Gender x Sexuality			✓	✓	✓	✓
Gender x Race				✓	✓	
Gender x Age	✓				✓	
Sexuality x Race	✓	✓	✓	✓	✓	
Sexuality x Age	✓					
Race x Age	✓	✓	✓	✓	✓	✓
3-Way Interactions						
Gender x Sexuality x Race						
Gender x Sexuality x Age	✓	✓				
Gender x Race x Age				✓		
Sexuality x Race x Age			✓			

B.4.1 Perceived Socioeconomic Status



$\chi^2(5)=15.39$, $p=.009$

$\chi^2(3)=34.28$, $p<.001$

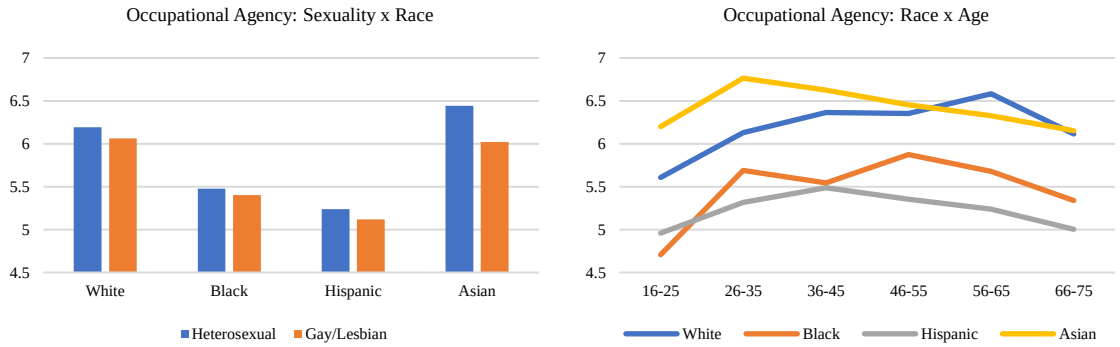
$\chi^2(5)=13.33$, $p=.021$

$\chi^2(15)=58.15$, $p<.001$

$\chi^2(5)=15.45$, $p=.009$

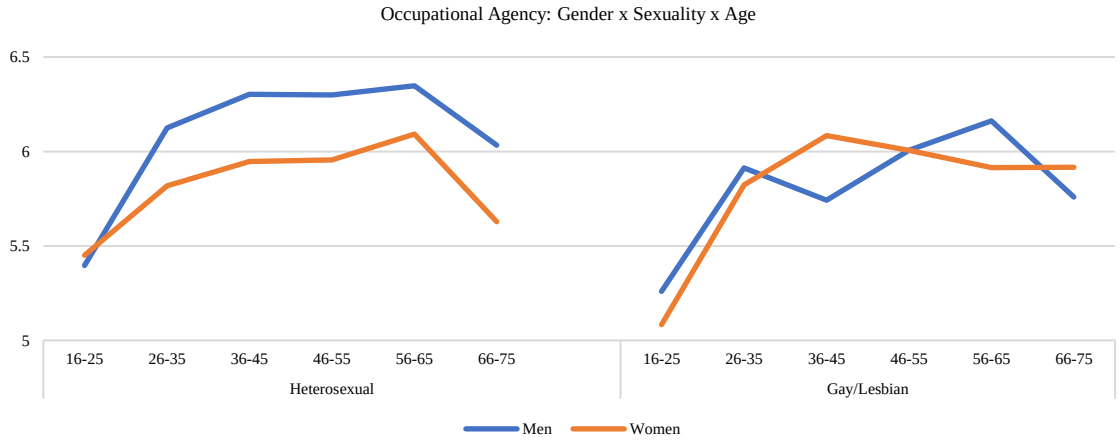
Figure B.1—Interaction effects for Perceived SES using demographic weights.

B.4.2 Perceived Occupational Agency



$\chi^2(3)=22.23$, $p<.001$

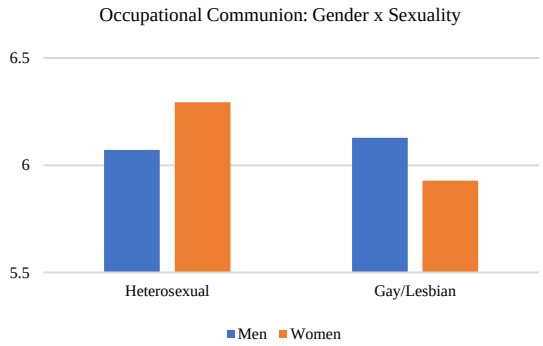
$\chi^2(15)=48.81$, $p<.001$



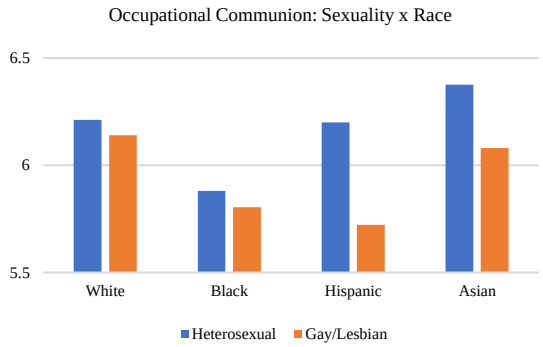
$\chi^2(5)=15.06$, $p=.010$

Figure B.2—Interaction effects for Perceived Occupational Agency using demographic weights.

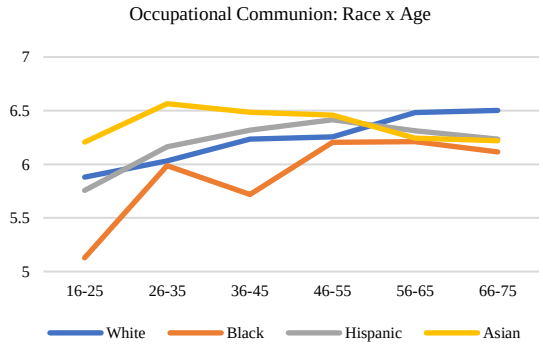
B.4.3 Perceived Occupational Communion



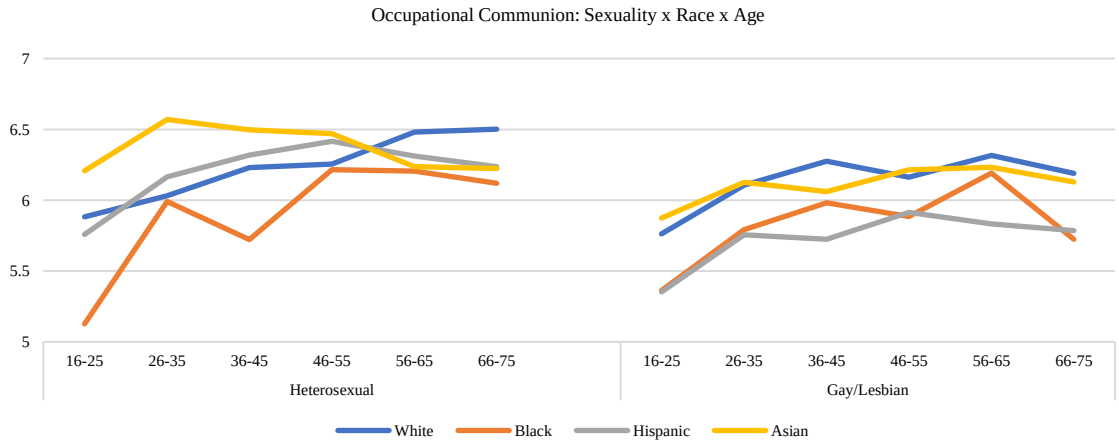
$\chi^2(1)=14.98$, $p<.001$



$\chi^2(3)=23.36$, $p<.001$



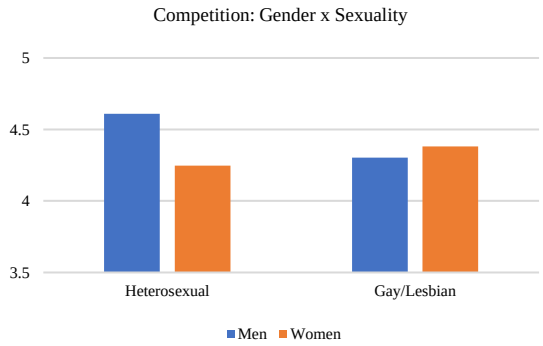
$\chi^2(15)=56.06$, $p<.001$



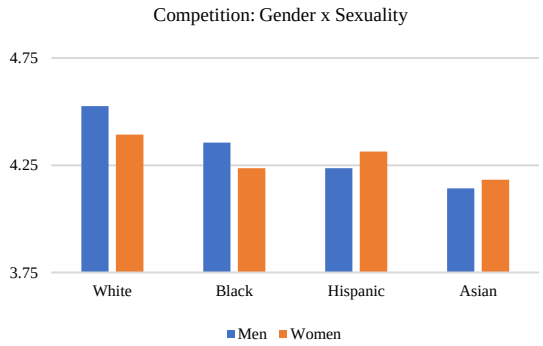
$\chi^2(5)=12.24$, $p=.032$

Figure B.3—Interaction effects for Perceived Occupational Communion using demographic weights.

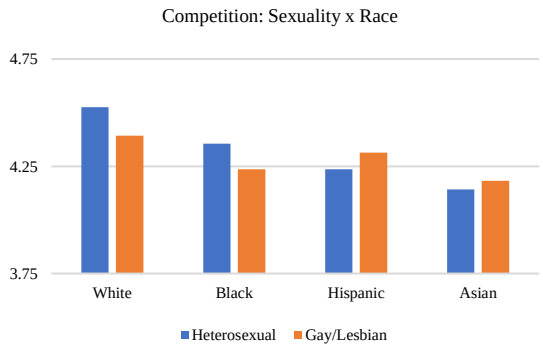
B.4.4 Perceived Competition



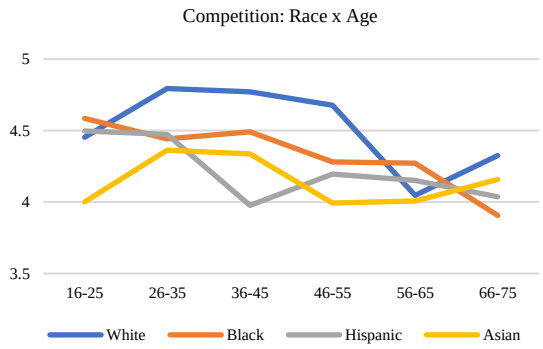
$\chi^2(1)=12.32$, $p<.001$



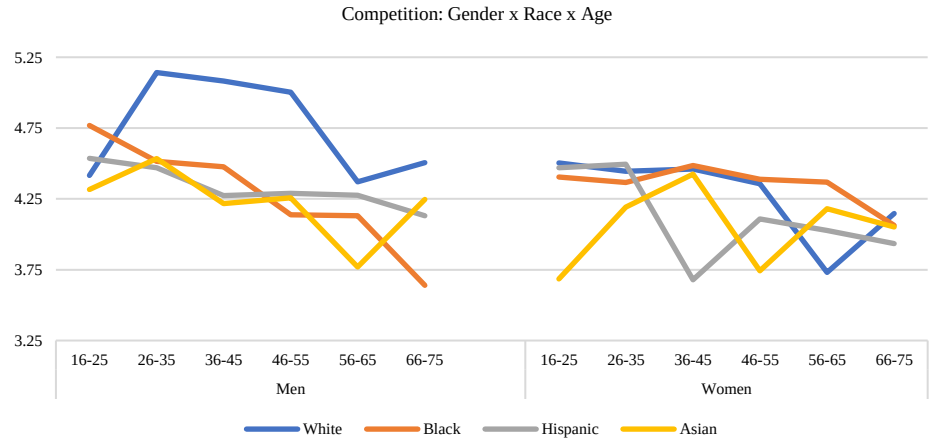
$\chi^2(3)=12.87$, $p=.005$



$\chi^2(3)=9.46$, $p=.024$



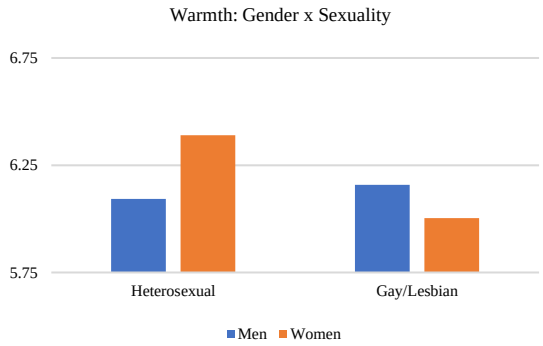
$\chi^2(5)=12.14$, $p=.033$



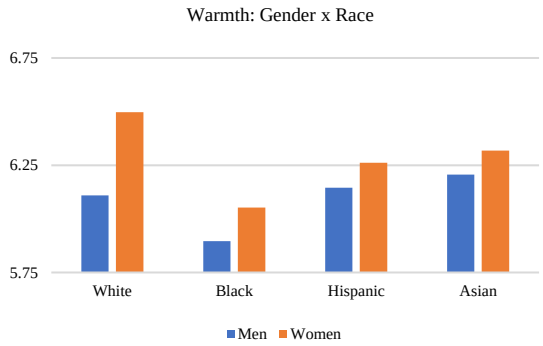
$\chi^2(15)=25.23$, $p=.047$

Figure B.4—Interaction effects for Perceived Competition using demographic weights.

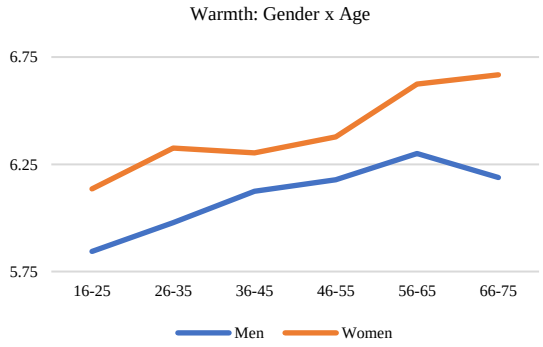
B.4.5 Warmth Stereotypes



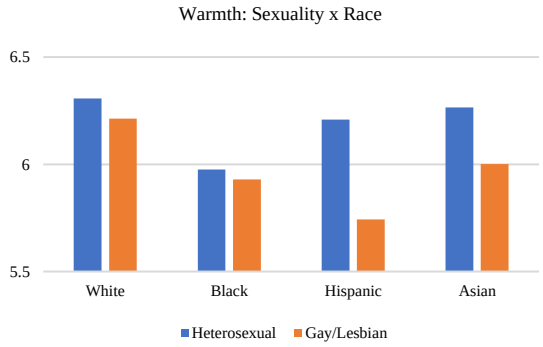
$\chi^2(1)=26.90$, $p<.001$



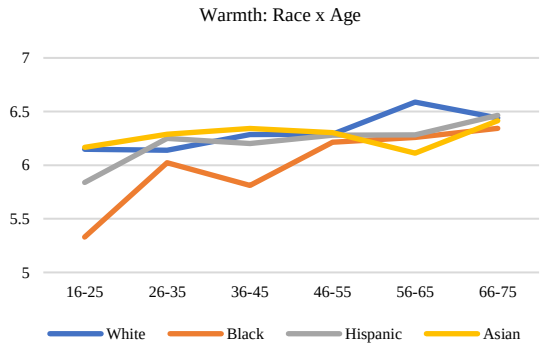
$\chi^2(3)=17.05$, $p<.001$



$\chi^2(5)=11.45$, $p=.043$



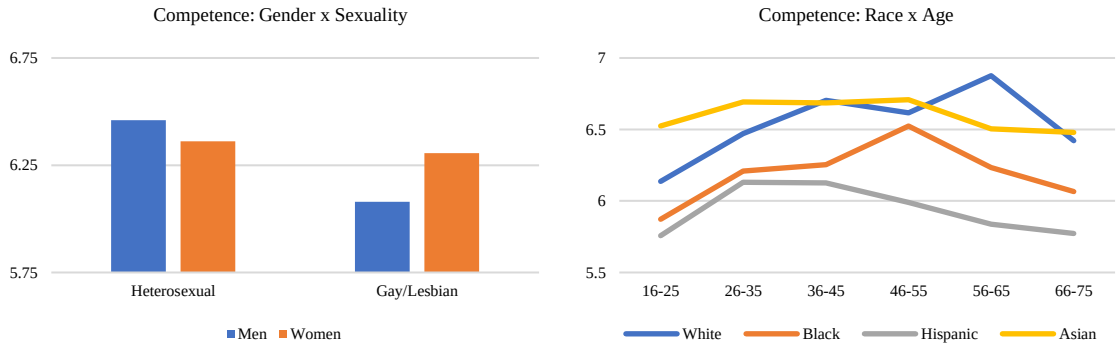
$\chi^2(3)=24.45$, $p<.001$



$\chi^2(15)=38.46$, $p<.001$

Figure B.5—Interaction effects for Warmth stereotypes using demographic weights.

B.4.6 Competence Stereotypes



$\chi^2(1)=9.13$, $p=.003$ $\chi^2(15)=38.46$, $p<.001$

Figure B.6—Interaction effects for Competence stereotypes using demographic weights.

B.5 Correlations between ACS and Participant Variables

The table below provides the full set of correlations between ACS variables and participant perception variables in the survey experiment. It also reports separate correlations based on sexuality, but in only two cases (stay-at-home parenting and communion, occupational segregation and competition) does sexuality matter for whether a correlation is significant or not.

The table also includes two variables that might explain the lack of a correlation between social structure and perceptions of communion: marriage rate and rate of stay-at-home parenting in each ACS stratum. Participants may have been thinking of such non-occupational communal roles rather than occupation. Evidence is consistent with this explanation: marriage rates and rates of stay-at-home parenting correlate with perceptions of occupational communion.

Another possibility is that while the agency items in experiment were worded nearly identically to the relevant O*Net variables, only one communion item ("cooperation") was so closely worded. Thus, perhaps the lack of correlation is due to a lack of parallelism. I therefore tested how well means of the item "cooperation" correlated with its matched O*Net item in the ACS. These results are no more significant than those for the whole communion scale (total r=.01, p=ns), suggesting that this is not the explanation for the null correlation.

Table B.7—Correlations between strata-level means of variables in ACS and survey experiment

American Community Survey	Survey Experiment	Total *r*	Same-Sex / Gay/Lesbian *r*	All Others / Heterosexuals *r*
Employment Rate	Expected Employment	.82***	.78***	.93***
Income	SES	.68***	.81***	.78***
College Completion		.74***	.85***	.86***
Occ. Prestige		.78***	.81***	.86***
Occ. Agency	Occ. Agency	.65***	.81***	.74***
Occ. Communion	Occ. Communion	.04	.16	.19
Marriage Rate		.51***	.46***	.67***
Stay-at-Home-Parent[a]		.26*	-.10	.44***
Net Occ. Agency	Net Occ. Agency	.64***	.49***	.71***
Geographic Segregation	Competition	-.28**	-.47***	-.43***
Occupational Segregation		-.16	-.40**	.00

[a] stay-at-home parents measured as parents who are part of a couple, not in the labor force, with their own children at home.

Table B.8—Standardized and unstandardized regressions between segregation variables and perceived competition, controlling for other strata variables, N=96

	Model 1		Model 2		Model 3		Model 4	
	β	*b*	β	*b*	β	*b*	β	*b*
Geographic Segregation	-.28**	-.004**			-.39*	-.01	-.38*	-.01*
		(.001)				(.002)		(.003)
Occupational Segregation			-.16	-.004	.14	.004	.18	.005
				(.003)		(.004)		(.004)
Income							.23	.003
								(.002)
College Completion Rate							-.28	-.004
								(.01)
Occupational Prestige							.14	.01
								(.02)
Occupational Agency							.08	.08
								(.44)
Occupational Communion							-.06	-.06
								(.21)
Constant		4.46		4.47		4.38		4.07

† $p<.10$ * $p<.05$ ** $p<.01$ *** $p<.001$

B.6 Estimated Random Slopes for Table 4 Models

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Table B.9—Random slopes correlations for Table 4, models 4 and 8.

	Model 4, Warmth Stereotypes				Model 8, Competence Stereotypes			
	SES	Agency	Communion	Competition	SES	Agency	Communion	Competition
SES								
Agency	-.61***				-.78***			
	(.14)				(.07)			
Communion	-.15	-.27			-.53†	.29		
	(.24)	(.21)			(.22)	(.26)		
Competition	-.38†	.02	.69**		.06	-.14	.57*	
	(.20)	(.20)	(.14)		(.21)	(.21)	(.22)	
Constant	.18	-.25	.07	.01	-.19	.31	.05	-.16
	(.23)	(.21)	(.22)	(.20)	(.18)	(.18)	(.25)	(.22)

† $p<.10$ * $p<.05$ ** $p<.01$ *** $p<.001$

B.7 Comparing Categorical Stereotypes from Equal vs Demographic Weighting

Table B.10 shows average stereotypes of warmth and stereotypes using equal strata weights (left) and demographic weights (right) and provides the Euclidean distance between the two. Several groups show particularly large changes in stereotypes, as measured by Euclidean distance (i.e. the distance between two points on a coordinate system, $d_{(p,q)} = \sqrt{\sum(q_i - p_i)^2}$. One is the six age groups: under demographic weighting, each age group tends to be stereotyped as warmer and more competent. This is likely because of the greater influence of White stereotypes of higher warmth and competence in demographic weighting. Aside from these average differences, the differences between age groups remain similar regardless of weighting.

More informative are the differences in gender stereotypes between weighting strategies. When strata are equally weighted men and women, on average, women are stereotyped as having similar levels of warmth (*b*=.02, SE=.03, *p*=ns) and competence (*b*=.02, SE=.03, *p*=ns) as men. However, when strata are weighted by demographic prevalence to yield the gender stereotypes that would be applied to an average man or woman in the U.S., I find that women are now stereotyped as warmer (*b*=.29, SE=.07, *p*<.001) and non-significantly less competent than men (*b*=-.10, SE=.06, *p*=ns).

As shown below, the gender difference in competence stereotype is due mostly to differences in stereotypes of agency (confidence and assertiveness, a subfactor of competence [Abele et al. 2016], not to be confused with SRT's analog for competence).

Here, women are stereotyped as less agentic than men (b=-.15; SE=.07, <.05), but not less intelligent (b=-.05, SE=.07, p=ns).

Next, I find that stereotypes of Hispanics differ significantly depending on on whether they are demographically weighted. When all strata are equally weighted, Hispanics are much less warm and competent than Whites. Under demographic weighting, Hispanics are stereotyped as both less warm (b=-.25, SE=.04, p=ns) and less competent (b=-.57, SE=.04, p<.001) than Whites. Demographic weighting cuts the difference in warmth stereotypes in half (b=-.09, SE=.07, p=ns) while leaving differences in competence stereotypes completely intact (b=-.56, SE=.06, p<.001). This suggests that while the stereotypes of lower Hispanic competence are prevalent among the demographically largest groups of Hispanics, the stereotypes of lower warmth are not.

The method used to infer sexuality in the ACS under-estimates the size of the LGBTQ population. To assess the impact of this underestimation on estimated categorical stereotypes, I generated population size weights that multiplied the size of the lesbian and gay population by factors of 3 and 10, and re-estimated categorical stereotypes. As shown in Table B.11, even inflating the impact of lesbian and gay strata by 10 times causes essentially no change in estimated categorical stereotypes.

Table B.10—Categorical stereotypes using population size weights.

	Equal Strata Weight		Population Weight		Euclidean Distance
	Warmth	Competence	Warmth	Competence	
Gender					
Men	6.10	6.20	6.09	6.46	.26
	(.04)	(.04)	(.05)	(.05)	
Women	6.12	6.23	6.39	6.36	.30
	(.04)	(.04)	(.05)	(.05)	
Sexuality					
Heterosexual	6.20	6.32	6.24	6.41	.10
	(.04)	(.04)	(.04)	(.04)	
Gay/Lesbian	6.01	6.11	6.10	6.20	.12
	(.04)	(.04)	(.05)	(.05)	
Race					
White	6.26	6.44	6.30	6.55	.12
	(.04)	(.04)	(.05)	(.05)	
Black	5.97	6.11	5.96	6.20	.09
	(.05)	(.04)	(.07)	(.06)	
Hispanic	6.01	5.87	6.21	5.99	.24
	(.05)	(.04)	(.06)	(.06)	
Asian	6.18	6.45	6.28	6.62	.19
	(.04)	(.04)	(.05)	(.05)	
Age					
16-25	5.84	5.96	5.97	6.07	.18
	(.05)	(.05)	(.08)	(.08)	
26-35	6.09	6.26	6.16	6.40	.16
	(.05)	(.04)	(.08)	(.08)	
36-45	6.08	6.29	6.22	6.54	.29
	(.05)	(.04)	(.08)	(.07)	
46-55	6.19	6.34	6.28	6.50	.18
	(.05)	(.04)	(.08)	(.07)	
56-65	6.20	6.30	6.48	6.63	.43
	(.05)	(.04)	(.09)	(.08)	
66-75	6.24	6.14	6.42	6.28	.22
	(.05)	(.04)	(.10)	(.09)	

Table B.11—Categorical stereotypes using population size weights and different proportions of same-sex couples.

	Population Weight		Population Weight x 3		Population Weight x 10	
	Warmth	Competence	Warmth	Competence	Warmth	Competence
Gender						
Men	6.09	6.46	6.10	6.45	6.10	6.44
	(.05)	(.05)	(.05)	(.05)	(.05)	(.05)
Women	6.39	6.36	6.38	6.36	6.37	6.36
	(.05)	(.05)	(.05)	(.05)	(.05)	(.05)
Sexuality						
Heterosexual	6.24	6.41	6.24	6.41	6.25	6.42
	(.04)	(.04)	(.04)	(.04)	(.04)	(.04)
Gay/Lesbian	6.10	6.20	6.10	6.20	6.10	6.20
	(.05)	(.05)	(.05)	(.05)	(.05)	(.05)
Race						
White	6.30	6.55	6.30	6.54	6.30	6.53
	(.05)	(.05)	(.05)	(.05)	(.05)	(.05)
Black	5.96	6.20	5.95	6.20	5.95	6.19
	(.07)	(.06)	(.06)	(.06)	(.06)	(.05)
Hispanic	6.21	5.99	6.21	5.99	6.19	5.98
	(.06)	(.06)	(.06)	(.06)	(.06)	(.06)
Asian	6.28	6.62	6.28	6.61	6.27	6.60
	(.05)	(.05)	(.05)	(.05)	(.05)	(.05)
Age						
16-25	5.97	6.07	5.97	6.07	5.96	6.06
	(.08)	(.08)	(.08)	(.08)	(.08)	(.07)
26-35	6.16	6.40	6.16	6.40	6.16	6.39
	(.08)	(.08)	(.08)	(.08)	(.08)	(.07)
36-45	6.22	6.54	6.22	6.54	6.21	6.52
	(.08)	(.07)	(.07)	(.07)	(.07)	(.06)
46-55	6.28	6.50	6.28	6.50	6.27	6.49
	(.08)	(.07)	(.08)	(.07)	(.08)	(.06)
56-65	6.48	6.63	6.48	6.63	6.46	6.61
	(.09)	(.08)	(.08)	(.08)	(.08)	(.07)
66-75	6.42	6.28	6.41	6.27	6.40	6.27
	(.10)	(.09)	(.10)	(.09)	(.09)	(.08)

B.8 Aggregating Stereotype Sub-Factors

The population size weighting approach also reproduces more narrowly-defined stereotypes. The warmth and competence scales in this study were designed to be divisible into measures of the sub-factors of warmth and competence: morality and sociability for warmth, and agency and intelligence for competence. For the most part, these subfactors behave quite similarly. But sometimes these more specific stereotypes can exhibit different results. For example, recent research suggests that stereotypes about women's intelligence have lost much ground, but stereotypes about women's agency have remained. Applying the demographic weighting technique to these subfactors helps to elucidate where such differences do and do not occur.

Table B.12 shows the prevalence-weighted main effects of each experimental factor for each of the four sub-factors. Several differences are notable. First, as suggested by the aforementioned research, there is no overall gender difference in stereotyped intelligence (b=-.05, SE=.07, p=ns), but there is a statistically significant difference in stereotyped agency, with women stereotyped as less agentic than men (b=-.15, SE=.07, p<.001).

Second, there is an even more dramatic difference between the way that Asians are stereotyped on agency and intelligence. Overall, Asians are stereotyped as much more intelligent than Whites (b=.28, SE=.07, p<.001), but less agentic (b=-.14, SE=.07, p<.05). This, too, aligns with research on the subtle ways that 'model minority' myths simultaneously advantage and disadvantage Asians, for example by leading to hiring

preferences in low level jobs, but barriers when it comes to promotions (e.g. Tinkler et al. 2019).

The distinction between goodness and sociability also helps to clarify stereotypes. Two groups specifically, Lesbians/gays and Hispanics are stereotyped as less morally good than Whites (lesbians/gays: b=-.18, SE=.06, p<.001; Hispanics: b=-.17, SE=.07, p<.001), even while they are not necessarily seen as less sociable (lesbians/gays: b=-.11, SE=.06, p<.10; Hispanics: b=-.01, SE=.07, p=ns).

Table B.12—Categorical stereotypes with population size weights for sub-factors of warmth (morality and sociability) and competence (agency and intelligence).

	Warmth		Competence	
	Morality	Sociability	Agency	Intelligence
Gender				
Men	6.15	6.04	6.43	6.49
	(.05)	(.06)	(.05)	(.05)
Women	6.36	6.41	6.28	6.44
	(.06)	(.06)	(.05)	(.06)
Sexuality				
Heterosexual	6.26	6.23	6.35	6.47
	(.04)	(.04)	(.04)	(.04)
Gay/Lesbian	6.08	6.12	6.14	6.25
	(.05)	(.05)	(.05)	(.05)
Race				
White	6.33	6.27	6.49	6.60
	(.05)	(.05)	(.05)	(.05)
Black	5.95	5.96	6.28	6.13
	(.07)	(.07)	(.06)	(.06)
Hispanic	6.16	6.26	5.90	6.07
	(.06)	(.06)	(.06)	(.06)
Asian	6.36	6.20	6.35	6.88
	(.06)	(.06)	(.05)	(.06)
Age				
16-25	5.95	5.99	6.06	6.09
	(.08)	(.08)	(.08)	(.08)
26-35	6.17	6.16	6.35	6.45
	(.08)	(.08)	(.08)	(.08)
36-45	6.24	6.20	6.52	6.57
	(.08)	(.08)	(.07)	(.07)
46-55	6.28	6.27	6.45	6.55
	(.09)	(.09)	(.07)	(.08)
56-65	6.53	6.43	6.53	6.73
	(.09)	(.09)	(.08)	(.09)
66-75	6.45	6.39	6.15	6.40
	(.10)	(.10)	(.09)	(.10)