Intersectional Invisibility: The Moderating Impact of Perceived Incongruence between Stigmatized Identities

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Abstract

There is evidence that people with multiple stigmatized identities sometimes experience psychological invisibility – perceivers show difficulty remembering information about these targets (e.g., their faces, spoken statements). However, there are conflicting results in this literature and recent research calls to examine its boundary condition by considering moderators of this effect. In three experiments (total $N = 397$; within-subject design), we examined how North African gay men invisibility is impacted by the perceived incongruence between their minority identities. Across all studies, participants made more memory errors for North African gay men's statements when they personally believed that being both gay *and* North African is highly incongruent. In addition, evidence for the salience of intersectional categories as an underlying psychological mechanism was found (Study 3). The present work adds to the literature by showing that invisibility depends on the characteristics of the targets but also on participants' beliefs about targets' identity incongruence.

Keywords: intersectionality, social cognition, prototypicality, sexual orientation, ethnicity

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Recent models on intersectional person perception have highlighted inconsistent results in the intersectional person perception literature (Neel & Lasseter, 2019; Petsko et al., 2022; see also Sternberg et al., 2023 for a review). Sometimes, intersectional targets are perceived differently as compared to their constituent ingroups (e.g., Black women facing invisibility as compared to Black men or White women), while, in other contexts, this effect was not found (e.g., Black women being perceived in a similar way as Black men or White women). These models thus call to examine *when* this intersectional effect occur and does not occur, by considering contextual factors, as well as perceivers' characteristics (e.g., personal beliefs). The present research is an attempt to respond to this call by investigating how *perceived incongruence* between intersected identities can impact intersectional invisibility of the targets.

We begin by presenting initial work showing intersectional invisibility and its manifestation through the memorization process, as well as ulterior developments suggesting that intersectional invisibility effect may vary as a function of the (in)congruency of the intersected categories. We take the example of North African gay men, and we investigate the moderator role of perceived incongruence between intersected identities (between gay identity and North African identity) on the invisibility of these targets (North African gay men). We argue that perceived incongruence may impact the memorization of information about targets with multiple stigmatized identities at both categorical and individual levels. We propose an operationalization of perceived incongruence based on the values associated with each group, in this case with traditional vs. modern values. Finally, we provide an overview of the present research.

Intersectional Invisibility of Multiple Stigmatized Groups

Previous research supports the idea that people who belong to multiple stigmatized groups are subject to a form of "psychological invisibility" because they are less likely to be perceived as typical members of their constituent ingroups (Lei et al., 2021; Purdie-Vaughns & Eibach, 2008). For example, at the intersection of race and gender, Black women are less quickly identified as part of the categories “women” and “Black” (Zarate & Smith, 1990) and less accurately identified by gender (e.g., Goff et al., 2008) compared to more prototypical members of their groups (White women, Black men). Recent research has shown that intersectional invisibility manifests at the cognitive level through the memorization process. For example, individuals have more difficulty remembering information (faces, spoken statements) about targets with multiple stigmatized identities compared to more prototypical targets (Sesko & Biernat, 2010, 2018).

According to intersectional invisibility theory (Purdie-Vaughns & Eibach, 2008), individuals with multiple stigmatized identities are prone to invisibility because they do not fit the cognitive prototype of each of their constituent groups (i.e., the most typical member of each group). Specifically, intersectional invisibility theory posits that dominant ideologies (e.g., ethnocentrism, androcentrism) leads the prototype of women to be White, and the prototype of Black individuals to be male, rendering Black women non-prototypical of both of their race and gender, and thus “invisible”. This theory also suggests that the number of stigmatized identities matters: individuals who belong to two stigmatized groups (e.g., Black women) are more prone to invisibility than those with a single stigmatized identity (Black men, White women).

Empirical studies examining invisibility through memorization tasks corroborate this prediction—targets with more stigmatized identities are remembered less well than those with single or no stigmatized identities (e.g., Schug et al., 2015; Sesko & Biernat, 2010). “Who”

may be considered a non-prototypical target is, however, linked to not only the number of stigmatized identities but also the (in)congruency of the categories themselves. For example, research on gendered-race theory posits that the incongruence between traits associated with race and gender categories may predict non-prototypicality (Johnson et al., 2012). Following this perspective, Schug et al. (2015) found that Asian men, who belong to one stigmatized group, but whose race and gender may be perceived as stereotypically incongruent ("Asian" overlaps with traits associated with femininity but "men" with masculinity) were less well remembered (i.e., more invisible) than Asian women who belong to two stereotype-congruent stigmatized groups. In the same vein, Rakić et al. (2020) argued that the low-frequency of association between categories may render targets non-prototypical. They showed that participants displayed better memory for prototypical targets (frequently associated categories – women with headscarves and Arabic accents) - and less memorization for non-prototypical ones (non-frequently associated categories – women with headscarves and standard German accents).

In these studies, the reasons why one identity combination may be seen as less prototypical than others seem to vary according to the intersection under consideration (e.g., race and gender incongruency, frequency of association between categories). In past work, the relationship between identities has only been assumed, for example, by arguing that identities are – according to the theory or observations – infrequently associated with each other, or incongruent, and thus less prototypical than other category combinations. To our knowledge, participants' own perception of category combination prototypicality and its impact on invisibility has been rarely considered (for an exception, see Sesko & Biernat, 2018). Sesko and Biernat (2018, Study 5) have examined participants' perceived similarity between Black women and the superordinate category, women, showing that participants who saw less similarity between the traits of "Black women" and "women" (i.e., less prototypicality of

Black women as women) were more likely to commit face recognition errors for Black women. In this study, authors did not measure the perceived congruency between the constitutive categories of the intersection (Black people and women). However, their results suggest that invisibility could be moderated by participants' own perceptions concerning the relationship between categories.

Hence, it is possible that targets with multiple stigmatized identities are not always invisible, but that, instead, invisibility depends on contextual factors. In the present research, we take the example of North African gay men. We investigate the *perceived incongruence* between intersected identities (between gay identity and North African identity) and its impact on invisibility of these targets (North African gay men). We argue that perceiving two intersecting identities as incongruent corresponds to picturing people as having either one identity or the other (e.g., being gay or North African), but less likely both (e.g., being gay and North African), resulting in a lack of cognitive representation of these targets (i.e., invisibility). We extend prior research on the invisibility of incongruent targets by measuring participants' perceived category-category incongruence – instead of simply assuming this incongruency – and by examining whether interindividual variations in perceived incongruence impact invisibility. We support the idea that the extent to which perceivers consider intersectional identities as incongruent (e.g., belonging to a sexual minority and being North African) plays a critical role in cognitive invisibility (in this case, memorization).

Intersectional Invisibility, Category-Category Incongruence and Memory

Recent studies examining intersectional invisibility have suggested that the incongruence between intersected categories impacts memory for less prototypical targets (Rakić et al., 2020; Schug et al., 2015). More specifically, in the "Who Said What" paradigm used in studies on intersectional invisibility, two different levels of information that individuals can memorize could be distinguished: category memory and individual memory

(Klauer & Wegener, 1998; Rakić et al., 2020). When asked who said what, participants could either remember precisely which person said a given statement representing *individual memory*, or only remember that this statement has been said by someone from a given social group (e.g., a North African gay man, a White straight man) without remembering which specific person in this group, representing *category memory*. In Rakić et al.'s (2020) study, incongruent category combinations (less-prototypical targets, for example, German women wearing headscarves) were less well remembered individually than congruent category combinations (less individual memory). However, category memory—the extent to which perceivers recognized the combination of categories itself—was better remembered for these non-prototypical incongruent targets than for prototypical ones. This pattern of results may suggest that, in the case of incongruent category combinations, intersectional invisibility of less-prototypical targets arises from an imbalance between category and individual memory, with both hypervisibility (i.e., more memorization) of incongruent combinations of categories on the one hand and invisibility (i.e., less good memorization) of the individual information concerning these targets on the other hand. This possibility is in accordance with other work in social cognition suggesting that expectancy-incongruent information is distinctive, attention-grabbing and thus better recalled (Petsko et al., 2022; Von Restorff, 1933), perhaps at the expense of other information.

However, this previous work has not considered the extent to which category combinations are actually perceived as being incongruent by perceivers. Thus, it is impossible to study the impact of perceived incongruence on the invisibility of these targets. It is important to investigate the role of perceived incongruence because it provides a stronger and more valid test of the category incongruency theory. In the current research, we examined whether the degree of perceived incongruence between identities, specifically the perceived incongruence between being gay *and* North African, impacted the invisibility of these targets

by measuring memory for individual information. We reasoned that the more a category combination is perceived as incongruent by participants, the more this categorical information will be attention-grabbing, at the expense of individual information, resulting in the invisibility of individual targets. Thus, when they perceive a high incongruence between targets' identities (North African and gay), participants should make more memory errors for these less prototypical targets' statements (North African gay men). This would correspond to a higher rate of misattributed statements for the members of this specific intersected category, compared to the members of other groups (North African straight men).

Perceived Incongruence Between Identities: A Values Approach

In previous work on intersectional invisibility, incongruence between identities has been mostly defined as an incongruency between the stereotype traits associated with each identity (e.g., warm, aggressive; Hall et al., 2019). Two identities may be perceived as congruent when their associated stereotypes are congruent (e.g., Black men, with both categories, Black and men, associated with masculine stereotypes). Other category combinations are viewed as incongruent (e.g., Black women, with Black individuals perceived as aggressive, but not women). In addition, perceived incongruence has been mostly considered as a general incongruence between identities (e.g., general incongruence between the Black category and the women category; Hall et al., 2019). However, recent work has shown that perceived incongruence may be trait-specific (e.g., Black and obese men are only perceived as incongruent on threat-related traits; Sim et al., 2022), suggesting that, in some contexts, the impact of perceived incongruence can be specific rather than general.

In the current research, we assessed both general and specific forms of perceived category-category incongruence between gay and North African identities. More precisely, we examined perceivers' beliefs concerning the compatibility between these identities in general, and their beliefs concerning specific values associated with each category (e.g.,

equlity, devotion, tradition; Schwartz & Struch, 1989). According to Schwartz and Struch (1989), examining stereotypes values is important because it reflects what "the perceivers assume to be the group members' basic guiding principles [in their life]" (p. 153), as compared to stereotypes traits which would only be descriptions of groups characteristics. Thus, according to these authors, examining the impact of perceived value incongruence between identities on invisibility is important since values play a role in the perceived prototypes of groups.

In the case of North African gay individuals in a Western European country like France, opposed values can be associated with each minority group. On the one side, in individuals' representations, North African's immigrants' identity is associated with traditional values (El-Tayeb, 2012), promoting heterosexuality, as opposed to European countries, which are represented as valorizing social justice and equality, including the rights and visibility of sexual minorities (Mepschen & Duyvendak, 2012). On the other side, gay identity tends to be associated with modern values, characteristic of Western countries, and opposed with the values associated with Maghreb countries. Consequently, the discursive opposition between the values associated with European countries (i.e., modern values of equality and social justice) and those of the Maghreb countries (i.e., traditional values) participates in the construction of the perceived prototype of the North African individual as a straight person displaying traditional values and of the sexual minority as a Western White person displaying modern values. Thus, North African gay men may be seen as highly non-prototypical of both the sexual minority group and the North African group because of the perceived incongruence between the values associated with both of their identities.

When examining values stereotypes, as it is the case for traits stereotypes, one difficulty that was raised is to disentangle participants' cultural knowledge concerning these values from participants' actual endorsement of these values stereotypes (Devine & Elliot,

1995). For instance, people may believe that the values associated to two different groups (e.g., North African, and gay) are perceived as incongruent in the society, without necessarily personally endorsing this idea. In order to clearly identify whether the impact of perceived incongruence may be related to cultural knowledge and/or to participants' endorsement of these beliefs, we distinguished two levels of beliefs concerning this incongruence: a society-level measure and an individual-level measure (see also Carnaghi et al., 2020, for a similar distinction).

The Present Research

In this research, we examined the role of perceived category-category incongruence of being gay *and* North African in the intersectional invisibility of North African gay men in France. In Study 1, we investigated the impact of perceived incongruence measured at the individual level on memory errors for North African gay men. Study 2 sought to clearly disentangle individuals' own beliefs concerning this incongruence from societal knowledge by simultaneously including both measures in the same study. Finally, Study 3 used a value inventory measure of incongruence (Schwartz, 1992) to investigate whether the impact of perceived incongruence is related to a general perception of incongruence between North African and gay identities or whether this effect would be value-specific (i.e., only related to certain values that would be perceived as particularly incongruent). The underlying psychological mechanism of perceived incongruence on individual memory was also examined by measuring category combination memory. Across the three studies, we hypothesized that North African gay men would be subject to more memory errors than the other groups, especially when participants personally perceived a higher degree of incongruence between identities.

The studies received the approval from the ethic committee of a French university (University of Paris Nanterre, with Ethical Number: 2022-02-01).

Study 1

Using the "Who Said What?" experimental paradigm (Taylor et al., 1978), Study 1 examined intersectional invisibility of North African gay men, considering the role of perceived incongruence between these identities. We hypothesized that the number of memory errors concerning North African gay men would be higher compared to the number of errors concerning other categories, especially when participants perceive a higher incongruence between values associated with the gay population and those associated with the North African immigrant group.

Method

All databases and materials are available at: https://osf.io/me8yj/?view_only=e9befd3af5a8433c8cab10761f2f1f63.

Participants

The final sample consisted of 102 participants, for a within-subject design (attrition rate$_{\text{attention task}}$ = 53.8%[1]; M_{age} = 19 years-old; SD_{age} = 1.40), including 88 women and 14 men. A sensitivity test conducted in G*Power revealed that, with a total sample size of 102 participants and an alpha of .05, the multiple regression analysis testing each contrast against zero value and including the centered scores of perceived incongruence had 80% power to detect small effects (f^2 = 0.07), which means the design was adequately powered. Contrast analyses are detailed in the Results section.

We excluded participants who identified with a sexual orientation other than straight, who reported being born in a country other than France, and who failed the attention task.

[1]The main memorization task as well as the experimental manipulations used across the three studies were written and thus relied strongly on participants' attention to instructions. We therefore used the instructional manipulation check developed by Oppenheimer et al. (2009) which has been shown to increase statistical power and validity of the data. Attention tasks have also been shown to be associated with high exclusion rates. For example, Oppenheimer et al. (2009, Study 1) showed that 46% of the sample failed the same attention task used in our research; see also Abbey and Meloy (2017). The attention task and a rationale for its usefulness in this research is presented in Supplementary Materials and Materials files.

Exclusion criteria were the same across the three studies. Across the three studies, the results did not change substantially when excluding only participants who failed the attention task.

Materials and Procedure

The research was presented as a study on the processing of visually presented information. Participants were informed that they would be reading an extract from a meeting between several members of college student organizations. It was stated that the purpose of the meeting was to make proposals for improving student life. Participants were asked to form a general opinion of the group.

Sixteen proposals were presented, one by one, for 10 seconds, by 8 different targets (i.e., 2 proposals per targets) identified by their first name and organization name (e.g., "Ahmed, member of the Gay Student Organization: The cafeteria meal offer could be more diversified"). All statements were stereotypically neutral to target groups and focused on improvements of the university, as in previous research using this paradigm (e.g., Klauer & Wegener, 1998). The presentation order of the 16 proposals was the same for all participants but the target associated with each proposal was randomized. More precisely, for each participant, the presentation order of the 8 targets was determined using permutations (i.e., 40,320 possibilities). Each of the 8 targets first presented turn by turn one proposal in the determined order, then they presented the second proposal, in the same order. Ethnicity was manipulated by presenting participants with North African-sounding or French-sounding first names (see Bushman & Bonacci, 2004). Sexual orientation was indicated using the organization of which the student was a member (Gay Student Organization vs. Friends of Nanterre Organization; see Pedulla, 2014). Each first name – North African-sounding and French-sounding – was associated with one of the two organizations. Results from a posttest indicated that ethnicity and sexual orientation manipulations efficiently cued each category (see Supplementary Materials). Permuting the target/proposal association and using several

names as cues for ethnic group (2 per ethnic by sexual orientation subgroup) ensured that the obtained effect cannot be related to one specific salient name (Crabtree et al., 2023) or to a specific target/statement association.

After an intermediate task (naming country capitals for 1 minute), the 16 statements were presented again one by one, accompanied by 16 new statements that served as foils (see Klauer & Wegener, 1998). For each of these 32 proposals, participants were asked to indicate whether the proposal had been made during the meeting or whether it was a new proposal (this procedure distinguishes misattribution associated with lack of item discrimination from misattribution associated with category confusions; Klauer & Wegener, 1998). When participants indicated that a proposal had been made during the meeting, the 8 students and their associated organization appeared on the screen, and they were asked to identify who said statement.

Measures

Frequency of Memory Errors. For each group (North African gay man; "native" French gay man; North African straight man; "native" French straight man), we computed a total number of memory errors. This score corresponds to the number of misattributed statements among each group (e.g., the total number of statements that were not correctly attributed to the right target concerning North African gay men's statements).

Perceived Incongruence (Individual Level Measure). Perceived incongruence was measured using four items (e.g., "Values associated with the gay population and values associated with the North African population are incompatible[2]"; 1 = *strongly disagree* to 7 = *strongly agree*; α = .80). A higher score corresponded to greater perceived incongruence between identities.

[2]The word *incompatible* was used, rather than *incongruent* to facilitate the understanding of the instructions by the participants, the word incongruent ("incongruent" in French) being little used in the everyday language in France.

Additional Measures. To ensure that participants were paying attention throughout the study, they completed an attention control task as described by Oppenheimer et al. (2009). Finally, participants answered sociodemographic questions (age, gender), indicated their sexual orientation, nationality/ies, and nationality/ies of their parent(s).

Results and Discussion

It was hypothesized that North African gay men would more subject to more memory errors than the other groups, especially when participants perceived a high incongruence between the associated identities. We test this hypothesis by conducting a contrast analysis opposing the memorization errors associated with North African gay men with those of other groups and including the interaction of this contrast with the incongruence score as a predictor in a regression analysis. Descriptive statistics and correlations are presented in Supplementary Materials.

Impact of Category-Category Perceived Incongruence on Memory Errors

In order to test our hypothesis, three orthogonal contrasts were created. The first contrast opposed errors concerning North African gay men to the three other conditions (errors concerning North African gay men = 3, errors concerning “native” French gay men = -1, errors concerning North African straight men = -1, and errors concerning “native” French straight men = -1). The second contrast tested the difference between “native” French gay men and the two remaining conditions (errors concerning North African gay men = 0, errors concerning "native" French gay men = 2, errors concerning North African straight men = -1 and errors concerning "native" French straight men = -1). The third contrast compared errors concerning North African straight men to errors concerning “native” French straight men (errors concerning North African gay men = 0, errors concerning "native" French gay men = 0, errors concerning North African straight men = -1 and errors concerning "native" French straight men = 1).

To show that there are more memory errors concerning North African gay men than concerning other targets, the Contrast 1 must be significant, and the two alternative contrasts must not be significant (Judd et al., 2017). We then created three scores, W1, W2, and W3.

W1 = Errors for North African gay men*3 + Errors for "native" French gay men *-1 + Errors for North African straight men *-1 + Errors for "native" French straight men *-1;

W2 = Errors for North African gay men*0 + Errors for "native" French gay men *2 + Errors for North African straight men *-1 + Errors for "native" French straight men *-1 and

W3 = Errors for North African gay men*0 + Errors for "native" French gay men *0 + Errors for North African straight men *1 + Errors for "native" French straight men *-1.

Three multiple regression analyses where then conducted, in which W1, W2, or W3 were included as the dependent variable (criterion) and the centered incongruence score, as a predictor. The regression equation is as follows: $Y = \beta_0 + \beta_1(W_1) + \varepsilon$. In this equation, β_0 represents for example, the effect of the contrast opposing errors for North African gay men to the other conditions and β_1 represents the interaction between this contrast and the perceived incongruence score (centered). In the regression analysis, the constant refers to the main effect of the considered contrast, while the effect of "perceived incongruence" corresponds to the interaction between the contrast and perceived incongruence (Judd et al., 2017). Note that we did not adjust the alpha level for multiple testing in these analyses because we drew separate conclusions about each individual analysis rather than in relation to a joint (intersection) null hypothesis that would be rejected if at least one of our tests found a significant result (Rubin, 2021).

Contrary to predictions, the contrast that tested for differences between errors concerning North African gay men and the other three conditions was not significant, b = 0.10, 95% CI [-0.50, 0.69], $t(100) = 0.33$, $p = .744$, $\eta_p^2 = .047$. Relative to the intersectional person perception literature, not finding this effect can be of considerable interest because it

adds to the ongoing discussion about whether, and in which context, intersectional effects are (not) observed (Petsko et al., 2022). Taking another step in in this direction, rather than only examining invisibility per se, the key aim of the present research was to explore a moderator variable (perceived category incongruence) that might determine when the invisibility effect does and does not occur. In line with our hypothesis, the interaction between this contrast and centered incongruence score was significant, $b = 0.46$, 95% CI [0.05, 0.88], $t(100) = 2.21$, $p = .029$, $\eta_p^2 = .052$. This interaction was not significant for contrast 2 and 3 (see Table 1).

Table 1

Regression Analyses of Total Memory Errors on Perceived Incongruence – Study 1

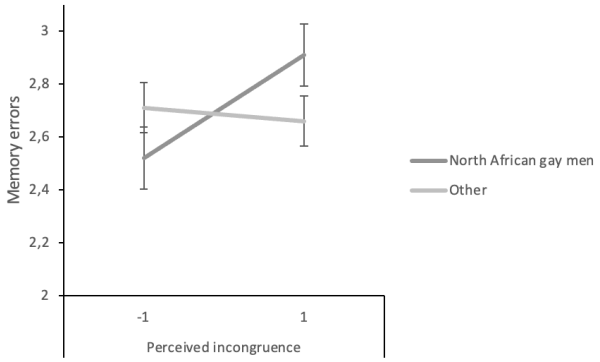
Variable	*b*	*SE*	*t*	*p*	95% CI
C1 – North African Gay Men vs. Others					
Constant	0.10	.30	0.33	.744	[-0.50, 0.69]
Incongruence score (centered)	0.46	.21	2.21	.029	[0.05, 0.88]
C2 – "Native" French Gay Men vs. North African Straight Men and "Native" French Straight Men					
Constant	-0.46	.20	-2.31	.023	[-0.86, -0.07]
Incongruence score (centered)	-0.00	.14	-0.02	.985	[-0.28, 0.28]
C3 – North African Straight Men vs. "Native" French Straight Men					
Constant	0.07	.12	0.58	.566	[-0.17, 0.31]
Incongruence score (centered)	0.09	.08	1.02	.312	[-0.08, 0.25]

In order to identify the pattern of results for the significant interaction between the contrast 1 and the perceived incongruence, we created a new categorical variable ("social category"), corresponding to the contrast 1, with the first modality referring to the total number of errors regarding the North African gay men and the second modality corresponding to the average of errors regarding the other three conditions. We then regressed each one of these modalities on the perceived incongruence score in order to identify the pattern of results (Judd et al., 2017). Consistent with the hypothesis, the impact of perceived incongruence on memory errors regarding North African gay men was significant, $b = 0.14$,

95% CI [0.02, 0.25], $t(100) = 2.35$, $p = .021$, $\eta_p^2 = .052$. The impact of perceived incongruence was not significant for the other three conditions together, $b = -0.02$, 95% CI [-.11, .07], $t(100) = -0.40$, $p = .688$, $\eta_p^2 = .002$. Estimated means for perceived incongruence (mean of perceived incongruence -1SD / + 1SD), and for each one of the modalities of "Social category" variable are provided in Figure 1. Participants showed more memory errors for North African gay men when they perceived high incongruence between the intersected categories than when they perceived low incongruence. There was no significant effect of perceived incongruence on memory errors for the other categories.

Figure 1

Total Memory Errors as a Function of Group Membership and Perceived Incongruence



Note. Errors bars correspond to standard error.

Results indicated a significant interaction effect between the total number of memory errors for North African gay men's statements and perceived incongruence between identities. Participants made more memory confusions when attributing North African gay men's statements when they personally believe that the values associated with North African's and gay men's identities are highly incongruent with each other (see Figure 1). In other words, having strong beliefs about the incongruence between these identities seems to impact the

way participants cognitively process individuals displaying both identities simultaneously. Hence, Study 1 identified a critical moderator of the standard invisibility effect in the form of perceived category incongruity.

The way social groups are perceived (e.g., associated values) is not only a matter of personal beliefs but also of shared knowledge about these groups. Thus, on the one hand, people may personally believe these identities to be incongruent. On the other hand, they may have knowledge about how these groups are perceived in the society in general. In Study 1, we sought to capture participants' own beliefs regarding this incongruence. However, we did not ask participants to explicitly respond from their own point of view. It is thus possible that those items were partly capturing societal beliefs rather than only participants' own beliefs. We address this limitation in Study 2 by disentangling the impact of perceived incongruence as a personal belief from perceived incongruence as a cultural knowledge.

Study 2

The purpose of Study 2 was to replicate the findings of Study 1 with a clearer distinction between individual- and societal-level measures of perceived incongruence. In this study, we did not only consider participants' personal perception of incongruence between the values associated with the gay population and the values associated with the North African population but also their assessment of this incongruence in society, in general. As in Study 1, we expected participants to make more memory errors concerning North African gay men statements than for the other groups, especially when participants' personal perception of incongruence between values of the gay population and those of the North African immigrant group is relatively high.

Method

Participants

The final sample (N = 123, within-subject design; attrition rate$_{\text{attention task}}$ = 37.2%) included 103 women and 20 men (attrition rate$_{\text{attention task}}$ = 37.2%; M_{age} = 20.1 years old; SD_{age} = 4.65). Even if the total sample was smaller than its size calculated a priori, sensitivity tests conducted in G*Power revealed that, with a total sample size of 123 and an alpha of .05, the multiple regression analysis testing each contrast against zero value and including the two centered scores of perceived incompatibility (at individual and societal level) had 80% power to detect small effects (f^2 = 0.08), which means the design was adequately powered. This study was pre-registered: https://aspredicted.org/4Q7_9ZS.

Materials and Procedure

The materials and procedures were the same as in Study 1, except for the measure of perceived incongruence, measured both at the individual level and at the societal level. Participants first completed perceived incongruence measure at the individual level. They were explicitly asked to answer these questions according to their own perception (i.e., "We will now ask you to indicate your level of agreement with the following statements, responding according to your own perception"). Example items include, "According to you, being both gay and North African is incompatible"; α = .87). Then, they answered items about perceived incongruence, measured at the societal level, with the following instruction: "We will now ask you to indicate your level of agreement with the following statements, based on society's perception (i.e., what members of our society in general think about these statements)." Example items included: "In our society, according to you, being both gay and of North African is perceived as incompatible"; α = .82).

Results and Discussion

We conducted three multiple regression analyses in which we included W1, W2, or W3 as the dependent variable (criterion) and the two centered incongruence scores (i.e.,

measured at the societal level and at the individual level) as predictors. We replicated the results of Study 1 concerning incongruence measured at the individual level. The interaction between the contrast W1 and incongruence score centered measured at the individual level was significant, b = 0.90, 95% CI [0.50, 1.31], $t(120) = 4.45$, $p < .001$, $\eta_p^2 = .142$. However, the interaction between this contrast and incongruence score centered measured at the societal level was not significant, b = -0.36, 95% CI [-0.89, 0.17], $t(120) = -1.34$, $p = .184$, $\eta_p^2 = .008$[3]. Full results concerning W2 and W3 are presented in Table 2.

Table 2

Regression Analyses of Total Memory Errors on Perceived Incongruence – Study 2

Variable	*b*	*SE*	*t*	*p*	95% CI
C1 – North African Gay Men vs. Others					
Constant	0.89	.32	2.75	.007	[0.25, 1.53]
Incongruence score measured at the individual level (centered)	0.90	.20	4.45	<.001	[0.50, 1.31]
Incongruence score measured at the societal level (centered)	-0.36	.27	-1.34	.184	[-0.89, 0.17]
C2 – "Native" French Gay Men vs. North African Straight Men and "Native" French Straight Men					
Constant	0.28	.19	1.43	.156	[-0.11, 0.66]
Incongruence score measured at the individual level (centered)	0.02	.12	0.12	.902	[-0.23, 0.26]
Incongruence score measured at the societal level (centered)	-0.27	.16	-1.69	.093	[-0.59, 0.05]
C3 – North African Straight Men vs. "Native" French Straight Men					
Constant	-0.24	.12	-2.09	.039	[-0.48, -0.01]
Incongruence score measured at the individual level (centered)	-0.01	.07	-0.08	.940	[-0.15, 0.14]
Incongruence score measured at the societal level (centered)	0.03	.10	0.27	.787	[-0.17, 0.22]

When we decomposed this interaction between Contrast 1 and perceived incongruence at the individual level, the impact of perceived incongruence on memory errors regarding

[3]A similar pattern of results was found in another study not presented here, in which we examined invisibility of North African lesbian women and the impact of perceived incongruence between North African and lesbian identities, measured at the societal level (Sternberg & Badea, 2022).

North African gay men was significant, b = 0.13, 95% CI [0.00, 0.26], $t(121) = 2.03$, $p = .044$, $\eta_p^2 = .033$. The more participants perceive incongruence between the intersected categories at the individual level, the more they showed memory errors for North African gay men. The impact of perceived incongruence at the individual level was also significant for the other three conditions together, b = -0.16, 95% CI [-0.27, -0.06], $t(121) = -3.04$, $p = .003$, $\eta_p^2 = .071$. The more participants perceived incongruence between intersected categories at the individual level, the less they showed memory errors for the other targets. As all targets are presented in the same memorization task (i.e., a within-subject design), it is possible that perceived incongruence impact memorization for all targets, decreasing the memorization for North African targets while, at the same time, increasing memorization for other targets.

Study 2 adds to Study 1 in clearly distinguishing between participants' own perception of incongruence and societal knowledge concerning how these identities are perceived in the society. The impact of perceived incongruence on invisibility was significant only when it was measured at the individual level. This suggests that intersectional invisibility is moderated by perceivers' own beliefs about identities' incongruence, independent of their social knowledge concerning the way these identities are perceived in the society, which had no impact.

Study 3

Study 3 investigated whether the impact of incongruence was related to a general perception of incongruence (perceived incongruence between being gay and North African in general) or whether this effect was value-specific (related to values that would be perceived as particularly incongruent). It is important to test these possibilities because, as Sim et al. (2022) pointed out, theoretical models have sometimes argued that intersectional person perception is impacted by the general perceived incongruence between categories (Hall et al.,

2019), while new evidence suggests that this impact is rather specific. This study therefore aims to begin to disentangle this issue.

Another objective of this study was to examine the underlying psychological process by measuring category memory for targets' sexual orientation and ethnicity. Relying on previous research, we reasoned that perceived incongruence between identities may have an impact on intersectional invisibility by rendering incongruent category combinations salient, increasing category memory information measured as what group/identity individuals belong to, at the expense of individual memory measured as who said what statements. We thus hypothesized that category combination memory would be higher for North African gay men compared to other targets and this effect should be accentuated when perceived incongruence between identities is high.

Method

Participants

The final sample was composed of 172 undergraduates (157 women, 13 men, and 2 unspecified; M_{Age} = 19.2, SD_{Age} = 3.84; attrition $rate_{attention\ task}$ = 37.5%). We estimated the required sample size using G*Power 3.1 (Faul et al., 2009). We planned to conduct a multiple regression analysis testing each contrast against zero including the centered score of perceived incongruence. We assumed a small to medium effect size (f^2 = .10), and .95 power, in a linear multiple regression fixed model deviation from zero, with one predictor, which results in a required sample size of 132[4]. This study was pre-registered: https://aspredicted.org/HBM_5LM.

Materials and Procedure

Materials and procedure were generally the same as in Study 1, with a few changes concerning (1) incongruence perception measurements and (2) the addition of a category-

[4]We did not reach the preregistered sample size allowing us to conduct the planned mediation analysis (i.e., 330 participants) due to an exhaustion of the available pool of participants.

combination recognition task. Incongruence perception was measured at the beginning of the study via a new value measure and at the end of the study using the same individual measure as in Study 1 and 2. In the value measure, participants were presented with values from Schwartz's (1992) inventory. The 26 values included in this measure were pre-tested and selected to be relevant to gay and North African groups. Some values corresponded to "traditional" values (e.g., respect for tradition, devout), while others corresponded to "modern" values (e.g., equality, social justice), allowing to explore the extent to which "gay" and "North African" identities are perceived as being incongruent on these specific dimensions.

For each group (North African immigrants and gay men, presented in randomized order), participants were asked to report the extent to which each value was an important value as a guiding principle in their lives (1 = *Not important at all* to 7 = *Very important*).

Participants then completed the Who-Said-What task that was composed of two recognition tasks. The first one was a category-combination recognition task: participants were asked to associate each of the targets' name (which cues targets' ethnicity) to the correct organization (which cues targets' sexual orientation). The second one was the same Who-Said-What task used in previous studies and served as our individual memory measure.

Results and Discussion

Impact of Category-Category Perceived Incongruence on Individual Memory Errors

We ran the same analysis as in Studies 1 and 2 to examine the impact of perceived incongruence (1) using the same incongruence measure as in previous studies – and (2) using a tradition vs. value measure[5], on total memory errors.

[5]This score included only the 11 values perceived as the most incongruent computed as the absolute mean difference between North African and gay men greater than 1. It was composed of the following values: freedom, honoring parents and elders, obedient, respect for tradition, devot, equality, broad-minded, a world of beauty, creativity, an exciting life, and a varied life. These values respectively correspond to "traditional" vs. "modern" values, consistent with the literature suggesting that gay and North African identities are mainly

Both measurements yield to similar results as in Study 1 and 2. The interaction between the contrast W1 and perceived incongruence was significant when including the measure from the previous studies, $b = 0.33$, 95% CI [0.04, 0.62], $t(170) = 2.26$, $p = .025$, $\eta_p^2 = .029$, and when including perceived incongruence as a tradition/modernity values incongruence, $b = 0.55$, 95% CI [0.05, 0.87], $t(170) = 2.19$, $p = .030$, $\eta_p^2 = .027$. Full results concerning perceived value incongruence are presented in Table 3.

Table 3

Regression Analyses of Total Memory Errors on Perceived Incongruence (Value measure – Only the tradition/modernity values) – Study 3

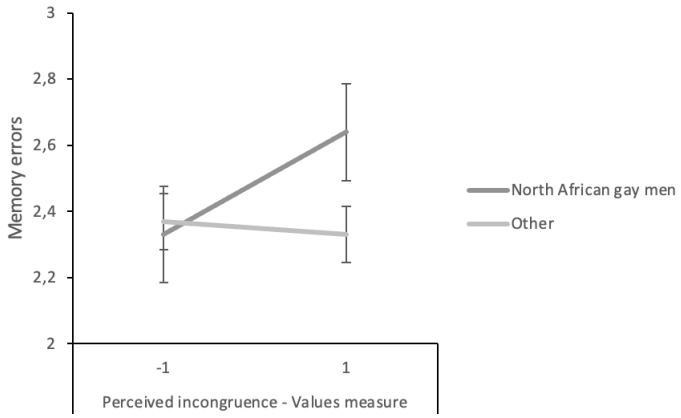
Variable	*b*	*SE*	*t*	*p*	95% CI
C1 – North African Gay Men vs. Others					
Constant	0.38	.25	1.52	.131	[-0.11, 0.87]
Incongruence score (centered)	0.55	.25	2.19	.030	[0.05, 1.05]
C2 – "Native" French Gay Men vs. North African Straight Men and "Native" French Straight Men					
Constant	-0.02	.17	-0.31	.893	[-0.37, 0.32]
Incongruence score (centered)	0.26	.18	1.50	.134	[-0.08, 0.61]
C3 – North African Straight Men vs. "Native" French Straight Men					
Constant	-0.19	.09	-.1.98	.049	[-0.39, 0.00]
Incongruence score (centered)	-0.08	.10	-0.81	.419	[-0.28, 0.12]

Simple effect analysis showed that participants who perceived greater incongruence on the tradition/modernity values made more memory errors concerning North African gay men spoken statements than those who perceived less incongruence, $b = 0.18$, 95% CI [0.01, 0.35], $t(170) = 2.11$, $p = .037$, $\eta_p^2 = .025$. This effect was not significant concerning the other targets, $b = 0.00$, 95% CI [-0.12, 0.11], $t(170) = -0.08$, $p = .932$, $\eta_p^2 = .00$, see Figure 2.

perceived as opposed on these dimensions. We thus refer to this score as "Tradition/modernity values incongruence score".

Figure 2

Total Memory Errors as a Function of Group Membership and Perceived Incongruence (Value measure – Only the tradition/modernity values)



Note. Errors bars correspond to standard error.

To test whether the impact of incongruence was related to a general perception of values incongruence or rather specific to the tradition/modernity values, we then examined the impact of perceived incongruence as an overall perception of incongruence, computed as the sum of the absolute value difference between North African and gay men on all 26 values ("overall values incongruence score"). There was no significant interaction between the contrast W1 and the perception of incongruence including all values, $b = 0.01$, 95% CI [-0.01, 0.04], $t(170) = .864$, $p = .389$, $\eta_p^2 = .004$. Thus, as suggested in previous studies (Sim et al., 2022), this result pointed that the impact of perceived value incongruence was specific to traditional vs. modernity values rather than related to an overall value incongruence.

Impact of Category-Category Perceived Incongruence on Category Memory Errors

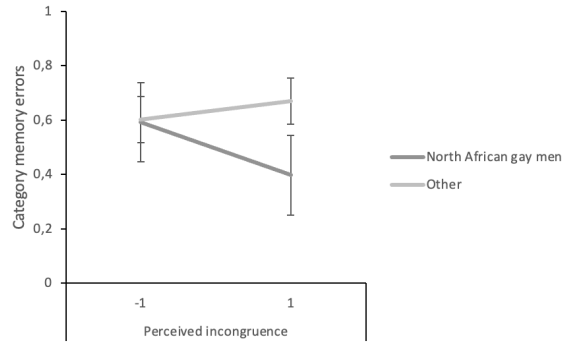
Another aim of this study was to examine the underlying psychological process by measuring category memory (i.e., memory for targets' sexual orientation and ethnicity). It was hypothesized that category combination memory would be higher for North African gay

men compared to other targets (i.e., fewer memory errors in associating targets' name with target's organization) and that this should be accentuated when perceived incongruence between identities was high. We conducted the same analysis as for the individual memory errors by contrasting North African gay men category memory errors to the category memory errors concerning the other groups. All the contrasts were significant, indicating that category combination memory was not higher for North African gay men as compared to the three other targets. However, a supplementary ANOVA analysis showed that the interaction effect between sexual orientation and ethnicity was significant, $F(1, 171) = 19.23$, $p < .001$, $\eta_p^2 = .031$. The pattern of means showed that participants made fewer categorization errors for "North African gay" ($M = 0.49$; $SD = 0.62$), as compared to more prototypical targets of their constituent groups, "North African straight" ($M = 0.64$; $SD = 0.63$) and "native French gay" ($M = 0.79$; $SD = 0.73$). However, the only significant difference was the one between "North African gay" and "native French gay", $t(171) = 4.05$, $p_{Tukey} < .001$, $d = -.31$.

We noticed an interaction effect between perceived incongruence (as measured in the previous studies) and the contrast opposing North African gay men to the other targets, $b = -0.23$, 95% CI [-0.41, -0.05], $t(170) = -2.51$, $p = .013$, $\eta_p^2 = .036$. Simple effects analysis showed that the more participants perceived a high incongruence, the more they remembered "North African gay men" category combination, $b = -0.06$, 95% CI [-0.11, -0.00], $t(170) = -2.09$, $p = .038$, $\eta_p^2 = .025$. The impact of perceived incongruence was not significant on memory for other targets' category combinations, $b = 0.02$, 95% CI [-0.02, 0.06], $t(170) = 0.99$, $p = .326$, $\eta_p^2 = .006$, see Figure 3. There was no significant interaction between perceived incongruence as a tradition vs. modern value measure and the contrast opposing North African gay men to the other targets, on category memory errors, $b = 0.07$, 95% CI [-0.25, 0.39], $t(170) = 0.42$, $p = .675$, $\eta_p^2 = .001$.

Figure 3

Category Memory Errors as a Function of Group Membership and Perceived Incongruence



Note. Errors bars correspond to standard error.

General Discussion

The purpose of this research was to examine the moderating role of perceived incongruence between identities on the intersectional invisibility (i.e., memory errors) of targets whose identities may be perceived as incongruent (i.e., North African gay men). Overall, findings were consistent with previous literature that suggested that the relationship between intersecting categories (i.e., category-category incongruence) may play a role in targets' intersectional invisibility (Rakić et al., 2020; Schug et al., 2015). However, whereas previous studies have commonly defined category combinations to be incongruent on the basis of theoretical arguments, the present research demonstrated the importance of also considering perceivers' own beliefs concerning this incongruence. Our results consistently supported the hypothesis that individuals make more statement misattributions for targets with multiple stigmatized identities when they personally believe that these identities are strongly incongruent. Hence, the present research finds that intersectional invisibility is not an inevitable consequence of putatively incongruent category combinations – participants must also personally perceive the categories to be incongruent.

Importantly, Study 2 demonstrated that the impact of perceived incongruence was nonsignificant when perceived incongruence was measured at the societal level, suggesting that the moderating effect of perceived incongruence is only related to perceivers' own beliefs and not society level beliefs.

Finally, the results suggested that the impact of incongruence on invisibility is not related to a general perceived incongruency between gay and North African identities on all values, but rather to a *high* perceived incongruency on specific values (e.g., freedom, obedient, devout, broad-minded). Again, this advances our understanding of intersectional invisibility by demonstrating its boundary conditions.

Memory Errors and Perceived Incongruence

Across the three experiments, North African gay men were less well remembered when participants believed that the constituent identities were highly incongruent. Interestingly, in Study 2, perceived incongruence impacted not only the recall of North African gay men's statements, but also other targets' statements. Participants who perceived a strong incongruence between identities were *less* likely to correctly attribute the statements of North African gay men while at the same time, were *more* likely to correctly match statements to source for all other targets presented in the memorization task. This result could be due to the within-subject design of the studies. Given that participants were simultaneously presented with all targets in the same memorization task, if one target was rendered more (or less) salient for some reason (in our research, perceived incongruence for North African gay men targets), it is not surprising that this could also impact cognitive processing of other targets.

In Study 3, the impact of perceived incongruence was significant only when considering the most incongruent values (i.e., values related to tradition and modernity) as opposed to an overall incongruence between gay and North African identities. This result

agrees with recent work on the perception of incongruent targets, showing that the impact of perceived incongruence can be trait-specific rather than an overall perception of incongruence (Sim et al., 2022). Thus, when directly asked whether these identities are incongruent, participants may respond on the basis of salient incongruent values. This could explain why the pattern of results were similar between the general measure (all studies) and the value measure when considering the most incongruent values (Study 3). Furthermore, we found some evidence for a distinction between category memory and individual memory: In Study 3, when perceived incongruence was higher, North African gay men were simultaneously not remembered for their statements but were for their categories. This suggest that incongruent intersectional targets can be invisible as individuals, while being hypervisible as members of incongruent categories. More work is needed to test this underlying cognitive mechanism.

Limitations and Futures Directions

The current research had some limitations. First, unlike previous studies investigating intersectional invisibility using a Who-Said-What paradigm, we presented targets identities using labels instead of pictures and written conversation instead of audio conversations. Although a posttest indicated that our manipulations were successful, it is possible that the more artificial nature of our task had an impact on the results and prevented us from showing an invisibility effect per se. However, regardless of how group memberships are manipulated, some studies have also failed to show a specific intersectional perception (e.g., Petsko & Bodenhausen, 2019), suggesting that this phenomenon may be moderated by individual and situational factors. In our research, interindividual differences in perceived category-category incongruence influenced intersectional invisibility by evidencing it only in individuals who perceived strong incongruence.

Second, some studies suggested that intersectional invisibility can be expressed through high category memory at the expense of individual memory because of the cognitive

salience of the non-prototypical category combination (Rakić et al., 2020). We thus tested for higher category combination salience for North African gay men as well as for the impact of perceived incongruence on category combination memory (Study 3). The results showed that participants remembered the category combination "North African gay" more than the more prototypical targets of their constitutive groups (i.e., "native French gay") while there was no difference with targets belonging to non-stigmatized groups ("native French straight"). Future research should investigate more deeply the link between category memory and targets' prototypicality.

Conclusion

Literature on intersectional person perception reports inconsistent results with regards to intersectional targets, sometimes showing a distinctive cognitive processing as compared to their constituent ingroups (i.e., intersectional effect), and sometimes not. Recent models have thus called for an examination of contextual as well as perceivers characteristics that would impact this effect. This research contributes to this objective by showing the moderating role of perceived incongruence between identities on intersectional invisibility. North African gay men were facing invisibility (i.e., their discourses were less well remembered), only among perceivers who strongly believed that North African and gay identities are incongruent. As suggested by other studies (Coladonato et al., 2022), it is likely that perceived incongruency may also affect other cognitive processes, such as stereotyping of these targets or attentional biases.

Declaration of Conflicting Interests

The Authors declare that there is no conflict of interest.

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