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Category intersections as conceptual combinations: Combining male categories of age and sexual orientation

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Abstract

We reconcile interactive and additive models of category intersection by recasting these theoretical efforts within the conceptual combination framework. In three studies ($N_{tot} = 364$), we showed that, in line with an interactive approach, combining 'elderly men' with 'gay men' generated an atypical subtype with unique attributes that could not be reduced to the sum of the attributes of the constituent categories (Studies 1–3). Moreover, consistent with the additive models, combining 'heterosexual men' with age categories (i.e. young/elderly men, Study 1) made their age typicality particularly salient, and 'young men' with sexual orientation categories (i.e. gay/heterosexual men, Study 2) emphasized their sexual orientation typicality. Also, participants not only appraised 'gay men' and 'young gay men' in part as redundant categories, but they also judged 'elderly men' and 'elderly heterosexual men' to be largely overlapping. These findings take advantage of a multi-method assessment, spanning from measures of perceived typicality to the analysis of attributes freely generated in reaction to the target categories. Our results inform cognitive models of multiple category combinations and shed light on the cognitive 'invisibility' of elderly gay men and its social implications.

KEYWORDS

age, categories combinations, intersectionality, sexual orientation, typicality

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INTRODUCTION

On 24 August 2020, The Guardian advertised an exhibition by Melissa Ianniello entitled 'Wish it was a coming out: Older gay people in Italy'. The artist portrayed 'the double taboo of homosexuality and old age in Italy' and was unquestionably successful in making elderly men visible among gay men. She also made homosexuality visible among elderly people. In a unique way, an exhibition of this kind makes a significant claim: The way sexual orientation and age categories intersect favours some specific category combinations (e.g. young gay men) while hiding others (e.g. older gay men). The present research examines this claim in a scientific rather than artistic way by testing whether and how particular combinations of sexual orientation and age are cognitively more prototypical than others are.

Research on category intersections has mainly focused on how people represent individuals who are members of two subordinate categories (for a review, Kang & Bodenhausen, 2015; Kang & Chasteen, 2009; Preddie & Biernat, 2021). According to the 'double jeopardy' approach, individuals who belong to two subordinate categories (Latina women) experience cumulative forms of discrimination (Beal, 1970; Berdahl & Moore, 2006; Blakemore & Boneham, 1994) and are cognitively represented by the sum of the stereotypical attributes pertaining to both (e.g. 'uneducated' + 'attractive', for Latino people and women, respectively; Ghavami & Peplau, 2013; Gonzales et al., 2002). In sharp contrast, the multiplicative approach argues that the representations of individuals belonging to two subordinate categories stem from the interaction of the category memberships. For instance, the stereotype of Black women is not simply the sum of the stereotypes of Black people and women (Ghavami & Peplau, 2013; Sesko & Biernat, 2010). In line with this claim, Purdie-Vaughns and Eibach (2008) suggest that individuals with dual subordinate categories, as in the case of African-American women, are at high risk of intersectional 'invisibility' when processing the constituent categories, namely African-American people—who are prototyped as men—and Women—who are prototyped as European-American people. Along similar lines, Crenshaw (1993; see also Collins, 2015) argues that 'Black women' are often overlooked in discourses on racism and sexism, which are mainly interpreted as being directed at 'Black men' and 'White women', respectively. As a case in point, the #SayHerName campaign not only draws attention to police violence against 'Black women and girls', but also brings to awareness their names that are often invisible.

In our view, the 'double jeopardy' additive approach and the multiplicative approach may not be mutually exclusive. Rather, they take into account different types of category combinations. We argue that the additive approach turns out to be predictive of the way perceivers represent individuals with multiple category memberships when the stereotypes of the categories are not at odds with each other. For instance, the stereotypes of Latino people (e.g. uneducated) do not clash with the stereotypes related to women (e.g. attractive), thus Latina women are stereotyped as uneducated and attractive. At the very least, the category stereotypes should exhibit some degree of overlap: The stereotypes of Asian people (e.g. gentle, graceful, delicate) exhibit more commonalities with the stereotypes of women than with the stereotypes of men; thus, Asian people are highly likely to be perceived as feminine (Galinsky et al., 2013).

In contrast, the multiplicative approach accounts for the representation of individuals with multiple category memberships when the category stereotypes are in conflict with each other. As a case in point, the stereotypes of African-American people largely overlap with the stereotypes of men, and the stereotypes of women exhibit characteristics stereotypically ascribed to European-American women (Goff et al., 2008). Hence, the stereotypes of African-American women are not the sum of the stereotypes of their constituents but display unique attributes (Ghavami & Peplau, 2013).

In line with a conciliatory view of the above approaches, we build on the *modification model for conceptual combination* (i.e. CCM; Kunda et al., 1990; Medin & Shoben, 1988) to deal with the intersectionality issue. We test the predictions derived from this framework by analysing the intersectional representation of sexual orientation and age categories. The CCM suggests that when it comes to understanding how perceivers bring categories together and represent them cognitively, a critical issue concerns the question of whether and how the stereotypes associated with the categories correlate with each other. When the stereotypes associated with the to-be-combined categories are uncorrelated (e.g. ethnic group and mother tongue, as in the case of a White person who speaks French), the range of the category exemplars of one

category (White person) is restricted to the dimension implied by the other category (French speaker), thus enhancing the significance of this dimension.

If the stereotypes correlate, a follow-up question is whether the correlation is positive or negative. In the presence of a positive correlation, the attributes associated with one category are partially redundant with the attributes associated with the other. As in the case of the stereotype of Asian people and the stereotype of women (Schug et al., 2015) or the stereotype of African-American people and the stereotype of men (Galinsky et al., 2013; Nicolas et al., 2017), the stereotype overlap leads the former category to be cognitively conflated with the latter, respectively.

When the correlation is negative, we expect three possible outcomes. First, the representation of the to-be-combined categories is derived from the average representations of the discrete categories (e.g. Anderson, 1965). Given the negative correlation between stereotypes, the representation of one category overrides the stereotypical implications of the other category, thus blurring the conceptualization of the combined category (Petsko & Bodenhausen, 2019). Second, the representation of the to-be-combined categories inherits the attributes of one category more so than those of the other category. This is likely to occur when people consider one of the to-be-combined categories as less usual or less expected in combination with the other (Goffman, 1963; Stroessner, 1996). As a case in point, in the representation of a 'feminist bank teller', the former category not only brings category contents that are supposed to be negatively correlated with those of the latter category but also appears to be unusual, that is salient, when combined with 'bank teller'. The resulting representation of the combined categories rests more heavily on the attributes associated with 'feminist' than with 'bank teller' (Kunda et al., 1990). Third, the combination of negatively correlated categories leads perceivers to generate novel characteristics not found in either of the constituent categories (Crisp & Hewstone, 2007; Kunda et al., 1990; Preddie & Biernat, 2021). Such emergent attributes account for the atypicality of representation of the to-be-combined categories with respect to the constituent categories (Kunda & Oleson, 1995; Yzerbyt et al., 1999).

To illustrate, let us go back to our introductory example and examine in more detail the categories associated with age, that is young and elderly, and with sexual orientation, that is heterosexual and gay. For the sake of the present research, we focus exclusively on the way perceivers cognitively combine categories pertaining to male sexual orientation and age, for a methodological reason. We acknowledge that focusing on men only might perpetuate the underrepresentation of lesbian women within psychological research. However, no data on the age stereotyping of female sexual orientation categories as well as on the sexual orientation stereotyping of female age categories are currently available. In contrast, recent work by Carnaghi et al. (2022) and Coladonato et al. (2023) indicate that people use stereotypical traits that evoke young versus old age equally to characterize 'heterosexual men'. That is, the category 'heterosexual men' tends to be, at least in part, uncorrelated with age categories. In addition, perceivers rely similarly on stereotypical traits that refer to homosexuality or heterosexuality when describing 'young men'. The category 'young men' is thus uncorrelated with the sexual orientation categories. These findings on the discrete categories are of pivotal importance to allow us to put forward specific hypotheses concerning how such categories combine and end up being cognitively represented.

For both 'heterosexual men' and 'young men', the CCM thus predicts a new restricted category. Because 'heterosexual men' is not perceived in terms of a specific age, 'Young heterosexual men' will be perceived as younger than 'heterosexual men', while 'Elderly heterosexual men' will be perceived as older than 'heterosexual men'. Said otherwise, the perception of 'heterosexual men' will be 'restricted' to the age categories with which it is associated. Similarly, because the heteronormative default appears to be attenuated when it comes to 'young men' as compared to 'elderly men', 'young heterosexual men' will be perceived as more heterosexual than 'young men', while 'Young gay men' will be perceived as more gay than 'young men'. In other words, the perception of 'young men' will be 'restricted' to the sexual orientation categories with which it is combined.

A different outcome prevails when the constituent categories correlate positively. Research has shown that 'gay men' is stereotyped more as being young than old, that is perceivers preferentially assign traits that evoke young age. 'Elderly men', instead, is stereotyped more as heterosexual than homosexual, that is perceivers preferentially assign traits that denote heterosexuality (Carnaghi et al., 2022; Coladonato

et al., 2022). Hence, the category 'gay men' is positively related to young age. For this reason, people represent the combined category 'Young gay men' similarly to the category 'gay men' because the qualification 'young' is redundant when associated with 'gay men'. Along similar lines, the category 'elderly men' is positively related to heterosexuality. This means that perceivers see the combined category 'Elderly heterosexual men' similarly to the category 'elderly men' because the qualification 'heterosexual' happens to be redundant when associated with 'elderly men'.

Another situation emerges when the constituent categories correlate negatively, like in the case of 'gay men' (represented as young) and 'elderly men' (represented as heterosexual). According to the averaging model, a conflicting category combination inherits the characteristics of both constituent categories, but because of the conflict, these characteristics should cancel each other out. In our specific case, 'Elderly gay men' would come across as neither gay nor old because the default representation of 'gay men' as young cancels out the default representation of 'elderly men' as heterosexual. According to the dominance model (Kang & Chasteen, 2009; Macrae et al., 1995), a conflicting category combination inherits the characteristics of one category more so than those of the other category. Capitalizing on the assumption that being a gay man might be seen as less normative than being an elderly man, perceivers might conceive of 'elderly gay men' more on the basis of the sexual orientation category than of the age category. As for the emergent attributes model (Kunda et al., 1990), the prediction is that the attributes that emerge from the conflicting category combination are unique to this combination. These attributes do not characterize the constituent categories and presumably account for the *decreased* typicality of this category combination with respect to its constituents. Thus, perceivers should characterize 'elderly gay men' using unique attributes that do not readily define the constituent categories. Interestingly, some researchers suggest that the dominance model and the emergent attributes model can operate together (Kunda et al., 1990; Roccas & Brewer, 2002). As such, the combination of emergent categories, while constituting a 'deviant' case, might diverge more from the representation of one constituent than from the other. For example, the representation of the 'Harvard-educated carpenter' person, although characterized by unique attributes (i.e. the emergent attributes model), is closer to the conceptualization of a carpenter person than to that of a Harvard person because the former category carries more weight than the latter in the construal of such a person (i.e. the dominant model).

OVERVIEW OF THE STUDIES AND HYPOTHESES

In the first two studies, we relied on the typicality measure of categorical combinations to verify how categories of age and sexual orientation combine. In Study 1, we asked participants to rate to what extent discrete categories of sexual orientation (i.e. 'heterosexual men' and 'gay men') and different combinations of these categories and age were typical of the categories of young and elderly men, respectively. In Study 2, we asked participants to rate to what extent discrete categories of age (i.e. 'young men' and 'elderly men') and different combinations of these categories and sexual orientation were typical of heterosexual and gay men, respectively.

We predicted that the *modification model* would drive the typicality of the uncorrelated combinations (e.g. 'young men' + 'heterosexual men'). We also expected that the *redundancy model* would account for the typicality of the positively correlated combinations (e.g. 'gay men' + 'young men'). Finally, the combination of 'Elderly gay men' should constitute the only case of a conflicting combination of age and sexual orientation whose typicality could be driven by both constituents (i.e. the *averaging model*) or by only one of them (i.e. the *dominance model*). Alternatively, it is also possible that the typicality of this category rests not on the joint or single contribution of the constituents but on a unique and combination-specific set of elements (i.e. *emergent attributes model*).

In Study 3, we turned to a less direct approach with the aim of shedding light on people's spontaneous reactions (i.e. open-ended generation tasks) when they combine conflicting categories. This type of procedure allows for a less blatant comparison between constituent and combined categories. Indeed, some authors have suggested that the typicality measure may exacerbate the differences between comparable

instances by focusing too much on the degree of fit (Coladonato et al., 2022; Park et al., 2001). To the extent that this reasoning is correct, the differences between discrete and combined categories of age and sexual orientation in Studies 1 and 2 may have been overestimated. Interestingly, research has also confirmed the covariation between processes of typicality and stereotyping (e.g. Hantzi, 1995; Johnston & Hewstone, 1992; Maurer et al., 1995). Hewstone and Hamberger (2000, p. 106) argued that the perception of typicality of a category and the degree of stereotyping are 'intricately linked', and 'probably occurring simultaneously or interactively, rather than one preceding the other'. That is to say, perceived typicality and stereotyping go hand in hand. A clear asset of an open-ended approach is that nothing is imposed on participants other than providing us with their spontaneous category descriptions. This should allow for a test of the earlier-obtained pattern of findings using a truly alternative method.

METHODOLOGICAL CONSIDERATIONS

We conducted the analyses after data collection. We collected data via the Qualtrics survey platform (2021). We advertised the online link to the study on the Department webpage, as requested by the Ethics Committee. As for Study 1, 2 and the first wave of data collection in Study 3 (see below), because the link was available to the public at large, we did not predefine the target population, that is we specified no exclusion criteria for the sample make-up. Students in charge of data collection communicated on social networks and instant messaging about the possibility of participating in the study. We did not keep track of whether the participants were students or contacts of those in charge of data collection.

In Studies 1–2, F-value and ps are Greenhouse–Geisser corrected. Below we detail only the results relevant to our hypotheses (see Supplementary Material for the full analyses). All datasets and data analyses are available on OSF via https://osf.io/pvqzk/?view_only=5ff0187bc36d4cb3b26d5d775dcde9a5. The studies received ethical approval from the University of Trieste Ethical Committee (approval number 103).

STUDY 1

Method

Participants

We planned to collect at least $N = 100$ participants in a time span of 2 weeks. A sensitivity power analysis (using the WebPower package; Zhang & Mai, 2023), with $\alpha = .05$, $1 - \beta = .80$ and $N = 162$, suggested a minimum detectable effect (MDE) size (Cohen's $f = .37$) that fell within the medium effect size area (Cohen, 1988). At the end of this period, we recorded 217 clicks on the link to the online survey. Of these, eight accessed the survey and agreed to participate but did not complete any part of the survey. We also excluded 47 participants who did not rate one (or more than one) category on the relevant measures (i.e. missing values on one or both items of the typicality measure). The final sample comprised 162 participants (see Table 1 for detailed demographic characteristics). A sensitivity power analysis ($\alpha = .05$, $1 - \beta = .80$ and $N = 162$) suggested a MDE size of Cohen's $f = .34$. Thus, with this sample size, the smallest effect size that we could detect (at 80% power) fell within the medium effect size area (Cohen, 1988).

Materials and procedure

Participants learned that we were interested in understanding how people in general thought of specific categories. We provided them with the following example: 'Try to think about 'apples'. How, in your

TABLE 1 Age, gender, sexual orientation, citizenship and native language of participants as a function of the Studies 1–3.

	Study 1	Study 2	Study 3		
				1st wave,	2nd wave,
	n = 162	*n* = 121	Total, *n* = 81	*n* = 44	*n* = 37
Age					
Range	18–79	18–68	18–64	19–64	18–52
M	28.92	29.83	26.74	27.19	26.22
SE	0.84	0.97	0.81	1.15	1.15
Not reporting	5	1	1	1	
Gender					
Female	90 (55.56%)	76 (62.81%)	41 (50.62%)	23 (52.27%)	18 (48.65%)
Male	55 (33.95%)	43 (35.54%)	40 (49.38%)	21 (47.73%)	19 (51.35%)
Other	10 (6.17%)				
Not reporting	7 (4.32%)	2 (1.65%)			
Sexual orientation					
Heterosexual	117 (72.22)	112 (92.56%)	68 (83.95%)	38 (86.36%)	30 (81.08%)
Bisexual	15 (9.26%)	4 (3.31%)	7 (8.64%)	2 (4.55%)	5 (13.51%)
Homosexual	14 (8.64%)	1 (0.83%)	2 (2.47%)	2 (4.55%)	
Other	10 (6.17%)	2 (1.65%)	4 (4.94%)	2 (4.55%)	2 (5.41%)
Not reporting	6 (3.70%)	2 (1.65%)			
Citizenship					
Italian	153 (94.44%)	117 (96.69%)	81 (100%)	44 (100%)	37 (100%)
Other than Italian	2 (1.23%)	3 (2.48%)			
Dual	1 (0.62%)	1 (0.83%)			
Not reporting	6 (3.70%)				
Native language					
Italian	148 (91.36%)	115 (95.04%)	81 (100%)	44 (100%)	37 (100%)
Other than Italian	8 (4.94%)	5 (4.13%)			
Dual		1 (0.83%)			
Not reporting	6 (3.70%)				

Note: Values pertaining to the participant's age are in years.

opinion, are apples considered to be typical (= characteristics) of fruits in general?' (For the Italian verbatim, see Supplementary Material.) Then, we presented participants with eight categories in Italian, using generic masculine: 'heterosexual men', [in Italian: *eterosessuali*] and 'gay men' [in Italian: *omosessuali*], namely the sexual orientation discrete categories; 'Young heterosexual men' [in Italian: *giovani eterosessuali*], 'Elderly heterosexual men' [in Italian: *anziani eterosessuali*], 'Young gay men' [in Italian: *giovani omosessuali*], 'Elderly gay men' [in Italian: *anziani omosessuali*], namely the sexual orientation and age category intersections; 'Heterosexual chef men' [in Italian: *eterosessuali cuochi*], 'Gay chef men' [in Italian: *omosessuali cuochi*], filler categories. We randomized the presentation order between and within the discrete, intersectional and filler categories across participants. Participants saw one category at a time on the screen. Half of the participants indicated the extent to which each category was typical of elderly men first. After having rated all the categories, they saw all categories again but indicated the typicality of the categories with respect to young men (i.e. order 1). The remaining half of the participants rated the categories with respect to young men first and then with respect to elderly men (i.e. order 2). Participants were randomly accolated to either order 1 or order 2. Ratings were collected on a 7-point scale, ranging from 1 (= *not at all typical*) to 7 (= *very typical*).

Next, participants reported their demographics (see Supplementary Material for items pertaining to demographics). They were then debriefed and thanked.

Results

In line with the goals of this study, we focused on the sexual orientation categories and on intersectional categories, excluding the filler categories from the analyses. Table 2 reports the correlations between the typicality ratings. We analysed participants' perceived age typicality by means of a 2 (sexual orientation: heterosexual men vs. gay men) × 3 (age: young vs. elderly vs. discrete) × 2 (referent category: young vs. elderly) repeated measures ANOVA using the jamovi statistical package (jamovi, 2023). It is worth noting that the label 'discrete' refers to the fact that 'gay men' and 'heterosexual men' were presented as discrete categories, namely not in intersection with any age category. The main effect of sexual orientation, $F(1, 161) = 560.01$, $p < .001$, $\eta_p^2 = 0.78$; age, $F(2, 322) = 58.47$, $p < .001$, $\eta_p^2 = 0.27$; and referent categories, $F(1, 161) = 59.64$, $p < .001$, were all significant (see Supplementary Material).

The sexual orientation by age by referent categories interaction proved significant, $F(2, 322) = 19.45$, $p < .001$, $\eta_p^2 = 0.11$, $\varepsilon = 0.88$ (see Figure 1). First, and in follow-up analyses, we examined participants' scores regarding heterosexual men as a sexual orientation. Participants considered 'heterosexual men', that is the baseline, to be typical of both young ($M = 5.78$, SE = 0.10) and elderly men ($M = 6.09$, SE = 0.11) and to a similar extent, $t(161) = 2.55$, $p = .767$. By contrast, participants perceived 'young heterosexual men' more typical of young ($M = 5.74$, SE = 0.11) than of elderly men ($M = 4.44$, SE = 0.20), $t(161) = 6.21$, $p < .001$. Furthermore, participants judged 'elderly heterosexual men' to be more typical of elderly ($M = 5.98$, SE = 0.13) than of young men ($M = 5.54$, SE = 0.19), $t(161) = 6.70$, $p < .001$. Compared to 'heterosexual men', participants considered 'young heterosexual men' as equally typical of young men, $t(161) = 0.48$, $p = 1.000$, but less typical of elderly men $t(161) = 8.11$, $p < .001$. Also, and compared to 'heterosexual men', participants judged 'elderly heterosexual men' to be equally typical of elderly men, $t(161) = 0.74$, $p = 1.000$, but less typical of young men, $t(161) = 6.22$, $p < .001$.

Next, we analysed the scores for gay men based on their sexual orientation. Participants considered 'gay men', namely the baseline, as more typical of young men ($M = 4.09$, SE = .11) than of elderly men ($M = 2.25$, SE = .10), $t(161) = 15.28$, $p < .001$. A similar pattern was observed for 'young gay men' who were perceived to be more typical of young men ($M = 4.43$, SE = 0.12) than of elderly men ($M = 2.63$, SE = 0.14), $t(161) = 11.78$, $p < .001$. On the contrary, 'elderly gay men' were similarly perceived in terms of typicality with respect to both young ($M = 2.14$, SE = 0.11) and elderly men ($M = 2.15$, SE = 0.11), $t(161) = 0.10$, $p = 1.000$.

Importantly, and compared to 'gay men', participants perceived 'young gay men' as more typical of young, $t(161) = 3.49$, $p = .041$, but equally less typical of elderly men, $t(161) = 2.66$, $p = .565$. Also, and

TABLE 2 Correlations (Pearson's *r*) in Study 1 between participants' typicality ratings of each target category with respect to both elderly men and young men.

Target categories	Correlations	LCI (95%)	UCI (95%)
Heterosexual men	$r(162) = .39, p < .001$	.25	.52
Young heterosexual men	$r(162) = .15, p = .055$	−.003	.30
Elderly heterosexual men	$r(162) = .17, p = .036$	.01	.31
Gay men	$r(162) = .33, p < .001$	.18	.46
Young gay men	$r(162) = .30, p < .001$	.16	.44
Elderly gay men	$r(162) = .31, p < .001$	.16	.44

Abbreviations: LCI, 95% lower confidence interval; UCI, 95% upper confidence interval.
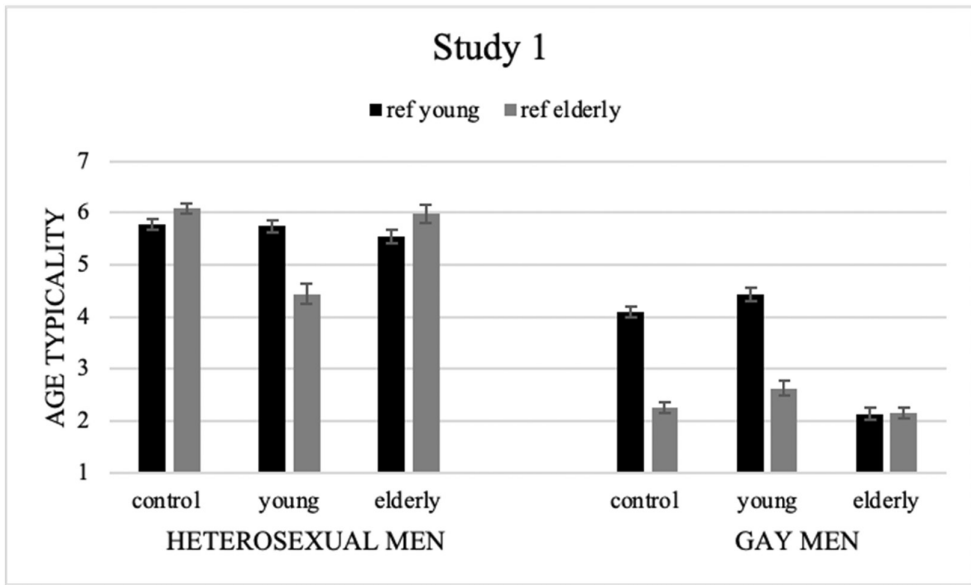
FIGURE 1   Age typicality of heterosexual and gay men as a function of age in Study 1. Error bars represent standard errors of the means.

relative to the 'gay men', they saw 'elderly gay men' as less typical of young men, $t(161) = 14.79$, $p < .001$, but equally not typical of elderly men, $t(161) = 0.98$, $p = 1.000$.

Discussion

Replicating previous findings, albeit with a different measure, Study 1 showed that participants perceived 'heterosexual men' as equally typical of both young and elderly men, while they viewed 'gay men' as more typical of young than of elderly men (e.g. Carnaghi et al., 2022; Coladonato et al., 2023). These results suggest that the category 'heterosexual men' is uncorrelated with age categories and is likely to comprise instances of both ages. In contrast, the category 'gay men' was correlated with age categories, as it was perceived to be more typical of young men than of elderly men.

Consistent with predictions stemming from the modification model for uncorrelated categories, the range of category exemplars instantiated by 'heterosexual men' was limited to those implied by age categories (i.e. 'young men', 'elderly men'), thus enhancing the significance of the age category in the perception of the combined categories (i.e. 'Young heterosexual men', 'Elderly heterosexual men'). In fact, and bearing in mind that participants judged 'heterosexual men' similarly typical of both ages, the significance of the age categories in combination with 'heterosexual men' occurred for 'Young heterosexual men' with a decrease in typicality relative to older men, and for 'Elderly heterosexual men' with a decrease in typicality with respect to young men.

Confirming the predictions issued from the redundancy model for correlated categories, and because 'gay men' was positively correlated with 'young men', the information about age attached to the former category was at least in part redundant with that of the latter category: 'gay men' and 'Young gay men' were both considered to be typical of young men. By way of contrast, 'Elderly gay men' constituted the only category combination for which there was a negative correlation between the two constituent categories (i.e. 'elderly men' and 'gay men'). 'Elderly gay men' came across as neither typical of young men nor of elderly men, a pattern again consistent both with the predictions of the average model (i.e. the representation of 'gay men' as young and the age of 'elderly men' cancelled each other out) and those of the emergent attributes model ('elderly gay men' showed emergent attributes that rendered it neither typical of young nor of elderly men).

In Study 2, we assessed the sexual orientation typicality of age categories and their combinations with sexual orientation categories.

STUDY 2

Method

Participants

As in Study 1, we planned to collect at least $N = 100$ participants in a time span of 2 weeks to gain a MDE size (Cohen's $f = .37$) that fell within the medium effect size area (Cohen, 1988). At the end of this period, we recorded 159 clicks on the link to the online survey. Of these, $n = 14$ accessed the survey and agreed to participate but did not complete any part of the survey. In line with the criterion adopted in Study 1, we also excluded 24 participants. The final sample comprised $N = 121$ participants (see Table 1). As in Study 1, we computed the MDE based on the sample size, Cohen's $f = .38$, which falls within the medium effect size area (Cohen, 1988).

Materials and procedure

The procedure was identical to that of Study 1. We presented participants with eight categories, one at a time: 'young men', [in Italian: giovani] and 'elderly men' [in Italian: anziani] namely the age discrete categories; 'Young heterosexual men', 'Young gay men', 'Elderly heterosexual men', 'Elderly gay men', namely the age and sexual orientation category intersections; 'Young right-handed men' [in Italian: destrimani giovani], 'Elderly right-handed men' [in Italian: destrimani anziani], filler categories. Participants indicated the extent to which each category was typical of heterosexual men and gay men, separately (order counterbalanced across participants), on a 7-point scale, ranging from 1 (= *not at all typical*) to 7 (= *very typical*).

Participants reported their demographics (Table 1; see also Supplementary Material). They were then debriefed and thanked.

Results

As in Study 1, we excluded the filler categories from the analyses. Table 3 reports the correlations between the typicality ratings. Participants' perceived sexual orientation typicality was analysed by means of a 2 (age: young men vs. elderly men) × 3 (sexual orientation: heterosexual vs. gay vs. discrete) × 2 (referent category: heterosexual vs. gay) repeated measures ANOVA (jamovi, 2023), with all factors varying within participants. The 'discrete' condition refers to the fact that 'young men' and 'elderly men' were presented as discrete categories, namely not in intersection with any sexual orientation category. The main effects of age, $F(1, 120) = 95.05$, $p < .001$, $\eta_p^2 = 0.44$, sexual orientation, $F(2, 240) = 57.17$, $p < .001$, $\eta_p^2 = 0.32$ and referent categories, $F(1, 120) = 85.73$, $p < .001$, $\eta_p^2 = 0.42$, all came out significant (see Supplementary Material).

More importantly, the age by sexual orientation by referent categories interaction proved significant, $F(2, 240) = 15.92$, $p < .001$, $\eta_p^2 = 0.12$, $\varepsilon = 0.99$ (Figure 2). We first compared the sexual orientation typicality of 'young men' to that of 'elderly men', as they represent the two baselines. Both 'young men' and 'elderly men' were perceived to be more typical of heterosexual men ($M = 5.21$, SE = 0.13; $M = 5.53$, SE = 0.16, respectively) than of gay men ($M = 4.34$, SE = 0.16; $M = 2.69$, SE = 0.16, respectively), $t(120) = 5.51$, $p < .001$ and $t(120) = 13.06$, $p < .001$. However, while participants judged 'elderly men' and

TABLE 3 Correlations (Pearson's *r*) in Study 2 between participants' typicality ratings of each target category with respect to both gay men and heterosexual men.

Target categories	Correlations	LCI (95%)	UCI (95%)
Young men	$r(121) = .41, p < .001$	.25	.55
Young heterosexual men	$r(121) = .08, p = .399$	−.10	.25
Young gay men	$r(121) = −.09, p = .348$	−.26	.09
Elderly men	$r(121) = .06, p = .529$	−.12	.23
Elderly heterosexual men	$r(121) = .19, p = .040$	.01	.35
Elderly gay men	$r(121) = .22, p = .015$	.04	.38

Abbreviations: LCI, 95% lower confidence interval; UCI, 95% upper confidence interval.
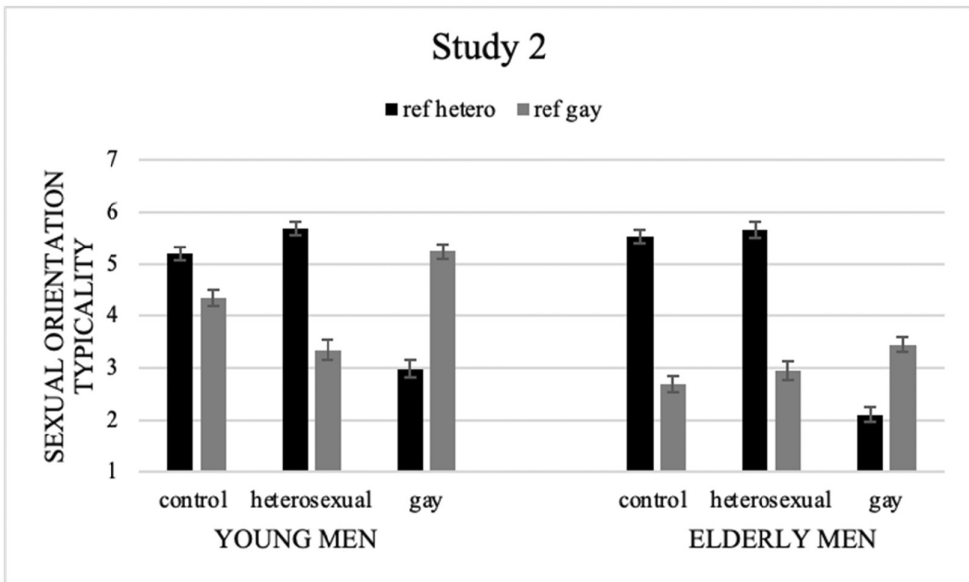

FIGURE 2 Sexual orientation typicality of elderly and young men as a function of sexual orientation in Study 2. Error bars represent standard errors of the means.

'young men' to be typical of heterosexual men to a similar degree, $t(120) = 2.29, p = 1.000$, they perceived 'elderly men' to be dramatically less typical of gay men than 'young men', $t(120) = 9.61, p < .001$.

We then analysed the sexual orientation typicality of 'young men' in intersection with the.sexual orientation categories. Specifically, participants judged 'young heterosexual men' to be more typical of heterosexual ($M = 5.69$, SE = 0.14) than gay men ($M = 3.35$, SE = 0.19), $t(120) = 10.47, p < .001$. In contrast, they perceived 'young gay men' as more typical of gay ($M = 2.98$, SE = 0.17), than of heterosexual men ($M = 5.24$, SE = 0.15), $t(120) = 9.77, p < .001$. Compared to 'young men', the baseline, participants perceived 'young heterosexual men' as more typical of heterosexual men, $t(120) = 3.59, p = .032$ and less typical of gay men, $t(120) = 9.61, p < .001$. Compared to 'young men', they judged 'young gay men' to be more typical of gay men, $t(120) = 5.24, p < .001$ and less typical of heterosexual men, $t(120) = 11.65, p < .001$.

Next, participants considered 'elderly heterosexual men' as more typical of heterosexual men ($M = 5.67$, SE = 0.15) than of gay men ($M = 2.95$, SE = 0.19), $t(120) = 12.38, p < .001$. Importantly, participants perceived 'elderly men' and 'elderly heterosexual men' as equally typical of heterosexual men, $t(120) = 0.87, p = 1.000$ and as equally not typical of gay men, $t(120) = 1.34, p = 1.000$. In

contrast, they saw 'elderly gay men' as more typical of gay men ($M = 3.45$, SE = 0.18) than of heterosexual men ($M = 2.10$, SE = 0.14), $t(120) = 6.70$, $p < .001$. Compared to 'elderly men', participants considered 'elderly gay men' to be less typical of heterosexual men ($t(120) = 15.97$, $p < .001$) and more typical of gay men ($t(120) = 3.90$, $p < .011$).

Discussion

Study 2 showed that participants perceived both 'elderly men' and 'young men' as more typical of heterosexual men than of gay men. Importantly, while both categories were equally typical of heterosexual men, the perceived typicality of 'elderly men' with respect to gay men was dramatically lower than that of 'young men'. These results suggest that the category 'elderly men', more than the category 'young men', is likely to be conflated with 'heterosexual men'. Consistent with such a claim, the way 'young men', but not 'Elderly men', combined with the sexual orientation categories (i.e. 'Heterosexual men', 'Gay men') follows the pattern derived from the modification model. Indeed, compared to 'young men', participants perceived 'Young heterosexual men' as more typical of heterosexual men and as less typical of gay men. Also, and compared to 'young men', participants saw 'Young gay men' as more typical of gay men and less typical of heterosexual men. In line with the modification model, the range of category exemplars instantiated by 'young men' was limited to those implied by the sexual orientation categories (i.e. 'heterosexual men', 'gay men'), thus reinforcing the significance of the sexual orientation category in the perception of the combined categories (i.e. 'Young heterosexual men', 'Young gay men'). It is worth noting that the significance of the sexual orientation categories is stronger when it comes to the combination of 'young men' with 'gay men' than to the intersection of 'young men' with 'heterosexual men'.

'Elderly men' was positively correlated with 'heterosexual men' and more so than 'young men' was. As predicted by the redundancy model, participants considered 'elderly men' and 'Elderly heterosexual men' as equally typical of heterosexual men and as equally not typical of gay men. As such, the sexual orientation information given by 'elderly men' appeared to be very redundant with that of 'heterosexual men'. Lastly, 'Elderly gay men' represented the only category combination for which the two constituent categories (i.e. 'elderly men' and 'gay men') were negatively correlated. As a result, compared to 'elderly men', participants perceived 'elderly gay men' as more typical of gay men than of heterosexual men. This result dovetails nicely with the predictions of the dominance model in that the salience of the category 'gay men' (Study 2) is greater than the salience of the age category (Study 1).

Building on these findings, we designed Study 3 to replicate and extend the results of Studies 1 and 2 on how unrelated or weakly correlated categories are combined with each other as well as on how positively correlated categories are cognitively combined. In addition, Study 3 aimed to shed light on the generative mechanism that underpins the combination of 'gay men' and 'elderly men' as discrete categories. In fact, while Study 1 suggested that the age typicality of 'Elderly gay men' could be explained by both the averaging and emergent attribute models, Study 2 suggested that the dominant model provided a better account of the typicality of 'elderly gay men' regarding sexual orientation. To do this, we changed our research methodology and opted for an open-ended approach.

STUDY 3

Method

Participants

Because the current study rested on the theoretical efforts of Kunda et al. (1990), we aimed to collect at least $N = 80$ participants, in line with the sample size used in this seminal study. We collected the data

in two subsequent waves. In the first, we collected data from psychology students. Of the 84 clicks on the link to the online survey, we discarded $n = 24$ participants who did not complete any part of the questionnaire and $n = 16$ participants who did not list any characteristics for at least one of the given categories. As we did not reach the predetermined N, we collected additional participants in the second wave via Prolific (www.prolific.co) and limited participation only to Italian individuals whose native language was Italian. We registered 40 clicks on the link to the online survey; we disregarded three participants, that is two who did not list any characteristics for at least one of the given categories and one who did not report Italian citizenship and native language. The final sample comprised $N = 81$ Italian participants (see Table 1; see also Supplementary Material). The sensitivity power analyses (WebPower package; Zhang & Mai, 2023) indicated a MDE (Cohen's $w = .42$) that falls within the moderate effect size area (Cohen, 1988).

Materials and procedure

We presented participants with eight categories, one at a time, in a randomized order. Specifically, two categories were the discrete categories of sexual orientation (i.e. 'heterosexual men', 'gay men'), two categories were the discrete categories of age (i.e. 'young men', 'elderly men') and four categories were the intersectional categories stemming from the combination of the discrete categories of sexual orientation and age (i.e. 'Young heterosexual men', 'Young gay men', 'Elderly heterosexual men', 'Elderly gay men'). To control for word order effects, we labelled intersectional categories by mentioning either sexual orientation first (e.g. 'Heterosexual young men') or age first (e.g. 'Young heterosexual men') and randomly assigning participants to one of the two labels (for a similar procedure, see Kunda et al., 1990). Participants had to think of a specific category and the way this category came across on a societal level. They were requested to report up to six characteristics/adjectives, each of which is in one of the six displayed boxes (for verbatim, see Appendix 1 and Supplementary Material).

Then, participants reported their demographics (Table 1; see also Supplementary Material). They were debriefed and thanked.

Results

Treatment of free-response data

A detailed description of the treatment of free-response data is outlined in Appendix 1. All materials are available on OSF (https://osf.io/pvqzk/?view_only=5ff0187bc36d4cb3b26d5d775dcde9a5).

Participants generated a total of 3378 attributes or short sentences (i.e. $n = 1728$ attributes for discrete categories) in Italian. The average number of attributes generated was 5.20 (range = 1–6). We first narrowed down the listed attributes by identifying exact attributes and retaining only attributes in the singular form. As for the discrete categories, this procedure led to $n = 785$ attributes. The attributes were grouped independently by two judges—that is two of the current authors—by relying on lists of stereotypic dimensions (e.g. warmth/competence) available in previous research and by grouping attributes based on their similarity in meaning. Then, attributes were clustered (e.g. 'diversity') as a function of semantic associations and similarities (e.g. atypical, different, deviant). The formation of clusters (i.e. sets of attributes that are coherent in meaning) and the attribute-cluster associations (i.e. including a given attribute in a specific cluster) were revised by two independent raters (see Table 4 for the inter-rater agreement). This procedure led to the creation of 77 clusters and the assignment of attributes to the corresponding cluster. We then analysed the attributes generated in response to intersectional categories ($n = 1650$). The novel attributes (i.e. attributes that were not generated for discrete categories) underwent the procedure outlined before. Again, the formation of clusters and the attribute-cluster associations were revised by the two independent raters (see Table 4

for the inter-rater agreement). The final outcome resulted in a frequency table associating frequencies between 90 clusters and eight categories (e.g. for the cluster 'agentic', if a participant listed 'motivated' and 'successful' in reaction to 'young men', a frequency of 2 was assigned to 'agentic' for this participant and for this category). In line with previous works (Ghavami & Peplau, 2013; Preddie & Biernat, 2021), we retained those clusters whose attributes were mentioned above 1% of the total of the generated attributes. Moreover, and as in previous studies (see also Klysing, 2023), we retained the first 15 clusters, namely those clusters with a higher frequency in terms of association with all the categories grouped together (see Table 5). The selection of the top 15 clusters in part ensures that all the selected clusters are mentioned above 1% and in part minimizes the possibility that infrequent clusters would improperly influence the subsequent analysis, as suggested by Klysing (2023). The attributes of these 15 clusters are reported in Appendix 2.

TABLE 4 Inter-rater agreement between judges and rater 1, judges and rater 2, and between rater 1 and 2 for discrete and intersectional categories, separately.

	Judges—R1	Judges—R2	R1—R2
Discrete categories			
Agreement	718/785	717/785	760/785
%	91.46	91.34	96.82
K			0.80
$\tilde{z}$			22.34
p			<.001
Intersectional categories			
Agreement	311/334	300/334	283/334
%	93.11	89.82	84.73
K			0.03
$\tilde{z}$			0.47
p			.638

TABLE 5 Frequency of associations between clusters and categories.

	Clusters													
Categories	**1**		**2**		**3**		**4**		**5**		**6**		**7**	
Heterosexual men (n = 214)	12	−5.61%	83	−38.79%	24	−11.21%	1	−0.47%	8	−3.74%	7	−3.17%	11	−5.14%
Gay men (n = 218)	26	−11.93%	6	−2.75%	15	−6.88%	49	−22.48%	0	0%	47	−21.56%	6	−2.75%
Young men (n = 207)	9	−4.35%	0	0%	27	−13.04%	5	−2.42%	2	−0.97%	12	−5.78%	52	−25.12%
Elderly men (n = 263)	59	−22.43%	0	0%	5	−1.90%	1	−0.38%	54	−20.53%	0	0%	1	−0.38%
Young heterosexual men (n = 216)	10	−4.63%	52	−24.07%	28	−12.96%	0	0%	7	−3.24%	6	−2.78%	34	−15.74%
Elderly heterosexual men (n = 225)	39	−17.33%	33	−14.67%	6	−2.67%	3	−1.33%	34	−15.11%	0	0%	1	−0.44%
Young gay men (n = 222)	16	−7.21%	3	−1.35%	19	−8.56%	33	−14.86%	3	−1.35%	35	−15.77%	5	−2.25%
Elderly gay men (n = 182)	29	−15.93%	1	−0.55%	16	−8.79%	36	−19.78%	12	−6.59%	13	−7.14%	3	−1.65%
Total	200		178		140		128		120		120		113	
Percentage (%)	5.92		5.27		4.14		3.79		3.55		3.55		3.35	

Note: 1, Warm; 2, Norm; 3, Agentic; 4, Diversity; 5, Wisdom; 6, Exaggerated; 7, Dynamism; 8, Childish; 9, Family role; 10, Alternative; 11, Not self-sufficient; 12, Low arousal; 13, Enthusiasm; 14, Immoral; 15, Conformist. For each category, the frequencies of association show as raw data and as percentages (i.e. raw frequencies divided by the total number of attributes reported for each category).

Correspondence analysis

The Chi-square analysis of the categories by clusters table (Table 5) showed that the observed frequencies deviated strongly from independence, $\chi^2(98) = 1824$, $p < .001$, indicating that the clusters were not equally represented in each category. We then conducted a correspondence analysis using R (R Core Team, 2021) with FactoMineR (Le et al., 2008) and factoextra packages (see Appendix 3).

As for the absolute contribution (i.e. the proportion of inertia), seven dimensions were extracted in order of importance, namely as a decreasing function of the total inertia accounted for (first dimension 45.93%, second 31.29%, third 15.83%, fourth 4.14%, fifth 1.65%, sixth 1.02% and seventh 0.13%). The bi-dimensional space based on the first two dimensions explained 77.2% of the total inertia (Figure 3). The first dimension opposes the social default options, that is those categories conceptualized as normative (Zarate & Smith, 1990), such as heterosexual men and young men (bottom portion of the vertical dimension), and non-normative categories, namely elderly men and gay men (top portion of the vertical dimension). The second dimension contrasts categories high in traditionalism (left portion of the horizontal dimension) and correlated clusters, such as 'conformism', 'family role' and 'norm', to categories associated with less traditionalism, such as young men and gay men, and clusters as 'alternative', 'immoral' and 'exaggerated' (right portion of the horizontal dimension).

Turning to the variance explained by a given dimension (i.e. $\cos^2$), 'elderly men', 'Elderly heterosexual men', 'gay men' and 'Young gay men', were accounted for mainly by the first dimension and less so by the second dimension. The first dimension explained 'young men' more than the second dimension. In contrast, the second dimension accounted for 'Heterosexual men' and 'Young heterosexual men' more than the first dimension. Although in a less polarized fashion, the first dimension also accounted for 'Elderly gay men' less than the second dimension.

A first examination of the data involves the sexual orientation angle. As the position of 'gay men', 'Young gay men' and 'Elderly gay men' shows, these categories inhabit the same area of the bi-dimensional space, suggesting that they share similar stereotypical attributes. 'Gay men' and 'young gay men' almost overlapped in terms of positioning, and both were not very distant from 'Elderly gay men'. Hence, attributes grouped in the 'immoral', 'exaggerated', 'alternative' and 'diversity' clusters defined both 'gay men' and 'Young gay men', and somewhat more so than 'elderly gay men'. In sharp contrast, 'heterosexual men', 'Young heterosexual men' and 'Elderly heterosexual men' were spread over different

| 8		9		10		11		12		13		14		15	
1	−0.47%	30	−14.02%	6	−2.80%	2	−0.93%	3	−1.40%	9	−4.21%	3	−1.40%	14	−6.54%
14	−6.42%	2	−0.92%	18	−8.26%	7	−3.21%	0	0%	9	−4.13%	19	−8.72%	0	0%
35	−16.91%	1	−0.48%	13	−6.28%	6	−2.90%	2	−0.97%	28	−13.53%	14	−6.76%	1	−0.48%
5	−1.90%	18	−6.84%	0	0%	52	−19.77%	48	−18.25%	0	0%	1	−0.38%	19	−7.22%
14	−6.48%	14	−6.48%	9	−4.17%	1	−0.46%	4	−1.85%	26	−12.04%	3	−1.39%	8	−1.39%
2	−0.89%	32	−14.22%	0	0%	16	−7.11%	33	−14.67%	3	−1.33%	0	0%	23	−10.22%
31	−13.96%	3	−1.35%	19	−8.56%	11	−4.95%	2	−0.90%	6	−2.70%	33	−14.86%	3	−1.35%
3	−1.65%	4	−2.20%	34	−18.68%	4	−2.20%	6	−3.30%	6	−3.30%	14	−7.69%	1	−0.55%
105		104		99		99		98		87		87		69	
3.11		3.08		2.93		2.93		2.9		2.58		2.58		2.04	
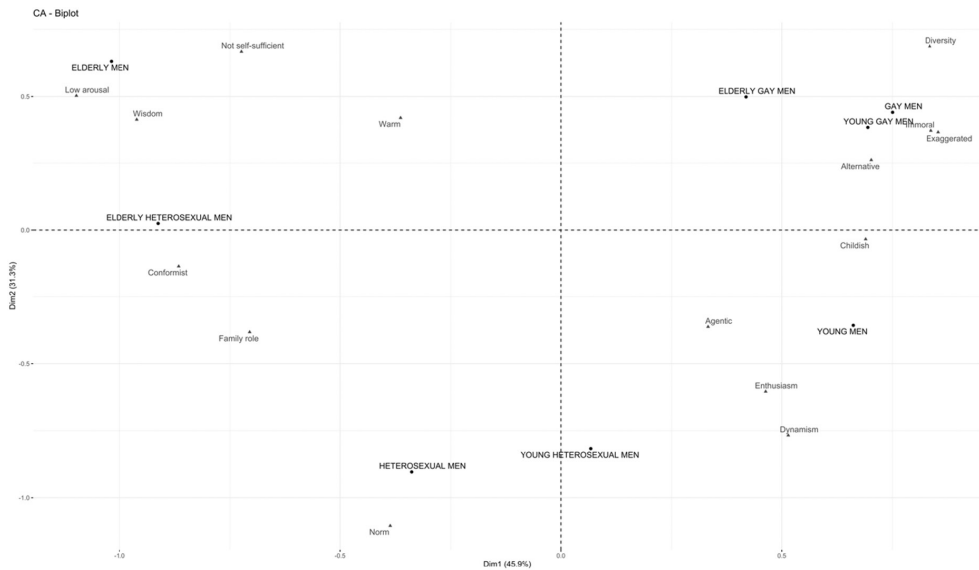
FIGURE 3 Graphic representation of the bi-dimensional space based on the first two dimensions, and the location of the categories and cluster relative to the dimensions. Row (i.e. categories) and column (i.e. clusters) labels projected onto a two-dimensional map.

areas of the bi-dimensional space. Whereas 'heterosexual men' was associated with attributes of the 'norm' cluster, 'Young heterosexual men' and 'elderly heterosexual men' were closer to the clusters defining the age categories, namely 'young men' and 'elderly men', respectively.

Alternatively, it is instructive to consider the age angle. Here, the two categories 'elderly men' and 'Elderly heterosexual men' were positioned close to each other in the space. Both were characterized by the 'low arousal', 'wisdom', 'conformist', 'not self-sufficient' and 'warm' clusters. These attributes did not characterize 'Elderly gay men', which was located in a different area on the right side of the second dimension. Interestingly, 'young men' is equally distant from 'Young gay men' and 'Young heterosexual men'. Moreover, 'young men' and 'Young heterosexual men' shared attributes associated with the 'agentic', 'enthusiasm' and 'dynamism' clusters, whereas 'young men' and 'young gay men' shared those attributes associated with the 'childish' and 'alternative' clusters.

Emergent clusters

As indicated by Kunda et al. (1990, Study 1; see also Ghavami & Peplau, 2013; Preddie & Biernat, 2021), we considered as emergent any cluster that characterized only the target intersectional category (e.g. 'Elderly gay men') but not their constituents, that is elderly men and gay men (i.e. no attribute that fell in that cluster was mentioned in reaction to the constituents Criterion 1). Also, and strictly complying with the procedure outlined by Kunda et al. (1990), we treated as emergent any cluster used by at least three participants to describe the target intersectional category (Criterion 2). Moreover, the frequency of generated attributes that fall in that cluster should be higher in reaction to the target intersectional category than to the other intersectional categories. To test this, we relied on the chi-square goodness of fit test to check whether the frequency of generated attributes that fall in this cluster in reaction to the intersectional categories significantly deviated from the uniform expected values (Criterion 3a). If so, the frequency of generated attributes for this cluster should be higher than the expected value when it comes to the intersectional category target only (Criterion 3b). As the chi-square approximation might be inaccurate given the low number of observations, we decided to conduct the binomial exact post-hoc test on the observed frequency of generated attributes for this cluster and for each intersectional category (see Table 6).

TABLE 6 Frequency of the generated traits as a function of the cluster and intersectional categories.

Clusters	Intersectional categories			
	Elderly gay men	Young gay men	Elderly heterosexual men	Young heterosexual men
Not-religious				
Observed frequencies	4	1	0	0
p (binomial)	.004	1.000	1.000	1.000
Psychologically disturbed				
Observed frequencies	6	3	0	0
p (binomial)	.005	.663	1.000	1.000
Invisibility				
Observed frequencies	9	0	0	0
p (binomial)	<.001	1.000	1.000	1.000

Note: Frequencies of the generated traits were provided as observed frequencies. The reported *p*-values generated by the binomial exact test are Bonferroni corrected.

As for 'Young heterosexual men' and 'Young gay men', no clusters met Criteria 1 and 2. Turning to 'Elderly heterosexual men', Criteria 1 and 2 were met for the cluster 'role models'. Because the frequency of attributes associated with 'role models' did not significantly deviate from the uniform expected values among intersectional categories, $\chi^2(3, 4) = 6.00$, $p = .112$, we stayed away from considering such a cluster as an emergent attribute (Criterion 3a).

Moreover, as for 'Elderly gay men', three clusters, namely 'not-religious', 'psychologically disturbed' and 'invisibility', met the above-mentioned Criteria 1 and 2. The frequency of attributes associated with 'not-religious' significantly deviated from the uniform expected values among intersectional categories, $\chi^2(3, 5) = 8.60$, $p = .035$ (Criterion 3a). We then run a binomial exact test for the observed occurrence for each intersectional category (Criterion 3b). The frequency of attributes related to this cluster significantly deviated from the expected distribution for 'Elderly gay men' ($n = 4$, $K = 4$, Bonferroni $p = .004$, binomial test), but not for other intersectional categories (Bonferroni ps = 1.000). The frequency of attributes associated with 'psychologically disturbed' significantly deviated from the uniform expected values among intersectional categories, $\chi^2(3, 9) = 11.00$, $p = .012$. The analysis of the binomial distribution for this cluster resulted in a significant difference between the proportion of generated attributes in reaction to 'elderly gay men' ($n = 6$, $K = 4$, Bonferroni $p = .005$, binomial test) and the proportion of generated attributes in reaction to the remaining intersectional categories (Bonferroni ps > .663). Finally, the frequency of attributes associated with 'invisibility' significantly deviated from the uniform expected values among intersectional categories, $\chi^2(3, 9) = 27.00$, $p < .001$. The binomial test for the distribution of the generated attributed for this cluster proved significant when pertaining to 'elderly gay men' ($n = 9$, $K = 4$, Bonferroni $p < .001$, binomial test), but not with respect to the other intersectional categories (Bonferroni ps = 1.000).

We acknowledged that Criterion 2 is somewhat arbitrary, albeit it has been corroborated by previous evidence. To ascertain, at least in part, the independence of the reported results from such a methodological choice (i.e. Criterion 2), we ran the same analyses as above by relying on Criteria 1 and 3a and 3b only. The findings replicated those based on all criteria (see Supplementary Material).

Discussion

The present results showed that 'heterosexual men', 'Elderly heterosexual men' and 'Young heterosexual men' all ended up in different areas of the bi-dimensional space. More specifically, the representations of the intersectional categories, that is 'Elderly heterosexual men' and 'Young heterosexual men', were characterized especially by their age category in addition to the heterosexual category. A similar

pattern occurred for 'young men' in combination with the sexual orientation categories. In fact, 'young heterosexual men' and 'Young gay men' were equally distant from 'young men', and their respective representations rested especially on their sexual orientation category in addition to their age category. In sum, 'heterosexual men' and 'young men', appeared to be loosely correlated with the age categories and sexual orientation categories, respectively, thus the intersectional categories stemmed from an additive combination as predicted by the modification model.

By contrast, the representation of 'gay men' very much overlapped with that of 'Young gay men', and more so than with that of 'Elderly gay men'. Moreover, the representation of 'elderly men' was clearly closer to that of 'Elderly heterosexual men' than to that of 'elderly gay men'. Hence, the age information brought by 'Young gay men' was redundant with the representation of 'gay men', and the sexual orientation information brought by 'elderly heterosexual men' was redundant, at least in part, with the representation of 'elderly men'. As such, when the contents of the to-be-combined categories are positively correlated, their merging follows the prediction of the redundancy model. This confirmed that 'Elderly gay men' represented a conflicting category combination, as the contents brought by its constituent categories were at odds with each other, that is they were negatively correlated.

Examining the bi-dimensional space further, 'Elderly gay men' was closer to 'gay men' than to 'elderly men', suggesting that 'elderly gay men' was conceptualized especially in terms of sexual orientation rather than of age information, in line with the dominance model. These results suggest that when 'gay men' and 'elderly men' are combined, the resulting combination is dominated by the salience of the sexual orientation category. The analyses of the emergent attributes suggested that, as far as this category intersection is concerned, perceivers generated attributes pertaining to 'elderly gay men' only, and not to its constituents. As such, the emergent attributes model contributed to shaping the atypicality of the 'elderly gay men' category combination. Importantly, we found no emergent attributes in reaction to the other age and sexual orientation category intersections.

GENERAL DISCUSSION

Building on earlier research dealing with the issue of category intersections, the present effort aimed to reconcile apparently divergent views on the way perceivers combine and represent categories (Kang & Bodenhausen, 2015; Petsko & Bodenhausen, 2019). The current line of research goes beyond these conceptions by recasting the analyses of category intersection within the modification model for conceptual combination (Kunda et al., 1990; Medin & Shoben, 1988). We argued that distinct sexual orientation categories intersect with specific age categories either in an additive or in a multiplicative fashion, depending on the correlation between the two to-be-combined categories.

We showed that the stereotypical representations of 'heterosexual men' are independent from those related to discrete age categories and that the stereotypic representations of 'young men' appear to be loosely overlapping with those associated with discrete sexual orientation categories. Hence, and as proposed by the modification model, when the category 'heterosexual men' combines with age categories, the contents of such categories add together to those associated with the sexual orientation category. Similarly, when 'young men' intersects sexual orientation categories, the stereotypical contents of the latter are added to the former. As a result, 'Young heterosexual men' was a typical subtype of both young and heterosexual men, and 'Elderly heterosexual men' was a typical subtype of both elderly and heterosexual men.

As the stereotypical contents of 'Young gay men' positively correlated with those of 'gay men', and the stereotypical contents of 'Elderly heterosexual men' are close to those of 'elderly men', these categories combine as predicted by the redundancy model. As for 'Elderly gay men', the two constituent categories are negatively correlated, and their combination occurs in line with the predictions of the dominance model and those of the emergent attributes model. Indeed, stereotypical contents associated with 'Elderly gay men' turn out to be more in line with those of 'gay men' but at odds

with those associated with 'elderly men'. These results mirrored those obtained with the typicality measures, where 'elderly gay men' was neither typical of young nor of elderly men but a subtype of 'gay men'. The unique attributes pertaining to this group render 'Elderly gay men' a 'deviant' case with respect to 'elderly men', and an atypical subtype mainly characterized by its sexual orientation category rather than its age category. This claim is corroborated by studies showing that, although perceivers are accurate in categorizing the faces of young gay and straight men, their accuracy goes down when dealing with older gay and straight men (Tskhay et al., 2016). Similarly, the weapon effect (i.e. faster recognition of weapons when primed with African-American than European-American men) is substantially reduced when primes comprise both older African-American and European-American men (Jones & Fazio, 2010), that is, when the category 'African-American men' (who are prototypically young) is presented in an atypical manner (i.e. old men). Importantly, the weapon effect emerges when primes comprise the faces of African-American and European-American children, that is stimuli whose age category is not at odds with their race category (Thiem et al., 2019; Todd et al., 2016). Moreover, our data extend intersectionality theories (Collins, 2015; Kang & Bodenhausen, 2015; Purdie-Vaughns & Eibach, 2008) by suggesting that the invisibility of group members simultaneously defined by subordinate categories (e.g. Black women, Black gay men) is likely to be accounted for, at least at the cognitive level, by the emergent attributes that may isolate such intersectional minorities (e.g. Black Women) as atypical cases with respect to their constituents (e.g. Black people and women).

Notwithstanding the relevance of the results accumulated in the present studies, several limitations need to be acknowledged. First, we investigated perceivers' cultural stereotypes rather than perceivers' endorsement of such stereotypes. Although the two processes can be connected (Crandall & Eshleman, 2003), future research should address the extent to which respondents endorse the cultural representations of age and sexual orientation category intersections. Further investigation of this process could shed light on an additional explanation for the invisibility of elderly gay men. Indeed, several studies have shown that people tend to endorse stereotypes about outgroups to maintain the status quo (Jost, 2001; Jost & Burgess, 2000). Hence, one may expect that the more people endorse the stereotypes of 'Elderly gay men' as invisible and psychologically disturbed (Study 3), the more they are prone to deny the unique discrimination of such a group (Bettinsoli et al., 2022).

Second, we should also point to possible methodological flaws. In Studies 1 and 2, we overtly asked participants whether discrete categories of age were typical of discrete categories of sexual orientation, and vice versa. Because we cannot rule out the possibility that the wording of these questions may be unusual or difficult to understand, future studies should test the robustness of the current results by using alternative measures of category typicality that are less sensitive to the wording of the questions (e.g. ranking tasks, sorting tasks; Park et al., 2001). As for Study 3, and unlike the work that analysed stereotypes using a free generation task, we restricted participants' responses to six attributes (Ghavami & Peplau, 2013; Hutter & Crisp, 2005, 2008; Kunda et al., 1990; Preddie & Biernat, 2021). Category conceptualization and perception are both highly sensitive to the ease and number of instances available and generated in relation to the category (Bodenhausen & Wyer, 1987; Schwarz et al., 1991; Tory Higgins et al., 1977). Subsequent studies that intend to analyse spontaneously generated properties in reaction to intersectional categories could experimentally vary the number of expected attributes, thus providing a guideline for the experimental procedure of subsequent studies.

Third, on a more macro-level, it should be noted that Italy scores higher on sexual prejudice than other EU countries (Ilga, 2023). Moreover, and contrary to other EU countries, very few health services have been set up to address the unique needs of elderly gay men. Hence, as a note of caution, one should be aware that cultural factors might play a sizeable role in shaping the specific attributes used to describe the discrete categories of age and sexual orientation as well as their combinations.

Fourth, in the present endeavour, we relied on experimental samples that comprised mainly young adult individuals, thus leaving unanswered the question of whether participants of different ages share the same cultural stereotypes (Devine, 1989). Additional studies should therefore try to replicate the present findings in a more diverse age sample.

As much as this, it can be said that our work comes as some kind of scientific continuation of Ianniello's exhibition (2020), and, like Ianniello's work, it entails a series of practical implications. First, the present findings could inform media workers about the need to update the portrayal of older men as exclusively heterosexual or of gay men as exclusively young. A more diverse representation of these groups may help counteract the invisibility of elderly gay men. Second, elderly gay men may experience a failure to match the stereotypical implications associated with their sexual orientation. As a result, they may be tempted to try to look like young gay men or be led to anticipate some form of ageism within the gay community (Wahler & Gabbay, 1997). Both forms of coping may be conducive to a sizeable level of stress among the minority of elderly gay men (Wight et al., 2015). In light of this, our results may contribute to improving practitioners' awareness about the unique form of discrimination targeting elderly gay men. Indeed, taking into account cultural beliefs may lead practitioners to provide adequate help to their patients.

AUTHOR CONTRIBUTIONS

Rosandra Coladonato: Conceptualization; methodology; data curation; writing – original draft; formal analysis; writing – review and editing; software; validation. **Vincent Yzerbyt:** Formal analysis; writing – review and editing; conceptualization; methodology. **Andrea Carnaghi:** Conceptualization; methodology; writing – review and editing; supervision.

ACKNOWLEDGEMENTS

CONFLICT OF INTEREST STATEMENT

We have no known conflict of interest to disclose.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in OSF at https://osf.io/pvqzk/?view_only=5ff0187bc36d4cb3b26d5d775dcde9a5

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Coladonato, R., Yzerbyt, V., & Carnaghi, A. (2024). Category intersections as conceptual combinations: Combining male categories of age and sexual orientation. *British Journal of Social Psychology*, *63*, 518–543. https://doi.org/10.1111/bjso.12690

APPENDIX 1

Materials and procedure		
Instructions	After agreeing to participate, participants read the following instructions:	
	In this study, we are interested in understanding how certain social groups are represented in the society nowadays. Specifically, we are not interested in what you personally think about the social groups, but the manner in which the society, in general, thinks about these groups. For this reason, you will be asked to think about some groups, one at a time. For each group, you will be asked to list at least 6 characteristics/adjectives that society, not you in particular, considers typical of that social group. Your task will be to list the first 6 characteristics or adjectives that come to your mind to describe how society, not you in particular, represents that social group. Please note that English translation of the instructions is provided by the authors but no back translation has been made	

Treatment of free-response data		
General criteria	Exact attributes	We narrowed the list of attributes down by identifying exact attributes (e.g. if 'sensitive' was mentioned by three participants, resulting in three attributes, the attribute 'sensitive' was included only once in the list of generated attributes)
	Singular/plural attributes	Also, if attributes were in both singular and plural forms, we retained only attributes in the singular form
	Short sentences	Short sentences, such as 'open-minded [in Italian: *aperto di mente*]' and 'with white hair' [in Italian: *con i capelli bianchi*], 'future of society' [in Italian: *il futuro della società*] were treated as a single attribute
	Level of abstraction	Attributes with a different level of abstraction (e.g. wise [in Italian: *saggio*] and wisdom [in Italian: *saggezza*]) were treated as independent and separate attributes

Discrete categories		
Step 1	Procedure	Two of the current authors (i.e. judges) worked with the list of the generated attributes in alphabetic order and without information concerning the discrete category that prompted each attribute comprised in the list
		The attributes were grouped, independently by the two judges, by using a top-down (i.e. grouping attributes based on lists of stereotypic dimensions/traits available in published works) and a bottom-up approach (i.e. similarity in meaning)
		In particular, researchers (judges) grouped attributes based on lists of stereotypic dimensions/traits available in published works (e.g. warmth/competence, Brambilla et al., 2011, 2012; gender-conformity/non-conformity-related traits, Cadinu et al., 2013; Kite & Deaux, 1987; 'deviant', 'normal', 'morality' and 'traditional family role' dimension, Haddock et al., 1993; Pinsof & Haselton, 2017; 'quirky-' and flamboyant-related traits, Raley & Lucas, 2006; spirited, judicious and needy/frail-related traits, Coladonato et al., 2022; Kite et al., 1991; Wright & Sara Canetto, 2009; immature/reckless-associated traits, Coladonato et al., 2022; Matheson et al., 2000)
		Then, attributes were clustered as a function of semantic associations and similarities (i.e. identifying synonyms, such as for example, revolutionaries and rebels)
		The two judges compared the clusters of attributes and resolved disagreement through discussion
		Importantly, one cluster comprised idiosyncratic responses (e.g. 'they really listened to themselves'), namely attributes that, according to the judges' sorting, could be included in none of the 76 clusters (i.e. 'idiosyncratic responses/discrete category')
Step 2	Validation	Two additional independent raters analysed the attributes within each cluster for being either synonymous or semantically associated with each other. Raters were required to spot inconsistencies and to suggest alternative clusters. Specifically, the two raters read the instruction for this validation process as follows (please note that English translation of the attributes is provided by the authors but no back translation has been made):
		Instructions: *In the next few pages, you will be presented with several groupings of words called clusters. Each cluster of words has been assigned a name, a label that we believe attempts to summarize the words grouped within that cluster*
		Clusters contain words that are related to each other. Such relationships among words vary within the cluster. Some words are identical but change as one is in singular form and the other in plural form. Other words are extremely similar, one is actually a synonym for the other. In addition, other words are linked by an associative relationship, that is, their meanings can be connected on the basis of some similarity (e.g. 'moon' and 'milk', both are white; 'accompanied' and 'joined', both indicate closeness) or because one also implies the other (e.g. 'sun' and 'tan'). Obviously, the associative link is less obvious than words that are identical or are synonyms
		Task 1: *As your first task, you will be presented with the first cluster in the list and asked not to look at subsequent clusters. You will read the label placed above each cluster. This label should give you an idea of the words contained within the cluster. After that, you will need to read all the words contained in that cluster. If a word within that cluster seems extremely dissimilar from the others, that is, if in your opinion it does not have an associative link to the others, you are requested to underline that word. IMPORTANT: It is not necessary for a word to have an associative link of equal intensity with all the words; it is sufficient if it shares some association with other words in the cluster*
		Task 2: *Now that you have underlined some words, try to see if these words you have underlined within one cluster for example, can be placed within another cluster*
		If you decide to move them from the cluster in which they were placed, indicate the name of the cluster where you would like them reallocated. Remember that if you relocate a word within another cluster, that word must have an associative link with the other words in the target cluster
		Instead, it might happen that a word underlined within a cluster, for example, cannot be placed in any other cluster. In this case, an [x] sign is placed next to the underlined word within a cluster. This means that that word has, in your view, no associative link to the primary cluster and cannot be transferred to any other cluster
		Task 3: *Check whether the names, labels assigned to each cluster are, in your opinion, adequate in summarizing the words grouped in the clusters. In case they are not, write [NO] next to the label and try to think of an alternative label, which better summarizes the words contained in the cluster*
		Task 4: Raters were then provided with the attributes followed under the banner 'idiosyncratic responses/discrete category' as last cluster, and instructed as follows:
		You will now be presented with a new list of words, that is, words that you have not previously read. Your task is to read each word and indicate whether this word can be placed in one of the clusters you have previously viewed. If you think that a word has some similarity, an associative link to some of the words contained in a previously seen cluster, then write next to the word the name of the cluster in which you would like to move it. If, on the other hand, you feel that the word has no similarity, no associative link to the words contained in any of the previous clusters, then simply write [NO] next to the word
	Inter-rater agreement	We computed the inter-rater agreement using Cohen's Kappa index and showed a high level of agreement (1960; see Table 4 for details). Specifically, inconsistencies amounted to 10.19% of the total number of attributes (i.e. both raters spotted $n = 55$ inconsistencies, and one but not the other rater found $n = 12$ and $n = 13$ inconsistencies)

Step 3	Treatment of inconsistencies and reviewing of the attributes-cluster assignment	The two judges reviewed the inconsistencies issued in the Step 2. Judges agreed on $n=24$ of the suggested changes by the raters. The judges also agreed on re-allocating $n=13$ in alternative clusters, but the judges suggested alternative clusters to those indicated by raters. Also, reviewing the entire sorting of the attributes into clusters, the judges suggested an additional classification of $n=7$ attributes into different clusters
		Specifically, $n=5$ clusters originally proposed by the judges in Step 1 (i.e. 'descriptive', 'fashion', 'naïve', 'non-materialistic' and 'susceptible') were dismissed and related attributes were re-sorted in the existing clusters. Also, $n=2$ clusters (i.e. 'desperate' and 'stubborn') were added
Step 4	Validation	The entire list of attributes and the changes made by the judges in Step 3 were reviewed by the same raters. Raters were also informed of the changes outlined in the third step and provided with the same instructions as in Step 2 to the cluster list
	Inter-rater agreement & Outcome	Raters spotted no further inconsistencies
		This iterative process led to the definition of 74 clusters
Intersectional categories		
Step 5	Procedure	Raters were presented with the list of clusters and related attributes issued from the discrete category analysis and the list of the generated attributes in reactions to the intersectional categories. Raters were requested to identify the exact attributes that were mentioned in both lists. Importantly, the attributed generated in reactions to the intersectional categories were presented without information concerning the category that prompted each attribute. This process allowed for the identification of novel attributes ($n=419$) that were not generated for discrete categories and therefore could not be included in the 74 clusters. We then applied the general criteria and obtained $n=334$ novel attributes
Step 6	Procedure	The judges worked with the list of novel attributes in alphabetic order and without information concerning the intersectional category that prompted each attribute comprised in the list
		The novel attributes were grouped into clusters, independently by the two judges, as described in Step 1 of the analysis of the discrete categories. Attributes that did not match any clusters were moved in the cluster named idiosyncratic responses (i.e. 'idiosyncratic responses/ intersectional category'). Again, the two judges compared the clusters of attributes and resolved disagreement through discussion
Step 7	Validation	The two independent raters were asked to evaluate the clusters issued in Step 6 with the same instructions as those used in the Step 2 of the discrete category analyses
Step 8	Inter-rater agreement	We computed the inter-rater agreement using Cohen's Kappa index and found a modest inter-judge agreement (1960; see Table 4, Main Document, for details). Specifically, inconsistencies amounted to 16.17% of the total number of attributes (i.e. both raters spotted $n=3$ inconsistencies, and $n=20$ and $n=31$ inconsistencies were found by one but not the other rater)
Step 9	Treatment of inconsistencies and reviewing of the attributes-cluster assignment	The two judges reviewed the inconsistencies issued in the Step 8. Judges agreed on $n=5$ of the suggested changes by the raters. Moreover, judges agreed on additionally $n=2$ of the suggested inconsistencies but put forward alternative cluster classification of such attributes than those proposed by the raters
Discrete & Intersectional Categories: reviewing the list of cluster-attributes		
Step 10	Cluster generation and attribute-cluster assignment	Judges then reviewed the attribute-cluster associations stemming from both the discrete categories and the intersectional categories
		The judges suggested a rearrangement of the clusters that involved 22 out of 90 clusters. For instance, the attributes included in the cluster 'stigma' and 'inequality' in response to discrete categories and intersectional categories could be rearranged into a more accurate classification: 'generic discrimination' (e.g. violence, oppression), 'victim-oriented discrimination' (e.g. harassed, stigmatized) and 'agent-oriented discrimination' (e.g. homophobic, racist)
	Validation—1	The reviewed list of clusters and the suggested attribute-cluster assignments were provided to raters. Raters learned about the above-mentioned changes made by judges and reviewed the entire sorting of the attributes
	Inter-rater agreement & Outcome	Raters spotted no inconsistency
		This procedure led to the organization of the attributes into 90 clusters
	Validation—2	The entire procedure of both cluster creation and attribute-cluster assignment was validated through the above-mentioned multiple and subsequent step procedure based on continuous assessment of agreement among judges and raters. It is worth noting that the entire procedure has been read and confirmed by both raters prior to the first submission of the manuscript

APPENDIX 2

Examples of the attributes of the most frequent 15 clusters

Clusters	Attributes
Warm	Affectionate (*affettuosi*), friendly (*amichevoli*), helpful (*disponibili*), sweet (*dolci*), empathetic (*empatici*), outgoing (*espansivi*), generous (*generosi*), kind (*gentili*), thoughtful (*premurosi*), genuine (*spontanei*)
Norm	Appropriate (*adatti*), ordinary (*comuni*), widespread (*diffusi*), standard (*norma*), normal (*normalità*), ordinary (*ordinari*), average (*scontato*), typical (*tipici*), typical (*tipicità*), usual (*usuale*)
Agentic	Fierce (*accaniti*), ambitious (*ambiziosi*), assertive (*assertivi*), bold (*audaci*), charismatic (*carismatici*), brave (*coraggiosi*), determined (*determinati*), industrious (*impegnati*), enterprising (*intraprendenti*), accomplished (*realizzati*)
Diversity	Alien (*alieni*), abnormal (*anomali*), atypical (*atipici*), deviant (*devianti*), different (diversi), unusual (*eccezione*), error (*errore*), wrong (*sbagliati*), weird (*strani*), variety (*varietà*)
Wisdom	Understanding (*comprensivi*), experienced (*con esperienza*), self-aware (*consapevoli*), conscientious (*coscienziosi*), equanimous (*equilibrati*), skilled (*esperti*), mentor (*guide*), cautious (*prudenti*), reasonable (*ragionevoli*), wise (*saggi*)
Exaggerated	Flashy (*appariscenti*), uninhibited (*disinvolti*), eccentric (*eccentrici*), egocentric (*egocentrici*), exuberant (*esuberanti*), ridiculous (*imbarazzanti*), attention-seeking (*in cerca di attenzioni*), clownish (*pagliacci*), unruly (*sregolati*), extravagent (*stravaganti*)
Dynamism	Restless (*agitati*), athletic (*atletici*), curious (*curiosi*), dynamic (*dinamici*), energetic (*energetici*), strong (*forza*), rowdy (*scalmanati*), vivacious (*vitalità*), lively (*vivaci*), frantic (*frenetici*)
Childish	Naïve (*creduloni*), misfit (*disadattati*), misunderstood (*incompresi*), reckless (*incoscienti*), immature (*immaturi*), childish (*infantili*), lost (*persi*), unwary (*sprovveduti*), insecure (*incerti*), impressionable (*influenzabile*)
Family role	Head of a family (*capofamiglia*), in a relationship (*coppia*), family (*famiglia*), engaged (*fidanzati*), parents (*genitori*), married (*matrimonio*), grandparents (*nonni*), children (*figli*), widowed (*vedovi*), settled down (*sistemati*)
Alternative	Unconventional (*anticonvenzionali*), open-minded (*aperti*), disobedient (*disobbedienti*), idealistic (*idealisti*), free (*liberi*), original (*originalità*), peculiar (*peculiari*), progressive (*progressisti*), rebellious (*ribelli*), revolutionary (*rivoluzionario*)
Not self-sufficient	Requires assistance (*assistenza*), needy (*bisognosi*), requires protection (*da proteggere*), weak (*debole*), delicate (*delicati*), frail (*fragili*), helpless (*indifesi*), suffering (*sofferenza*), requires support (*sostegno*), vulnerable (*vulnerabili*)
Calm	Silent (*silenziosi*), bored (*annoiati*), calm (*calma*), at rest (*fermi*), inactive (*inattivi*), slow (*lenti*), sedentary (*sedentari*), tired (*stanchi*), homebody (*pantofolai*), quiet (*tranquilli*)
Enthusiasm	Cheerful (*allegri*), happiness (*felicità*), fun (*divertimento*), enthusiastic (*entusiasti*), partygoer (*festaioli*), playful (*giocosi*), joyful (*gioia*), wild (*scatenati*), carefree (*spensierati*), happy (*contenti*)
Immoral	Damned (*dannati*), disgusting (*disgustosi*), immoral (*immorali*), inappropriate (*inopportuni*), wrong (*ingiusti*), disrespectful (*irrispettosi*), shameless (*spudorati*), sinners (*peccatori*), insincere (*falsi*), despicable (*spregevoli*)
Conformist	Conservative (*conservatori*), judgmental (*giudicanti*), hypocritical (*ipocriti*), close-minded (*mentalità chiusa*), conformist (*omologati*), priggish (*perbenisti*), inflexible (*poco flessibili*), traditionalist (*tradizionalista*), strict (*rigidi*), old values (*vecchi valori*)

Note: The original attributes in Italian are provided between brackets. English translation of the attributes is provided by the authors but no back translation has been made.

APPENDIX 3
Correspondence parameters, Study 3

	Dim 1 (inertia% = 45.93)			Dim 2 (inertia% = 31.29)			Dim 3 (inertia% = 15.83)			Dim 4 (inertia% = 4.14)		
	Coord	Contr	Cos^2	Coord	Contr	Cos^2	Coord	Contr	Cos^2	Coord	Contr	Cos^2
Categories												
Heterosexual men	−0.338	2.923	0.092	−0.904	30.625	0.661	−0.536	21.330	0.233	0.067	1.261	0.004
Gay men	0.750	14.646	0.584	0.441	7.429	0.202	−0.350	9.256	0.127	0.115	3.794	0.014
Young men	0.661	10.811	0.341	−0.357	4.626	0.099	0.845	51.200	0.556	−0.027	0.196	0.001
Elderly men	−1.019	32.568	0.665	0.631	18.349	0.255	0.323	9.513	0.067	0.039	0.529	0.001
Young heterosexual men	0.067	0.117	0.006	−0.817	25.263	0.935	0.148	1.633	0.031	−0.088	2.219	0.011
Elderly heterosexual men	−0.912	22.341	0.925	0.025	0.024	0.001	−0.118	1.082	0.015	0.021	0.126	0.000
Young gay men	0.694	12.775	0.620	0.385	5.759	0.190	−0.097	0.730	0.012	0.296	25.773	0.113
Elderly gay men	0.419	3.819	0.222	0.498	7.924	0.314	−0.289	5.258	0.105	−0.523	66.103	0.346
Clusters												
Warm	−0.363	3.152	0.403	0.420	6.191	0.539	−0.024	0.039	0.002	−0.113	3.370	0.039
Norm	−0.387	3.177	0.086	−1.105	38.062	0.700	−0.600	22.187	0.206	0.073	1.243	0.003
Agentic	0.332	1.846	0.421	−0.362	3.223	0.501	0.057	0.159	0.013	−0.079	1.161	0.024
Diversity	0.835	10.644	0.472	0.687	10.590	0.320	−0.521	12.031	0.184	−0.129	2.819	0.011
Wisdom	−0.960	13.213	0.812	0.414	3.602	0.151	0.166	1.151	0.024	−0.109	1.903	0.011
Exaggerated	0.854	10.453	0.638	0.367	2.830	0.118	−0.335	4.666	0.098	0.343	18.716	0.103
Dynamism	0.515	3.572	0.161	−0.767	11.664	0.359	0.867	29.398	0.457	−0.127	2.430	0.010
Childish	0.689	5.957	0.508	−0.034	0.021	0.001	0.555	11.211	0.329	0.337	15.755	0.121
Family role	−0.705	6.177	0.634	−0.382	2.665	0.186	−0.314	3.555	0.126	0.052	0.372	0.003
Alternative	0.702	5.824	0.530	0.261	1.184	0.073	−0.221	1.667	0.052	−0.527	36.486	0.299
Not self-sufficient	−0.724	6.194	0.428	0.667	7.724	0.364	0.357	4.381	0.104	0.204	5.472	0.034
Low arousal	−1.098	14.100	0.784	0.503	4.344	0.164	0.260	2.298	0.044	−0.010	0.013	0.000
Enthusiasm	0.464	2.231	0.249	−0.604	5.562	0.423	0.477	6.841	0.263	−0.150	2.587	0.026
Immoral	0.838	7.287	0.700	0.373	2.116	0.139	−0.083	0.206	0.007	0.233	6.267	0.054
Conformist	−0.866	6.172	0.903	−0.135	0.221	0.022	−0.094	0.211	0.011	0.124	1.408	0.019