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A Closer Look at the Complex Structure of Gender Stereotypes[1]

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In the present paper an experimental design is introduced for the analysis of the conceptual categories used by subjects when stereotyping males and females. Subjects were asked to name as many familiar types of women and men as they could think of, and describe them in terms of various characteristic properties (e.g., traits, attitudes, interests, skills, and demographic features). The most frequently mentioned types were then sorted by a second sample according to their perceived similarity. Finally, a third group of subjects categorized the initial set of properties in terms of their relevance to either male or female types. Clustering and scaling analyses yielded a clear cut picture of the cognitive ordering principles underlying gender stereotypes. Distinct property clusters were found for the female and male types, underlining the important role of gender stereotypes in the knowledge base of the subjects.

Despite the fact that the terms "sex" and "gender" have often been used interchangeably in the literature (Katz, 1986), it is quite useful to adopt a distinction proposed by Deaux (1985, p. 51) in her *Annual Review* article: "Sex" refers to the biologically based categories of male and female, and "gender" refers to the psychological features frequently associated with these biological states.

The "new look" in stereotyping no longer treats stereotypes as something negative or bad, but as social categories that operate in the same

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way as other cognitive categories: "From this vantage point, questions have been raised not only about the content of gender stereotypes (what might be termed the 'old look'), but also about the structure of these categories and the processes by which they operate" (Deaux, 1985, p. 67).

Within the general theoretical framework of social cognition research, social stereotypes are treated as products of normal everyday cognitive processes of social categorization, social inference, and social judgment. In their often quoted definition of the stereotype concept, Ashmore and Del Boca (1981) suggest that stereotypes are "a set of beliefs about the personal attributes of a group of people" (p. 16) with gender stereotypes being defined accordingly as "the structured sets of beliefs about the personal attributes of men and women" (Ashmore & Del Boca, 1979, p. 222; cf. also Ashmore & Tumia, 1980; Ashmore, Del Boca, & Wohlers, 1986).

These definitions are of special relevance for our own study insofar as stereotypes are no longer conceived of as the mere attribution of single attributes to persons. Although stereotypes as a cognitive structure contain "the perceiver's knowledge, beliefs, and expectancies about some human group" (Hamilton & Trolier, 1986, p. 133), the very essence of stereotypes are the commonly held beliefs. Within their structure-process framework, Ashmore et al. (1986) postulate four different kinds of belief systems (implicit personality theories, social belief systems, scripts, and beliefs and feeling about specific individuals) that are important in understanding how men and women are cognized. Within their interactive model of gender-related behavior, Deaux and Major (1987) suggested that perceivers have a set of beliefs about men and women that they termed "gender belief system." In their triangular model, Deaux and Kite (1985) divided gender-linked characteristics into defining (biological characteristics), identifying (physical characteristics), and ascribed attributes (personality traits), as suggested by Ashmore and Del Boca (1979). Beyond their "tentative" (Deaux & Kite, 1985, p. 129) suggestion of a hierarchial order of these attributes, the major advantage consists of the fact that personality traits are no longer the only attributes of gender stereotypes. If one assumes that stereotypes are at all functional a more fine-grained distinction of stereotypes within each gender is required beyond the broad categories of "men" and "women." Following this "socio-psychological" argument, the task is to identify subtypes of gender stereotypes. This, in turn, leads to two questions: (a) How many subtypes or levels of subtypes can be distinguished? (b) If stereotypes are functionally relevant social categories, are they determined by situational or person specific influences? A third problem concerns the level at which gender stereotypes are organized.

Besides dichotomous classifications of female and male stereotypes found in empirical investigations by Broverman, Vogel, Broverman, Clark-

son, and Rosenkrantz (1972), Eagly and Steffen (1984), and Spence, Helmreich, and Stapp (1974), to name but a few, a number of more elaborate classifications have recently been reported: Huston (1983) distinguishes five categories, and Deaux and Lewis (1983, 1984) presented a comprehensive set of components, including traits, role behaviors, physical characteristics, and occupation. So far, most of the work has been directed at subtypes of women (Ashmore et al., 1986), despite a few studies that looked at both male and female subtypes (e.g., Deaux, Winton, Crowley, & Lewis, 1985). Noseworthy and Lott (1985), for example, obtained four stereotypic roles for women by factor analysis (sex object, career woman, housewife, female athlete).

These new developments and conceptual differentiations of gender stereotypes notwithstanding, the most common strategy of data collection has been the Adjective Checklist, originally developed by Katz and Braly (1933) for the measurement of national stereotypes, and first applied to the study of gender stereotypes by Williams and Bennett (1975). One of the largest, more recent cross-cultural studies of gender stereotypes (Williams & Best, 1982) still used this Adjective Checklist. In contrast, rating scales and open-ended descriptions have been relatively rare. The SRSQ (Sex Role Stereotype Questionnaire) by Rosenkrantz, Vogel, Bee, Broverman, and Broverman (1968), and its numerous variants and modifications, just like the PAQ (Personal Attributes Questionnaire) by Spence et al. (1974), offer a preselected choice of attributes to the subjects. In so doing, they neglect personal stereotypes and are in danger of producing homogeneous stereotypes suspected to be artifacts of the data collection technique. The same is true for the PRF-Andro Scale, developed by Berzins, Welling, and Wetter (1977, 1978), which measures the participants' sex role orientations via sentences describing particular gender-related behaviors.

The small number of studies using open-ended descriptions are mostly designed as preliminary steps in the development of standardized rating scales or adjective checklists (Bem, 1974; Rosenkrantz et al., 1968). Yet we would argue that eliciting such open-ended descriptions is the most appropriate technique for accessing individual patterns of judgments and evaluations in such an emotive field as the social categorization of women and men.

In the present paper, a study is reported consisting of three parts that are designed to explore two major assumptions: (1) It is assumed that there are a number of separate and identifiable components of gender stereotypes. These specific components are traits, role behaviors, physical appearance, occupations, and sexual relationships. (2) The second assumption is that gender stereotypes are organized not only in terms of general beliefs about women and men but in terms of more specifically defined types of women and men.

These subtypes, richer and more detailed, are assumed to be located at the level of basic categories as conceptualized in research on cognitive prototypes (Brewer, Dull, & Lui, 1981; Cantor & Mischel, 1979).

METHOD

The aim of these studies was (1) to elicit a representative set of ecologically valid and consensually held stereotypes of males and females, (2) to represent the structure of perceived relations between these types, and (3) to validate empirically the derived stereotype structure.

Participants in the studies were male and female psychology undergraduates at a small West German university, aged between 19 and 22 years.

Collection and Selection of Gender Stereotypes

Commonly held gender stereotypes were elicited in a free-response study involving 42 subjects. They were asked (1) to list the most common types of males and females they were familiar with and (2) to describe each type briefly with respect to its most characteristic properties. It was pointed out that the descriptions should be as specific and distinctive as possible to give a clear picture of each type. The instructions also encouraged subjects to select appropriate characteristics from different domains of person descriptive attributes, e.g., traits, attitudes, aptitudes, skills, and physical appearance. Subjects reported between two and five stereotypes. Identical or highly similar stereotypes were combined into one category. For every nonredundant male or female type, the most frequently used descriptive characteristics were also recorded. Idiosyncratic answers were excluded and a minimum of at least two common stereotypes were used. All gender stereotypes mentioned by at least two subjects were selected for further analysis, resulting in a total set of 22 male and 20 female types (see Tables I and II).

Table I. List of Female Types

1. The women's libber	11. The tart
2. The nasty piece of work	12. The lefty-ecologist
3. The feminist	13. The housework-maniac
4. The busy lizzie	14. The secretary
5. The society lady	15. The confident type
6. The housewife	16. The sex bomb
7. The intellectual	17. The straightforward type
8. The career woman	18. The vamp
9. The maternal type	19. The spoiled child
10. The naive type	20. The well-brought-up conformist

Table II. List of Male Types

1. The alternative society type	12. The no-future type
2. The bureaucrat	13. The pasha
3. The cool type	14. The playboy
4. The egoist	15. The gay
5. The lady-killer	16. The confident type
6. The intellectual	17. The softy
7. The career man	18. The gambler
8. The flash Harry	19. The bourgeois
9. The macho type	20. Mister casual
10. The manager type	21. The quiet type
11. The philanthropist	22. The social climber

Type Sorting

A sorting task was performed by a new sample of 31 student subjects in the male types group and 36 subjects in the female types group. Type labels were written on small slips of paper along with three to five characteristics per type for illustration (see Table III).

Subjects were asked to sort the types into groups or classes such that types of the same class should be more similar to each other than types assigned to different classes. Subjects were free to use as many classes and numbers of types per class as they wanted to. These sorting data were converted into dissimilarities between types by counting the number of subjects who placed two types a and b in the same class, and subtracting this number from the total number of subjects (Miller, 1969). The resulting dissimilarity matrix was used as input data to hierarchical clustering (see, e.g., Everitt, 1980, Romesburg, 1984) and multidimensional scaling analyses (see, e.g., Kruskal & Wish, 1978).

Table III. Sample List of Female Types and Male Types as Used in the Type Sorting Study[a]

Female types	THE FEMINIST	THE HOUSEWIFE
	Self-confident	Unattractive
	Cunning	"Good girl"
	Intolerant	Obsequious
	Doesn't show her feelings	Selfless
		No interests of her own
Male types	THE CAREER MAN	THE SOFTY
	Well dressed	Sympathetic
	Self-confident	Can show weakness
	Calculating	Sensitive
	Materialistic	Unconventional
	Eloquent	Frank

[a]Each capitalized type name is accompanied by a short list of characteristic properties.

Property Sorting

In accordance with the third aim of our research, a second sorting study was conducted with 20 subjects in the male types group and 24 subjects in the female types group, none of whom had participated in one of the aforementioned tasks. The stimulus materials consisted of the total number of 162 properties listed by the participants in the first study (cf. above) for the entire sample of 42 types. Twenty subjects received the 82 properties descriptive of the male types, while 24 subjects received the 80 properties descriptive of the female types. Subjects were instructed to sort their respective sets of properties into classes that, according to their view, typically characterized a male or female type.

Since the type-specific property lists used in the type-sorting study were overlapping, the sorting task was modified so as to allow for classes of properties that could overlap to a certain degree. Dissimilarities of these data were computed in the same way as described above and used as input data to hierarchical clustering algorithms.

RESULTS

Since it could be assumed that male and female subjects differ with respect to their cognitive organization of gender stereotypes (Belk & Snell, 1986) the degree of correspondence between the sorting data from the two groups of subjects was assessed first. A nonparametric inference strategy, based on the so-called quadratic assignment paradigm (Hubert & Schultz, 1976), was used. This method facilitates a test of whether the similarities between sortings (or partitions) of gender types generated by subjects from the same-sex group are substantially more similar to each other than similarities generated by subjects from different-sex groups (for more details, see Eckes, 1986b; Hubert, 1987). The results indicated no significant differences in the sorting of the gender types by male and female subjects. Thus, for the subsequent analyses data from both sexes were collapsed into one data set.

Type Sorting Data

Female Types. Several commonly used hierarchical clustering methods were applied to the dissimilarity data (single-link, complete-link, group average, and the error-sum-of-squares method). In each case, a statistical index was employed to decide on the number of clusters in the data set. This index was the point-biserial correlation between entries in the matrix of original dissimilarities and the corresponding entries in the matrix of cluster mem-

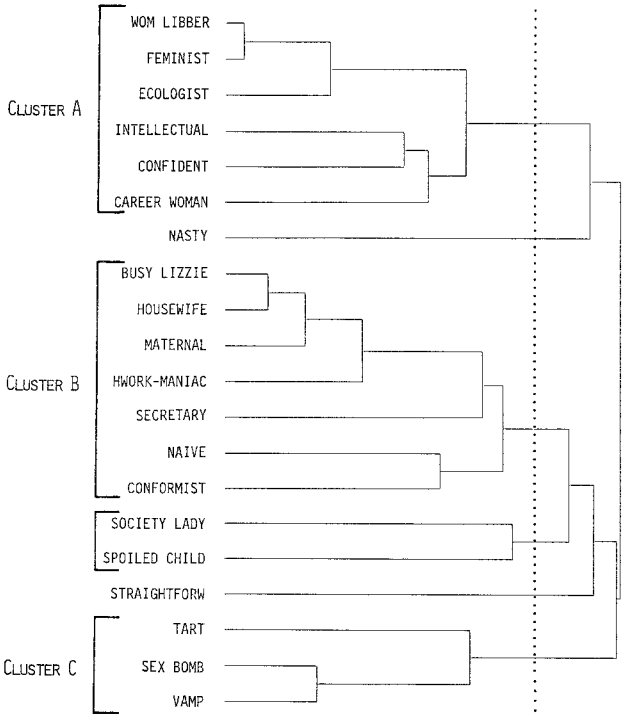

Fig. 1. Hierarchical clustering representation of the dissimilarities between female types. The punctuated line indicates the selection of 6 type clusters. Substantive interpretations focus on Clusters A, B, and C.

berships on each successive fusion level. (The coding was 0 if two types belonged to the same cluster and 1 if they belonged to different clusters.) The point-biserial correlation was chosen because of its outstanding performance in Monte Carlo simulation studies (Milligan & Cooper, 1985). Selecting that number of clusters that yielded the largest index value in each of the four hierarchical clustering solutions led to an almost perfect convergence of results on the level of 6 clusters. The best fitting group-average solution is shown in Fig. 1.

As a second approach for identifying the cognitive organization of gender stereotypes, nonmetric multidimensional scaling was used. The stress values for the four-, three-, two-, and one-dimensional solutions were 0.08, 0.11, 0.15, 0.33 respectively, suggesting a two-dimensional representation as providing a satisfactory fit to the data for the female types. Since it is well known that clustering and multidimensional scaling methods differ with respect to their

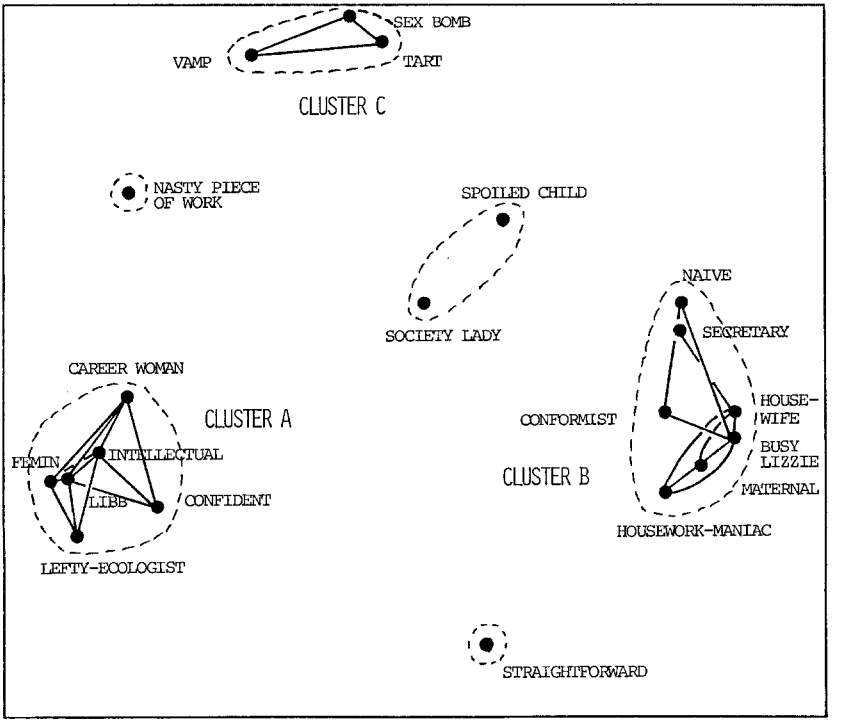

Fig. 2. Two-dimensional representation of the dissimilarities between female types. Controus around points show type clusters. Lines between points indicate significant relations between corresponding types.

sensitivity concerning large and small distances (i.e., clustering is more sensitive to small distances and multidimensional scaling is more sensitive to large distances; see Kruskal, 1977), the clustering solutions were embedded graphically within the scaling solutions in order to obtain a more accurate picture of the similarity structure inherent in the data (see Fig. 2). Each cluster of the six-cluster solution is encircled by a broken line. In addition, those types of females that proved to be significantly related to each other (see Eckes, 1986a, 1989) are connected by straight lines.

The set of 20 female types is partitioned into 6 clusters, 3 of which are visually distinct, externally isolated, and internally homogeneous. The 2 largest clusters are clearly differentiated along the first dimension. On one side, all those types are assembled that may be termed "progressive" or "nontraditional" (e.g., the women's libber, the career woman, the feminist) with respect to the distribution of social roles within the female population; on the other side, there are the "traditional" or "conservatives" types (e.g., the house-

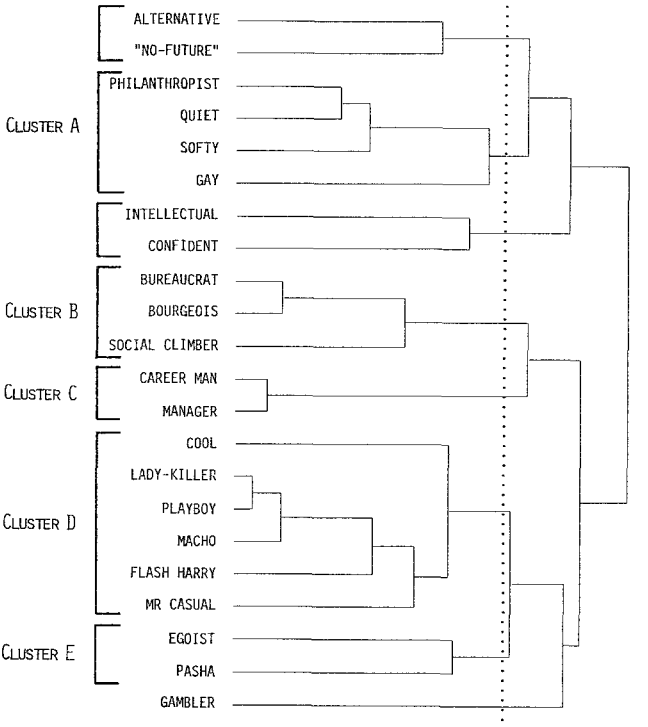

Fig. 3. Hierarchical clustering representation of the dissimilarities between male types. The punctuated line indicates the selection of 8 type clusters. Substantive interpretations focus on Clusters A, B, C, D, and E.

wife, the maternal type, the housework-maniac). The third cluster contains female types which are characterized by their sexual role behaviors (the vamp, the sex bomb, the tart).

Although less clearly identifiable, the second dimension could be characterized as a good–bad or trustworthy–untrostworthy dimension, with "straightforward type" at one end and "sex bomb" at the other end.

Male Types. The clustering results for the male types were less unequivocal but suggested nonetheless that an 8-cluster solution (produced by group average) provided the best fit to the data (see Fig. 3).

The same nonmetric multidimensional scaling analysis carried out for the female types was applied to the male types. Based on the stress values for the four-, three-, two-, and one-dimensional solutions (0.06, 0.08, 0.14, 0.28), we selected the two-dimensional solution as an adequate representation of the male type data. As before, the clustering solutions were embed-

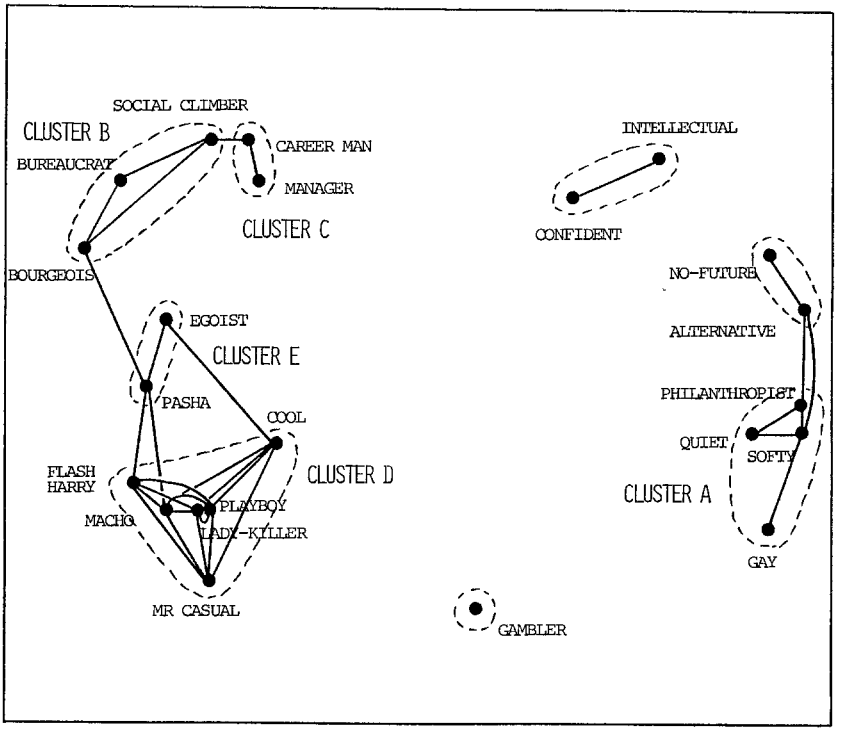

Fig. 4. Two-dimensional representation of the dissimilarities between male types. Contours around points show type clusters. Lines between points indicate significant relations between corresponding types.

ded graphically within the scaling solutions in order to obtain a more precise picture of the similarity structure of the data (see Fig. 4).

Because the male clusters are less clearly separated than the female clusters, it is more difficult to come to an adequate interpretation of the data configuration. The significant relationships between some types belonging to different clusters are clearly responsible for the somewhat ambiguous results. This lack of distinctiveness is consistent with the results of the third experiment reported by Deaux et al. (1985).

Nonetheless, along the horizontal axis 2 groups of clusters were separated, one consisting of "tough-minded" or "hard" types (e.g., the lady killer, the macho type, the pasha type), the other comprising a group of "tender-minded" or "soft" types (e.g., the philantropist, the softy, the quiet type). The 4 interconnected "hard" clusters consist of types that can be identified either by their occupational role (e.g., the career man, the manager type) or by their social relationships, especially to women (e.g., the cool type, the

Table IV. Clustering Solution for the Property-Sorting Data (Female Types)[a]

Cluster I	Aggressive, vicious, intolerant, opinionated
Cluster II	Capricious, know-it-all, can easily become abusive
Cluster III	Cold, does not show her feelings
Cluster IV	Demanding, ambitious, self-confident, knows what she wants, confident manner, educated, eloquent, independent, good education, intellectual, strives toward higher goals, direct, political, thoughtful, strives for acceptance, lives with awareness, cunning, workaholic, restless, with stamina, controlled
Cluster V	Attractive appearance, attaches importance to her outward appearance, fashionably dressed, sexy, attracts men, well groomed, superficial, extrovert, flamboyantly dressed, thinks a lot of herself
Cluster VI	Cheerful, likeable, sympathetic, tolerant, relaxed manner, sees the good in people, sloppily dressed
Cluster VII	Conforming, "good girl," unobtrusive, gossips, clinging, needing loving care, obsequious, dependent on others, no interests of her own, no opinion of her own, uncritical, no hobbies, stupid, has a mania for cleanliness, likes cooking
Cluster VIII	Patient, selfless
Cluster IX	Anxious, sensitive
Singletons (each property forms a cluster of its own)	Egocentric, has a negative view, drug addicted, insecure, lonely, sociable, complicated mode of expression, appreciative, likes her food, unattractive, expecting a lot of love, Christian attitude, careful, spoilt

[a]The set of properties of partitioned into 9 clusters with at least 2 properties and 14 singletons.

playboy). Similar to the solution for the female types, this dimension may be interpreted as differentiating between reliable or predictable types and unreliable or unpredictable types, with "career man" and intellectual" as reliable types and "gambler" and "mister casual" as unreliable, unpredictable types.

Property-Sorting Data

Hierarchical Clustering—Female Types. The dissimilarity data from the property sorting task were analyzed by the same clustering algorithms that were applied to the type sorting data. This time, the intention was to validate empirically the perceived stereotype structure obtained in the first part of the study. Again, the clustering solution produced by group average yielded the best fit to the data (see Table IV).

Table V. Clustering Solution for the Property-Sorting Data (Male Types)[a]

Cluster I	Above the common herd, strenuous, smoker, exaggerates, untidy
Cluster II	Well balanced, helpful, sympathetic, frank, trustworthy, willing to compromise, loyal, charming, can be witty, sociable, casually dressed, easy-going, can show weakness, sensitive, highly imaginative, has an artistic bent, unconventional, well groomed, eloquent, self-assured, confident manner, quick-witted, self-confident, intelligent, eager to learn, thoughtful, self-critical, "ZEIT"-reader
Cluster III	Bearded, attends demonstrations, starry-eyed idealist
Cluster IV	Authoritarian, master in his own house, narrowminded, conservative, conscientious, mean, calculating, ambitious, profit seeking, status conscious, materialistic, correctly dressed, does not show his feelings, affluent
Cluster V	Drives smart cars, boastful, thinks highly of himself, picks up girls, prone to arrogance, well dressed, likes smart cars, fashionably dressed
Cluster VI	Risk loving, likes thrills
Cluster VII	Taking each day as it comes, superficial
Cluster VIII	TV addicted, unintelligent, armchair politician
Cluster IX	No political interests, uncritical
Cluster X	Frustrated, helpless, weak, insecure, never expects to win, boring, unobtrusive outward appearance, reserved
Singletons (each property forms a cluster of its own)	Causally dressed, pushy, lives at the expense of others, horsey, nationalistic, without social bonds, obsequious

[a]The set of properties is partitioned into 10 clusters with at least 2 properties and 7 singletons.

This solution led to nine clusters with at least 2 properties as well as 14 singletons, that is, clusters consisting of only one property. In order to establish the degree to which these property clusters corresponded to the type clusters, each property within a cluster was checked (by inspection) as to whether it belonged to a type within its respective type cluster. Interestingly, the degree of correspondence was substantially higher for the traditional type clusters than for the nontraditional type clusters, which tentatively suggests that nontraditional types are based on a less stable structure. The largest property cluster (Cluster IV) is a mixture of properties related to both traditional and nontraditional types.

Hierarchical Clustering—Male Types. Similar to the female type properties, the group-average solution consisted of 9 clusters of at least 2 properties and 8 singletons (see Table V).

As in the case of the female properties, the traditional types could be identified more clearly than the nontraditional types. Likewise, traditional

and nontraditional types were mixed within the largest cluster containing 28 properties (Cluster II). Additionally, a medium-sized cluster (Cluster X) was found that contained only properties referring to nontraditional types – with the exception of just one property: "boring"! Considering that properties descriptive of person types are generally applicable, at least to some extent, to most of the types, one would have expected less clear cut classifications. Therefore, the fact that distinct property clusters were found in this part of our study underlines the outstanding role of gender stereotypes in the knowledge repertoire of our subjects.

DISCUSSION

The investigation reported here is a further contribution toward analyzing gender stereotypes as multicomponent social categories with different subtypes for men and women. Starting with open-ended descriptions for males and females, subjects characterized males and females not only by personality traits but also by attributes concerning their physical appearance, their occupation, their social roles, and their sexual behavior. They used adjectives and nouns as well as short sentences for describing these characteristic features. As a result, two different sets of gender subtypes were found for males and females that could be arranged in a 6-cluster solution for female types and an 8-cluster solution for male types. Social status, lifestyles, and sexual behavior emerged as the most important clustering aspects for both male and female types.

The property-sorting task, conceptualized as a tentative approach toward validating the type-sorting procedure, yielded 9 clusters each for men and women, and showed partial overlap with the type-sorting clusters.

In sum, these studies provide further evidence not only for the multicomponent nature of gender stereotypes, but also for subcategories of gender stereotypes defined by traits and role behaviors, including sexual behavior and physical appearances.

Further research into the structural properties of gender stereotypes is clearly needed to explore the level at which gender stereotypes are organized. This could be achieved by integrating stereotype research with work on cognitive prototypes, to address such issues as the identification of the most prominent or salient properties used as starting points in the formation of stereotypes, as well as the exploration of changes in the content of stereotypes with respect to their functional significance and situational constraints. Insofar as prototypes "consist of relatively stable, abstract representations of a large set of more or less associated attributes, trait characteristics, characteristic behaviors performed by a type of person, and even situations commonly associated with people of that type" (Turk & Salovey, 1985, p. 8),

they are useful concepts for the study of the interrelationships between cognitive representations and standardized behavior patterns. At present, our investigation is only one but encouraging step in this direction.

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