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Self-Schemas and Gender

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Self-schemas are knowledge structures developed to understand, integrate, or explain one's behavior in a particular domain. Two studies examined the information-processing consequences of self-schemas about gender. Systematic differences in cognitive performance were observed among groups of individuals identified as masculine schematics, feminine schematics, low androgynous, and high androgynous. Those individuals identified as feminine schematics remembered more feminine than masculine attributes, endorsed more feminine qualities, required shorter processing times for "me" judgments to these attributes than to other types of attributes, and were more confident of their judgments. These individuals were able to supply relatively more examples of past feminine behavior than masculine behavior. A parallel pattern of results was found for masculine stimuli for those individuals identified as masculine schematics. In contrast, those subjects identified as androgynous recalled as many masculine attributes as feminine attributes and did not differentiate between masculine and feminine attributes with respect to latency or confidence. A careful comparison of the two groups of androgynous subjects shows that only the low androgynous should be considered aschematic with respect to gender. Overall the findings suggest that individuals differ markedly in the nature of their knowledge structures about gender and in how gender is integrated into the self-concept.

The self-concept contains representations of our special abilities, achievements, and preferences, the unique aspects of our appearance, and the characteristic expressions of our temperament. With social experience we gain a diversity of self-relevant information that becomes organized into cognitive structures. It is by means of these structures that we categorize, explain, and evaluate our behavior in various focal domains. For the purposes of this investigation, we will refer to these cognitive structures as *self-schemas* and to the union of these particular schemas in the various domains as the *self-concept*.

Self-schemas are assumed to be summaries and constructions of past behavior that enable individuals to understand their own social experience and to organize a wide range of information about themselves. Previous studies (Markus, 1977; Rogers, Kuiper, & Kirker, 1977; Markus, Crane, & Siladi, Note 1; Markus, Hamill, & Sentis, Note 2) have gathered converging evidence for the self-schema construct, showing, for example, that differential processing of information about the self in various behavioral domains is associated with differences in self-schemas.

The term *schema* embodies many of the properties and functions that are assumed to characterize cognitive structures in general. As such the concept implies a structure of knowledge or a systematic framework that participates in ongoing interpretive activity during information processing. Little can be said at this time about the structural nature of schemas, and most of their assumed properties and functions remain to be demonstrated. The same is true of other cognitive conceptions, such as frames or scripts. Yet these concepts have been found to have solid

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heuristic value in organizing empirical findings and guiding research. The studies to be discussed focus on the information-processing consequences of self-schemas relevant to gender. Our approach provides a conceptual framework for exploring whether there are systematic differences among individuals in how gender-relevant knowledge is organized in memory and how it is used in thinking about oneself.

We assume that individuals vary enormously in the content and organization of their self-schemas. For example, some individuals may be intensely concerned with their honesty, their masculinity, or their creativity and may develop highly articulated schemas about themselves in these particular domains. In contrast, others may be relatively undifferentiated, or *aschematic* (without self-schemas), in these domains.

There are some aspects of behavior that are so prominent and central that virtually everyone develops at least rudimentary schemas for them. These universal schemas, which everyone has to one degree or another, develop with respect to those aspects of the self that are particularly salient and available for social evaluation and comment. One's sex, for example, becomes a point of focus and a salient distinguishing trait early in life, and it remains a significant parameter of the person's social interactions. The literature on sex role development (cf. Green, 1974; Sears, Rau, & Alpert, 1965) indicates that by the time children are 3 years old, they are keenly aware of their sex and behave as if they have differentiated their self-systems according to this factor. Even though virtually all individuals develop some basic appreciation and understanding of their biological sex, only some individuals seem to construct an elaborated self-schema about their gender. In many cultures one could reasonably expect nearly everyone to have some understanding and representation of attributes and meanings that could be characterized by the general terms *masculinity* or *femininity*, even if these particular terms are not included in verbal repertoire. For some individuals, however, these networks of meanings are used in thinking about, describing, and evaluating the self; it is then that a *self-schema* may be thought to exist. When this occurs we can imagine a merging of the self-concept with the network of knowledge relevant to masculinity or femininity. For example, the elements in the feminine structure, perhaps some of the stereotypic elements such as warmth, nurturance, gentleness, or understanding, may now be seen as having relevance and importance for the self. Some aspects of one's representations of the self may now become associated with some of these trait elements, and in turn the representations of these features may engage representations of some aspects of the self. A self-schema in a particular behavioral or stimulus domain is, then, an intersection in memory between the representations of these behaviors or of these stimuli and the representations of the self.

As an important component of the self-concept, a gender schema is likely to be highly available and centrally implicated in information processing about gender in general and about the gender aspects of the self in particular. The concept of self-schemas allows us to make some distinctions and inferences regarding the recent theorizing about gender and sex roles. In particular it is significant, in the light of the self-schema concept, to inquire whether androgynous individuals are aschematic, that is, whether they have no especially articulated cognitive structures about either masculinity or femininity, or whether they are equally schematic with respect to both masculinity and femininity. It is possible, in fact, that there exist both kinds of androgynous persons and that these individuals would be expected to behave differently and process gender-relevant information in different ways.

Despite the fact that most theoretical discussions of masculinity, femininity, and androgyny and the relationships among them (e.g., Bem, 1977; Spence, Helmreich, & Stapp, 1975) seem to imply quite clearly that individuals who evaluate themselves in different ways with respect to gender have different kinds and amounts of knowledge about gender, there has been almost no attention given to the specific cognitive correlates of gender identity (cf. Bem, 1981, for a recent exception). The present studies extend our earlier research on differential processing of gender-related information (Mar-

kus et al., Note 1) and explore individual variation in how gender is represented in the self-concept.

We examined in detail some cognitive consequences of the systematic differences in knowledge structures that are assumed to exist among individuals who are characterized as masculine, feminine, high androgynous (individuals who think that both masculine and feminine attributes characterize them), and low androgynous (individuals who think that neither masculine nor feminine attributes characterize them).[1] These groups were examined for their tendencies to differentiate some forms of social information according to masculinity or femininity. The focus was on differences among these groups with respect to the recall of gender-relevant material, the speed and confidence of processing gender-relevant material, and the ability to describe their own gender-relevant behavior.

The schema concept suggests a variety of possible differences in the organization of gender-relevant knowledge among these four groups. Figure 1 outlines (in the extreme) these possible differences. The gender-schematic subjects (Panels A and B), who think of themselves as distinctly masculine or feminine, are assumed to have a large network of schema-relevant cognitions that are retrieved as a unit when the schema is activated. This is illustrated by the intersections among these associated cognitions. For the individual with a femininity schema, all of these cognitions are related to the concept of femininity and thus are available to working memory when the feminine schema is activated. This schema is assumed to be part of the self-concept. These individuals probably have some structure relevant to masculinity, but this structure is not likely to be self-relevant. This is illustrated by the fact that the masculine schema does not intersect with the self.

For the high androgynous subjects (Panel C), we can assume that both masculine and feminine attributes are associated with the self-concept. These individuals have not sharply differentiated themselves with respect to gender and relate some attributes of both masculinity and femininity to their self-concept. They should be able to respond in some instances like individuals with a femininity schema and in other instances like those with a masculinity schema.

For the low androgynous subjects (Panel D), we can assume that neither masculine nor feminine attributes are associated with the self-concept, and if these subjects have structures of masculine or feminine knowledge, they are not well developed or elaborated. These individuals, for whatever reasons, may be seen as aschematic, or truly without self-schemas reflecting conventional aspects of masculinity or femininity. For these subjects features of masculinity or femininity have not been incorporated into the self-concept.

This self-schema model implies, for example, that those with feminine self-schemas (the feminine schematics and high androgynous individuals) will privilege feminine stimuli in information processing. Relative to masculine schematic or low androgynous individuals, these individuals can be viewed as experts about femininity and should be able to use knowledge relevant to femininity efficiently. An alternative view of how gender-relevant knowledge is organized by the four groups is one that assumes that the masculine and feminine schematics are alike in that they both have gender schemas, and that the androgynous groups are alike in that they both are aschematic with respect to gender. This view holds that masculine or feminine subjects are not schematic with respect to either masculinity or femininity, but with respect to the domain of gender as a whole. It assumes that masculine and feminine subjects, relative to the androgynous groups, should privilege all gender-relevant stimuli, masculine and feminine alike. In the studies that follow, we attempted to determine which of these views of how gender information is organized is most appropriate.

Study 1

Overview

The first study investigates whether describing oneself as masculine, feminine, or

[1] Subjects who endorse both masculine and feminine words at low levels are discussed by Spence, Helmreich, and Stapp (1975), who call such people *undifferentiated*, and Bem (1977), who refers to these individuals as *low-lows*.

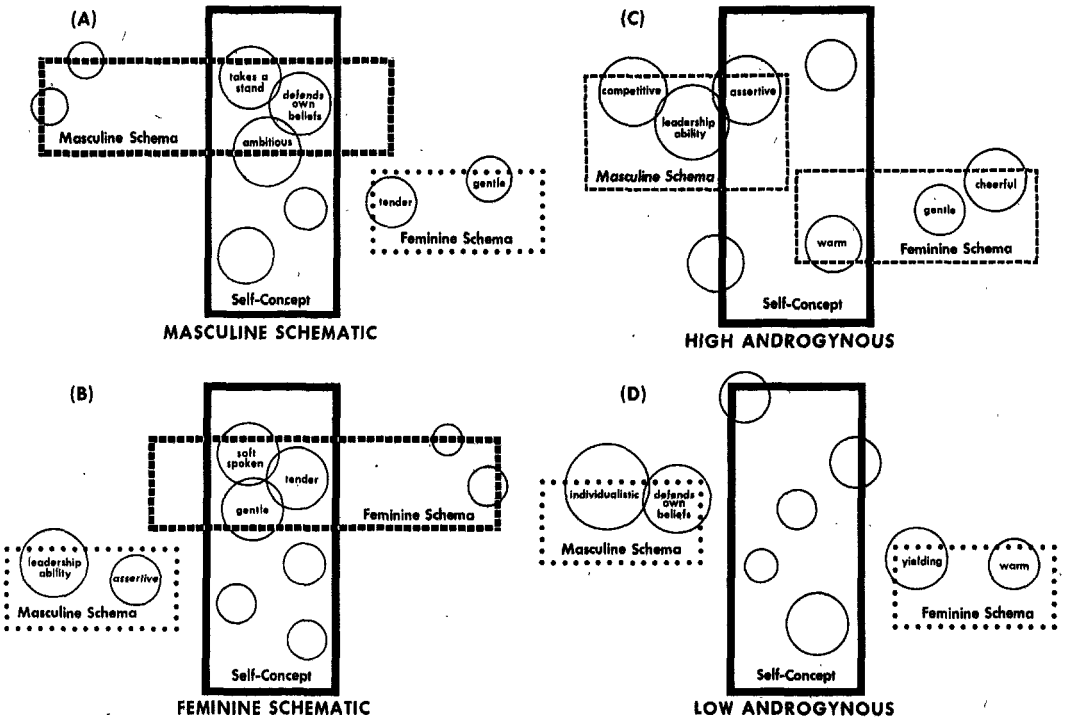

Figure 1. Relationship between gender-relevant knowledge structures and the self-structure for masculine schematics, feminine schematics, high androgynous and low androgynous subjects.

androgynous is related to differential memory for gender-related information. The majority of studies of free recall indicate that factors that facilitate associations among the elements in the stimulus set to be remembered also enhance later recall (Anderson & Bower, 1973). Thus an individual who has a self-schema about gender should demonstrate enhanced recall of gender-relevant stimuli. In this study subjects were asked to complete the Bem Sex-Role Inventory (BSRI). The BSRI consists of 20 masculine characteristics (e.g., assertive, independent, ambitious), 20 feminine characteristics (e.g., affectionate, understanding, sensitive to the needs of others), and 20 neutral characteristics (e.g., sincere, friendly, cooperative). We assumed that the process of describing oneself as required by the BSRI should make one's self-schemas of masculinity and femininity highly available, and that these self-schemas should help impose organization of the gender-relevant information and accentuate the associations among them.[2] The availability of self-schemas of masculinity and femininity should allow for more efficient encoding of the gender-relevant adjectives and produce enhanced recall for them, for as suggested by Figure 1, not only do these elements share the gender predicate, they share the self predicate as well.

Specifically we expected that individuals classified as either masculine or feminine would have enhanced recall for words that are consistent with their particular gender identity and that inconsistent trait adjectives would be less likely to be recalled. The androgynous subjects were those who have not categorized themselves exclusively in terms of one gender or another, and thus they were not expected to exhibit differential recall.

For the purpose of this initial study, we assumed that individuals classified as feminine on the basis of the BSRI were feminine

[2] This organization would go beyond that provided by the semantic similarity of the adjectives themselves. The semantic similarity of the adjectives is a basis for grouping that is presumably available to all subjects, regardless of their self-definition with respect to gender.

schematic and that those classified as masculine were masculine schematic. We assumed that those classified as androgynous did not differentiate their behavior according to masculinity or femininity and thus were aschematic in these domains.

Method

Subjects

Two hundred sixty-seven undergraduate students in introductory biology classes volunteered to participate in this study.

Materials and Procedures

In small classroom groups (approximately 18 per class), students were asked to rate themselves on the Bem Sex-Role Inventory. They were asked to indicate on a 7-point scale the extent to which each of the 60 trait adjectives described them. The scale is anchored with 1 (never or almost never true) and 7 (always or almost always true).

After completing the BSRI students were given a blank sheet of paper and were asked to write down as many adjectives from the scales as they could remember. Three minutes were allotted for recall.

Results

Using Bem's (1974) procedure for identifying masculine, feminine, and androgynous subjects, four groups of subjects were identified. Subjects classified as masculine ($n = 50$; 42 males and 7 females) were those who rated themselves significantly ($p < .05$) higher on the 20 masculine words than on the 20 feminine words. Subjects classified as feminine ($n = 31$; 5 males and 25 females) were those who rated themselves significantly higher on the feminine words than on the masculine words. Androgynous individuals were those whose self-ratings on the masculine words were not significantly different from their self-ratings on the feminine words. Two types of androgynous individuals were distinguished: high androgynous subjects ($n = 100$; 51 females and 47 males; those who felt both masculine and feminine terms described them) and low androgynous subjects ($n = 86$; 45 females and 41 males; those who did not feel either masculine or feminine words described them), according to the procedure followed by Bem (1977).[3]

These four groups of subjects were compared for recall of items from the BSRI. The recall score for each subject consisted of the number of correct responses out of the first 10 responses.[4] To adjust for primacy and recency effects, recall of the first and last three items of the scale (two masculine, two feminine, and two neutral) were not counted as correct recall (cf. Kuiper & Rogers, 1979). Table 1 shows the number of masculine, feminine, and neutral words recalled by the four groups of subjects. The mean number of correct words recalled did not differ across groups. Masculine subjects recalled significantly more masculine words than feminine words, $t(49) = 3.12$, $p < .01$. They also recalled significantly more masculine words than did students classified as feminine, $t(79) = 2.79$, $p < .01$. A parallel pattern of results was found for feminine subjects. These subjects recalled significantly more feminine words than masculine words, $t(30) = 3.83$, $p < .001$, and they recalled significantly more feminine words than did masculine subjects, $t(79) = 4.82$, $p < .001$. Subjects designated as high androgynous also recalled more feminine words than masculine words, $t(99) = 2.62$, $p < .01$, but the difference in the number of masculine and feminine words recalled was clearly smaller than that exhibited by either of the other two groups of subjects. A test for the proportion of variance accounted for showed clear differences among these groups (masculine subjects, $\omega = .149$; feminine subjects, $\omega = .306$; high androgynous subjects, $\omega = .003$. Low androgynous subjects showed no significant differences in recall of masculine and feminine attributes ($t < 1$). With respect to neutral words, there were no differences among the four groups in the number of adjectives recalled.[5]

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[3] One masculine subject, one feminine subject, and two androgynous subjects failed to indicate their sex.

[4] As there may have been some variation in the exact time allowed for free recall across the 13 administrations of the scale, the analysis of only the first 10 responses is presented here. When all responses are included in the analysis, however, the pattern of findings is the same.

[5] When the results within the masculine, feminine, and androgynous groups are divided according to sex of the subject, the pattern of results for each sex is the same as the overall pattern. Male ($n = 88$) and female ($n = 96$) androgynous subjects show nearly identical patterns. The females ($n = 96$) among the masculine

Table 1
Mean Number of Masculine, Feminine, and Neutral Words Recalled

Adjective type	Masculine[a]	Feminine[b]	High androgynous[c]	Low androgynous[d]
Masculine	3.42	2.68	3.00	2.98
Feminine	2.60	3.90	3.39	2.94
Neutral	2.10	2.09	2.05	2.04
Total	8.12	8.67	8.44	7.96

[a] n = 50; 42 males, 7 females; one subject failed to indicate his or her sex.
[b] n = 31; 5 males, 25 females; one subject failed to indicate his or her sex.
[c] n = 100; 47 males, 51 females; two subjects failed to indicate their sex.
[d] n = 86; 41 males, 45 females.

The four cells in the upper left-hand corner of Table 1 provide strong support for a self-schema model. Masculine schematics recalled substantially more masculine words than feminine words, and feminine schematics recalled substantially more feminine words than masculine words. If neutral words are used as a baseline, however, it appears that the schematics show enhanced memory for both masculine and feminine traits. Such a result could be interpreted as support for the idea that the schematics have schemes about gender as a whole, rather than self-schemas either about masculinity or femininity. Given this interpretation the low androgynous subjects should not show an enhanced memory for gender words, since presumably gender words are no more significant for them than are the neutral attributes. Yet this is not the case; the low androgynous subjects also recalled more gender-related words than neutral words. The fact that all subjects remembered neutral items as well, regardless of schematicity, suggests that the neutral words as a set may be less distinctive or meaningful words. These data alone, then, do not provide unambiguous support for either a self-schema or a gender-schema model. An analysis of clustering in recall produces some additional data relevant to this concern.

Clustering in Recall

The way that gender-relevant information is organized can also be explored by analyzing the type of clustering in free recall. Using an index suggested by Shuell (1969), clustering of the masculine and feminine adjectives was compared to the clustering of neutral adjectives.[6] The results indicate that masculine, feminine, and high androgynous subjects all cluster masculine and feminine adjectives more than neutral words. Masculine subjects clustered masculine words significantly more than feminine words, and the other two groups did not differentiate in their clustering of masculine and feminine words. The low androgynous subjects also did not cluster masculine and feminine words differentially, but they showed significantly more clustering of neutral words.

Study 2

Study 1 showed differences in the context and pattern of recall that depend on one's view of oneself with respect to gender. Study

subjects show an even more pronounced difference in recall (in favor of masculine words) than the males. The males (n = 15) among the feminine schematics, however, show somewhat less difference than the group as a whole. Overall male subjects do not differ in recall of masculine and feminine trait adjectives (M recall = 3.04 and 3.09, respectively). Female subjects show greater recall of feminine words (3.52) than masculine words (3.03), but this difference is smaller than that exhibited by the feminine subjects for feminine and masculine words (3.90 vs. 2.68).

[6] This index uses Fagan's (1968) normalization of the Bousfield and Bousfield (1966) deviation measure. It is derived from the occurrence of runs of items of the same word type in the recall protocols and is normalized with respect to the maximum number of repetitions possible for lists of the same item compositions. The indices calculated do not assume equal availability of items of different types and are independent of the number of items recalled.

2 employed other criteria for identifying self-schemas for gender and investigated the influence of self-schemas for gender on the speed and confidence of information processing. It was hypothesized that individuals categorized as masculine and feminine schematics would differentially process masculine and feminine self-related information, demonstrating greater ease and confidence in processing schema-consistent stimuli. To explore the specific cognitive consequences of androgyny further, the responses of schematics were used as a baseline against which to compare the responses of the androgynous subjects.

Method

Subjects

Two hundred students in introductory psychology classes were administered questionnaires that contained 10 self-rating scales. Three of the scales were relevant to masculine behavior (aggressive, dominant, and acts as a leader), and 3 scales were relevant to feminine behavior (gentle, emotional, and sensitive).[7] Four other scales not relevant to masculinity or femininity were also included in the measure. Students were asked to rate themselves on each of these traits, using a 10-point scale with 10 labeled *describes me* and 1 labeled *does not describe me.* On the basis of their responses to the questionnaire, 61 students (32 males and 29 females) were selected for participation. From these individuals three groups of subjects were identified.

Masculine schematic. Individuals who rated themselves extremely high (8–10) on at least two of the three masculine characteristics and moderate or low (1–7) on at least two of the three feminine characteristics were labeled *masculine schematic* (9 males and 1 female).

Feminine schematic. Individuals who rated themselves extremely high (8–10) on at least two of the three feminine characteristics and moderate or low (1–7) on at least two of the three masculine characteristics were labeled *feminine schematic* (7 males and 14 females).

Androgynous. Individuals who rated themselves similarly on both masculine and feminine adjectives were labeled *androgynous* (16 males and 14 females). Again, two types of androgynous subjects were identified, high androgynous individuals and low androgynous individuals. Those who rated themselves extremely high (8–10) on at least five of the six relevant characteristics were labeled *high androgynous* (n = 14; 7 females and 7 males), and those who rated themselves moderate to low (1–7) on at least five of the six characteristics were labeled *low androgynous* (n = 16; 9 females and 7 males). The results of the study are analyzed, first, considering the androgynous subjects as a whole and, subsequently, looking at each subgroup separately.

Eight weeks after the questionnaire was administered, the 61 subjects were called individually to the laboratory and received identical treatment. They were not informed of the connection between the laboratory session and the questionnaire, and it is unlikely that they could have inferred such a connection, as different ostensible purposes were presented to them and different experimenters were used for the studies.

Materials and Procedures

The laboratory session consisted of two separate cognitive tasks designed to assess the possible influence of gender self-schemas on the processing of information about the self in these domains.

Task 1: Content, latency, and confidence of self-descriptions. This part of the experiment was under program control using a PDP-11 computer. Subjects were presented with 60 adjectives from the Bem Sex-Role Inventory (Bem, 1974), one at a time, on cathode-ray tube (CRT) displays. They were instructed to respond by pushing a *me* button if the characteristic was self-descriptive and a *not me* button if the characteristic was not self-descriptive. Each adjective appeared on the screen for 2 sec or until the subject responded, whichever came first. Both the latency and the responses were recorded (although the subjects did not realize that latencies were being measured). After the subject responded "me" or "not me" to each word, the question, "How confident are you?" appeared on the CRT display. Subjects responded by pushing buttons on a 6-point scale with endpoints labeled *not at all confident* and *very confident.* Four different randomly determined orders of presentation were used. For each subject the me button was placed by the dominant hand. To insure that individuals were associating similar types of behavior to the trait adjectives, a particular context was specified for the self-judgments.[8]

Task 2: Supplying behavioral evidence for self-description. Following the me/not me task, each subject was given a booklet of 20 words (1 on each page) taken from the characteristics in the BRSI. Eight were masculine words, 8 were feminine words, and 4 were neutral words. The order of the adjectives in each booklet was randomly determined. Subjects were given written in-

[7] In a pretest a separate group of 160 undergraduate students were presented with the words from the Bem Sex-Role Inventory (BSRI, Bem, 1974) and the Personal Attributes Questionnaire (Spence, Helmreich, & Stapp, 1975). Students were instructed to indicate whether they thought a word was masculine, feminine, or neither. The three words most frequently designated as masculine and the three words most frequently designated as feminine were the words used in this self-rating task to select subjects. The BSRI was deliberately not used to identify subjects so that the words that comprise it could be used in the laboratory study.

[8] Subjects were told: "When you are making these decisions about yourself, try to imagine yourself in a typical group situation, one that might occur, for example, in a classroom, in the dorm lounge, or at a meeting in a friend's home. You are together to discuss an important and controversial issue and to make some decisions about it. Many of the people in the group you know or are familiar to you, while others are not."

structions to circle each adjective that they considered to be self-descriptive and were asked to give supporting evidence from past behavior.[9]

Results

The results are first presented comparing masculine schematic, feminine schematic, and androgynous subjects.

Content of Self-Description

All subjects, regardless of their classification, endorsed a substantial proportion of masculine, feminine, and neutral adjectives. There were important differences, however, in the endorsement patterns of the three groups. Masculine schematics endorsed significantly more of the masculine words (92%) than feminine words (63%), $t(9) = 4.53$, $p < .001$. Scheffé comparisons indicated that these masculine schematics endorsed significantly more masculine adjectives than did the feminine schematics, $t(29) = 8.97$, $p < .001$. Feminine schematics endorsed significantly more feminine adjectives (86%) than masculine adjectives (52%), $t(20) = 8.84$, $p < .001$. These subjects, in comparison with the masculine schematics, endorsed reliably more feminine words, $t(29) = 4.33$, $p < .001$, than masculine words. The third group, the androgynous students, did not exhibit such marked differences in endorsement of masculine and feminine words. Although they endorsed reliably more masculine words (85%) than feminine words (76%), the difference was much smaller than that observed for the other two groups, $t(29) = 2.86$, $p < .01$. The first task can be seen as a reliability check on the subject selection procedure and indicates that this particular method of choosing schematics succeeds in identifying individuals who respond in a consistent fashion across a large set of gender-relevant stimuli.

Latency of Self-Description

If we assume that the three groups of subjects have different self-schemas for gender, then we can hypothesize that these structures should allow them to process gender-relevant stimuli with varying degrees of ease and efficiency. Figure 2 illustrates the response latencies for the masculine, feminine, and neutral words judged as self-descriptive. The percentages beneath the bars refer to the number of words endorsed for the first task. Masculine schematics responded "me" significantly faster to the masculine words than to the feminine words, $t(9) = 4.25$, $p < .01$. Masculine schematics also responded significantly faster to the masculine words than did the feminine schematics, $t(29) = 2.76$, $p < .01$. The feminine schematics responded "me" significantly faster to the feminine words than to the masculine words, $t(20) = 3.63$, $p < .01$. And when compared to the masculine schematics, these individuals responded significantly faster to the feminine words, $t(29) = 4.54$, $p < .001$. In contrast, the androgynous subjects, who it will be recalled, were more likely to endorse masculine than feminine adjectives, showed no difference at all in response time for endorsement of masculine and feminine words. They were as fast at responding "me" to masculine words as were the masculine schematics, and they were as fast at responding "me" to the feminine words as were the feminine schematics.

The results for the not me responses, although slower than the me responses overall, are the mirror images of those for the me responses. Thus masculine schematics were relatively quick to respond "not me" to feminine words ($x = 1.78$) and much slower to respond "not me" to masculine words ($x = 2.35$). Feminine schematics showed a similar pattern, responding "not me" quickly to masculine words ($x = 1.90$) and significantly slower to feminine words ($x = 2.18$). The androgynous subjects did not exhibit this difference in their rejection latencies to masculine and feminine words ($x = 1.90$ and 2.00, respectively). They did not differ significantly from the masculine subjects in re-

[9] The instructions were: "Immediately after you circle an adjective, list the reasons you feel this adjective is self-descriptive. Give specific evidence from your own behavior to indicate why you feel a particular trait is self-descriptive. List the first kinds of behavior that come to your mind. Do not worry about how other people might interpret a particular behavior; use your own frame of reference." Several examples were given, and subjects were given as much time as they needed to complete the task.

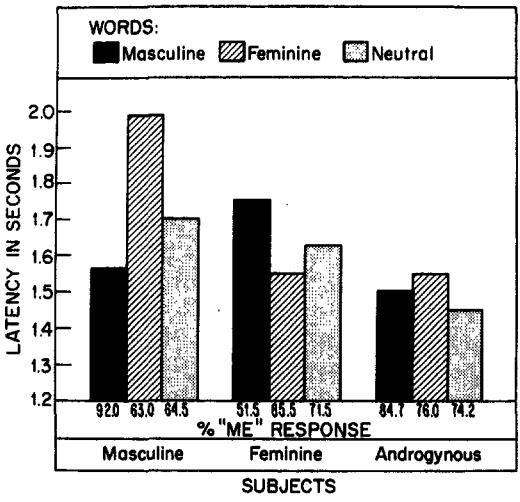

Figure 2. Mean response latency for masculine, feminine, and neutral trait adjectives judged as self-descriptive.

sponse time to feminine words ($t < 1$) and did not differ significantly from the feminine subjects in their response time to masculine words ($t < 1$).

Confidence of Self-Description

An analysis of the confidence judgments yields very similar results. There were no differences in overall confidence among the groups.[10] But masculine schematics were significantly more confident about their me responses to the masculine words than they were about their me responses to feminine words, $t(9) = 6.22$, $p < .001$. Similarly feminine schematics were significantly more confident about their me judgments for feminine words than they were about their me judgments for masculine words, $t(20) = 5.32$, $p < .001$. The androgynous subjects, however, did not exhibit these striking differences in confidence.[11]

In contrast to the schematic subjects, the androgynous subjects did not show much differentiation in endorsement, latency, or confidence in their responses to masculine and feminine stimuli. These subjects appear to be distinct from the two schematic groups. But what is the nature of this difference? We attempted to explore this result further by examining high androgynous and low androgynous subjects separately.

There were no differences between high androgynous and low androgynous subjects with respect to endorsement or latency. In fact the pattern of responses for the two groups is virtually identical. Both androgynous groups endorsed slightly more masculine words, and neither group distinguished among masculine, feminine, and neutral words with respect to latency. All of these subjects responded equally quickly to masculine, feminine, and neutral adjectives for both me and not me judgments. Neither group of androgynous subjects differed significantly from masculine subjects in their rejection latencies to feminine words, nor did they differ significantly from feminine subjects in their rejection latencies to masculine words.

The only difference that emerged among the two groups was in confidence of me endorsements. The high androgynous subjects were significantly more confident in their endorsements to both the masculine, $t(28) = 3.92$, $p < .001$, and the feminine trait adjectives, $t(28) = 4.97$, $p < .001$, than were the low androgynous subjects. The two groups

[10] For each of the three groups of subjects, masculine schematics, feminine schematics, and androgynous, we compared the scores of the male subjects with those of the females. Among the masculine schematics there was 1 woman. Among the feminine schematics there were 7 men. And among the androgynous there were 16 men and 14 women. This uneven distribution of men and women across the three groups precluded a formal overall analysis of sex differences. It is intriguing to note that in all three groups, however, both males and females conformed to the overall pattern. With respect to the androgynous subjects, there was only one significant difference between males and females across content, latency, and confidence of judgments for the masculine, feminine, and neutral words. The male androgynous subjects endorsed more masculine words than the female androgynous subjects (18.31 vs. 15.36). There were no differences, however, between males and females in their endorsement of the feminine words or in their latency or confidence for masculine and feminine words. Male and female androgynous subjects responded in very similar ways to this task and quite differently from either the masculine or feminine schematics.

[11] The androgynous subjects were significantly more confident about the endorsement of feminine words, $t(29) = 2.20$, $p < .05$, but the difference was much smaller than that exhibited by the sex-typed schematics. A test for the proportion of variance accounted for showed clear differences among these groups (masculine subjects, $\omega = .790$; feminine subjects, $\omega = .565$, androgynous subjects, $\omega = .113$).

do not differ in their confidence for neutral adjectives, however. With respect to confidence for not me judgments, the four groups did not differ in their judgments to feminine or neutral words, although, feminine subjects were significantly more confident about their not me judgments to masculine words than were any of the other three groups of subjects.

Since confidence and latency are usually highly correlated, these findings are noteworthy. They suggest that this correlation is not invariant across individuals. The low androgynous subjects were relatively less confident about their self-descriptions, even though they initially responded "me" just as quickly as the high androgynous subjects. The confidence judgment can be seen as an indication of the subjects' second thoughts about the initial judgment. As suggested earlier it may be that the low androgynous subjects do not have well-developed self-schemas of masculinity and femininity and thus cannot easily justify their initial endorsements. The lack of available clearly categorized behavioral evidence for their masculine or feminine endorsements may well be revealed in lower levels of confidence.

Task 2: Supplying Behavioral Evidence for Self-Description

We expected that individuals with self-schemas would be able to provide behavioral evidence relevant to their schema. Thus, for example, if a woman has previously thought of herself as affectionate, she would be able to readily recall some specific instances of behavior that were categorized by herself or by others as affectionate.

The data reveal that there were marked differences among the four groups in which adjectives they chose to supply examples for and in the number of examples provided for those adjectives. As shown in Table 2, masculine schematics provided significantly more behavioral descriptions for a given masculine word than did any of the other groups of subjects. (For the purpose of this analysis, the androgynous subjects were once again divided into high and low androgynous groups.) Masculine schematics also provided significantly more examples of masculine behaviors than of feminine behaviors, $t(9) = 3.46$, $p < .01$. Feminine schematics supplied significantly more behavioral descriptions for a given feminine word than did any of the other groups of subjects. Feminine sche-

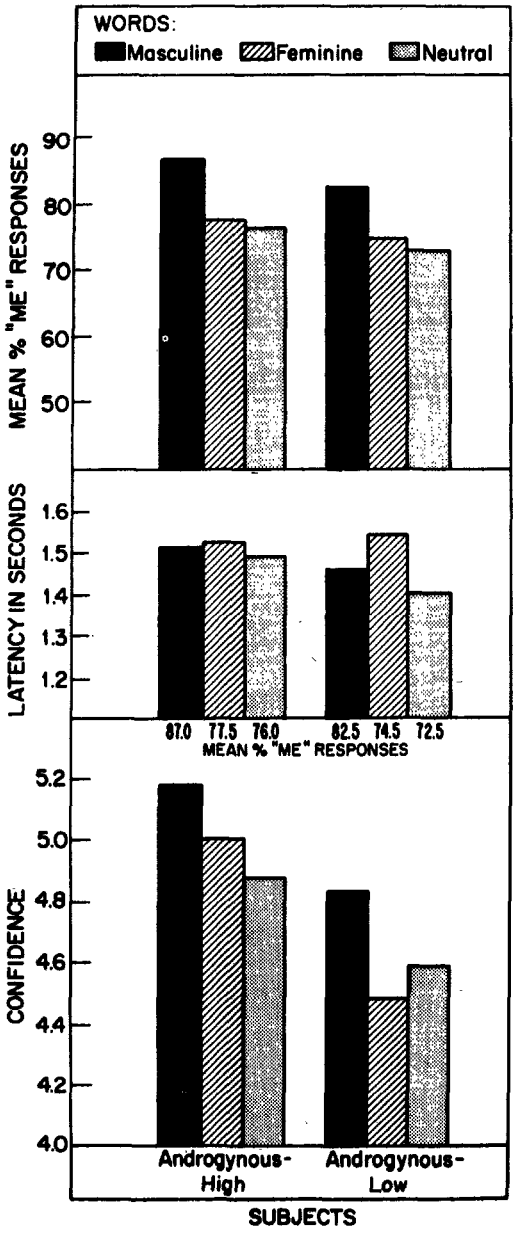

Figure 3. A comparison of high adrogynous and low androgynous subjects on endorsement, endorsement latency, and confidence of endorsement of masculine, feminine, and neutral trait adjectives.

Table 2
Mean Number of Behavioral Examples for Masculine and Feminine Words

Word type	Type of subject			
	Masculine[a]	Feminine[b]	High androgynous[c]	Low androgynous[d]
Masculine	11.30	4.52	7.64	6.00
Feminine	3.00	8.62	6.71	6.88
Total	14.30	13.14	14.35	12.88

[a] $n = 10$. [b] $n = 21$. [c] $n = 14$. [d] $n = 16$.

matics also recalled significantly more examples of feminine behavior than of masculine behavior, $t(20) = 4.61$, $p < .001$. In contrast, the high androgynous and the low androgynous subjects did not differentiate in the number of behavioral examples provided for masculine and feminine attributes, although the low androgynous subjects supplied relatively fewer examples overall.

These data could be used to support the notion that these individuals have knowledge structures varying in size or differentiation. For a given masculine word that was endorsed, the masculine subjects supplied more examples than did the feminine or androgynous subjects, implying that they have available a relatively greater store of relevant knowledge. It is also important to note that the high androgynous subjects, though endorsing many of these words just as quickly as the masculine schematics, for example, did not provide as many examples for a given masculine word as the masculine schematics.[12]

Discussion

These studies revealed systematic differences in cognitive performance among groups of subjects identified as masculine schematic, feminine schematic, or androgynous. Individuals identified as feminine schematics (by their pattern of responses to the BSRI or by endorsement of a subset of self-descriptive adjectives) remembered more feminine than masculine attributes, endorsed more feminine qualities, required shorter processing times for me judgments to these attributes than to other types of attributes, and were more confident of their judgments. In addition, these people were able to supply relatively more examples of past feminine behavior than any other group that endorsed feminine words. A parallel pattern of results was found for masculine stimuli for those individuals identified as masculine schematics.

Taken as a whole the results of these studies indicate that the masculine schematics have self-schemas relevant to masculinity and the feminine schematics have self-schemas relevant to femininity. Overall they argue against the idea that these subjects have schemas relevant to gender as a whole. For example, if masculine schematics were sensitive not only to masculinity but to femininity as well, they should have exhibited faster and more confident judgments to feminine items than to neutral items. The opposite is in fact true; the masculine schematics were slow to endorse feminine items and not at all certain when they did so. Perhaps, then, subjects did not have the appropriate behavioral evidence to support these self-descriptions and thus responded "me" on some other basis, such as social desirability. This inference gains support from Table 2 of Study 2, which indicates that the masculine schematics supplied relatively few examples of feminine behavior, even though some feminine attributes were previously endorsed. A masculine schematic probably has some understanding of and sensitivity to femininity, as do all subjects, but it does not appear to be a particularly thorough under-

[12] When the examples were coded for how well they matched the stereotypic meanings of the words and for the level of detail found in the examples, however, the schematics and the high androgynous subjects did not differ. Overall, across all the groups less than 10% of the examples were judged by an independent group of coders as not corresponding to the stereotypic definitions of the trait attributes, and this did not vary systematically by group. The four groups also did not differ in how much detail they supplied for masculine, feminine, and neutral adjectives.

standing. The masculine schematics were no quicker to respond "not me" to masculine words than were the androgynous subjects. If we assume that self-schemas are summaries and constructions of past behavior, it is likely that the schematics will have a great deal of information and experience about one aspect of gender and relatively little about the other. It is probably true that knowing what you are will sensitize you to what you are not, but it is unlikely that you will have a very well-developed or clearly organized understanding of the characteristics that do not describe you. We assume that one who develops a self-schema with respect to femininity becomes an expert in femininity, but there is little reason to assume that this person simultaneously becomes an expert in masculinity—no more reason, in fact, than to assume that a thin person will have a well-developed sense of obesity or that an extrovert will have a well-developed understanding of introversion.

In contrast to the masculine and feminine schematics, subjects identified as androgynous did not differentiate in their processing of masculine and feminine attributes. They recalled as many masculine attributes as feminine attributes, and they showed no difference between masculine and feminine words with respect to latency or confidence. Two types of androgynous subjects could be distinguished, however. We found that the high androgynous subjects did not differ in their performance from the masculine schematics with respect to masculine attributes or from the feminine schematics with respect to feminine attributes. It seems, then, that these individuals do define themselves in terms that are gender relevant, but that they are equally responsive to both masculine and feminine attributes. As suggested earlier, high androgynous subjects may have masculinity schemas that allow them to respond to masculine stimuli as do the masculine schematics and femininity schemas that allow them to respond to feminine stimuli as do the feminine schematics.

It is important to recognize, however, that even if the high androgynous individual and the masculine schematic are both assumed to have some type of masculinity schema, they are quite likely to have very different overall views of themselves and might be expected to behave in different ways. The masculine schematic individual and the high androgynous individual may both think of themselves as assertive and attach very similar meanings and examples to that attribute, but the high androgynous individual is also likely to have the attributes "understanding" and "compassionate" as defining features of the self-concept. These other attributes of the self may well modify or constrain the range of behavioral alternatives that follow from thinking of one's self as assertive. Somewhat more subtly these additional features of the self-concept may influence the style and manner in which one acts in accordance with the attribute assertive. The flexibility that has been attributed to the high androgynous individual in recent studies (e.g., Wiggins & Holzmuller, in press) may be both an antecedent and consequence of this multiple categorization or definition of the self. The high androgynous individual, according to these data, has knowledge about both masculine and feminine behavior. Presumably both of these knowledge structures are equally available for processing of information. Whether one, the other, or both will drive processing is dependent on the circumstances and the nature of the situation. These multiple views of the self, or multiple self-schemas, may also be associated with the higher levels of self-esteem found to characterize the high androgynous subjects.

The high androgynous subjects, then, appear androgynous by virtue of the fact that they have incorporated both masculinity and femininity schemas in their self-concepts. The results for the low androgynous subjects form a different picture, however. Although many of our results indicate that the high and low androgynous subjects are similar, on closer analysis it is evident that despite these general similarities, the two groups handle gender-relevant information in different ways and that they may be cognitively distinct from each other. The low androgynous subjects do not seem to have integrated many potentially stereotypic masculine or feminine terms into their self-structures. They appear to be without knowledge structures, or aschematic, with respect to many of the concepts, qualities, and features that are often culturally tied to masculinity or

femininity. As suggested in the introduction, if these subjects have knowledge structures of masculine or feminine domains that are relevant to the self, they are probably not well developed or elaborated. It seems, for example, that with regard to the masculine characteristics of aggressive and competitive or the feminine qualities of warmth and tenderness, the low androgynous individuals do not have particularly well-articulated views of themselves. They seem to be truly without self-schemas relevant to these aspects of masculinity and femininity. The relatively impoverished knowledge structures assumed to characterize the low androgynous subjects is suggested by several other findings. These subjects supplied substantially fewer behavioral examples, recalled somewhat fewer sex-typed words than did the high androgynous subjects, showed more clustering of neutral words than of masculine or feminine words, and showed less confidence in me judgments than the high androgynous subjects.

The data indicate that even though both the high and low androgynous subjects do not differentiate between the masculine and feminine adjectives in describing themselves, it is only the low androgynous subjects who should be viewed as aschematic with respect to gender. It is only these individuals who do not use the domains of masculinity or femininity in thinking about themselves. The high androgynous individuals, in contrast, have multiple gender self-schemas. They are sensitive to and importantly concerned with both masculine and feminine aspects of their self-concepts.

Together these findings suggest that there are important differences among individuals in how gender-relevant knowledge may be organized in memory and how it has been incorporated into the self-concept. As would be the case for any other cognitive model of the self, our data, even though they are consistent with the self-schema model, cannot in themselves provide unequivocal evidence about the precise nature and form of the self-schema. Nevertheless a self-schema account provides a single, coherent, and plausible explanation of the variety of findings reported here. In these studies the concept of a self-schema as a knowledge structure that summarizes and integrates the representations of one's own attributes and behavior in important domains has been particularly useful in organizing and describing the results.

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