University of Nevada, Reno

**The Construct of Sexual Orientation in Ordinary Language**

A dissertation submitted in partial fulfillment of the

requirements for the degree of Doctor of Philosophy in

Clinical Psychology

by

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We recommend that the dissertation

prepared under our supervision by

**Catherine J. Neighbors**

entitled

**The Construct of Sexual Orientation in Ordinary Language**

be accepted in partial fulfillment of the

requirement for the degree of

**DOCTOR OF PHILOSOPHY**

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Abstract

 Reviews of studies on sexual orientation reveal that researchers have not developed a clear conceptual definition of sexual orientation and that most researchers have failed to provide a theoretical framework for their studies. While some scholars recognize the conceptual confusion that has plagued the development of a theory of sexual orientation, most researchers study sexual orientation as if it were an immutable, essential nature of an individual without questioning how social context influences categorization. The problem with this approach is that components have been hypothesized to be part of the construct, but there has been no systematic study of how to judge the accuracy of the construct. The present study suggests that, because categories of sexual orientation are socially constructed, the study of sexual orientation would benefit from an understanding of how the ordinary language community defines and categorizes sexual orientation. The purpose of the present study was to test the semantics of various category labels of sexual orientation used in ordinary language. Three hypothesized components of sexual orientation (overt sexual behavior, sexual attraction, and sexual fantasy), involving either same-sex or opposite-sex oriented behavior, along with a fourth stimulus condition (gender) were manipulated in a 2 x 2 x 2 x 2 factorial design. Subjects were 371 college students who completed a questionnaire in which they were asked to give a one-word description in response to written statements about hypothetical individuals described as male or female who engage in various same- or opposite-sex behavior. Contrary to what was hypothesized, results demonstrate that there were some necessary and sufficient conditions for categorizing sexual orientation. Also contrary to a proto-behavioral hypothesis, the results of the relative strength of the three components in predicting category label indicate that sexual attraction was the strongest predictor, followed by overt sexual behavior, and sexual fantasy, respectively. The most impressive finding was the overwhelming support for the impurity hypothesis in which descriptions with any same-sex oriented behavior (despite other opposite-sex oriented behavior) appeared to be judged to contaminate the individual's sexual orientation resulting in greater frequencies of responses of "homosexual" compared to other category labels. Finally, as predicted, overt sexual behavior was least predictive of the sexual orientation of females with sexual fantasy being the most predictive. For descriptions of males, sexual attraction was the most important predictor. Provided in the discussion are possible explanations for the current findings, a description of the limitations and implications of the study, and recommendations for future research.

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The Construct of Sexual Orientation in Ordinary Language

 Sexual orientation has been a topic of debate among professionals at least since the late nineteenth century when the medical and mental health communities had begun to view homosexuality as an abnormality or sexual deviance related to mental illness (Bohan, 1996; Weeks, 1991). Prior to that time, sexual behavior had not been considered as much of a part of a person's identity as it is today (Weeks, 1991). Although within many cultures, sexual acts between individuals of the same sex may have been considered deviant and punishable, the persons themselves were not identified as having any particular sexual orientation (Bohan, 1996; Katz, 1983). Sexual responses, whether same-sex or opposite-sex oriented, were simply considered discrete acts of sexual behavior. However, currently, both the scientific and ordinary language communities generally refer to persons who engage in sexual behavior with the same or opposite sex as having a *sexual orientation*. The labels such as "homosexual," "lesbian," "gay," "bisexual," and "heterosexual" are culturally constructed to categorize individuals based on their sexual behavior. However, as will be discussed, there is much debate about how to conceptually and operationally define the construct of sexual orientation.

 The term *sexual orientation* itself may be considered an imprecise term open to many interpretations. Most experts agree that sexual orientation is a term commonly used to describe an individual's "erotic and/or affectional disposition to the same and/or opposite sex" (Gonsiorek, Sell, & Weinrich, 1995, p. 40; see also Shively & DeCecco, 1977; Shively, Jones, & DeCecco, 1984). Generally, individuals who are oriented sexually toward the same sex are considered *homosexual*; those toward the opposite sex, *heterosexual*; and those oriented toward both sexes, *bisexual* (Bohan, 1996). But some important questions one may ask are, What are the components or variables that determine categorical grouping and what are the thresholds that determine whether an individual fits into one category or another? For example, how does one label a man who, after 15 years of marriage to a woman, has a sexual encounter with a man? Is this orientation sexually anomalous, latent homosexuality, or bisexuality? Alternatively, consider a man who after a 15-year relationship with another man has a sexual encounter with a woman? Are the same criteria applied to both examples? Does the ratio of same- versus opposite-sex sexual partners affect how an individual is categorized? Does length of time in a relationship or sequentiality of same- or opposite-sex partners influence how one applies different labels of sexual orientation? Does the recency or primacy of same- or opposite-sex relationships determine the category?

 While some scholars recognize the conceptual confusion that has plagued the development of a theory of sexual orientation (Hall & Pramaggiore, 1996; Rust, 1995; Weeks, 1991), most researchers study sexual orientation as if it were an immutable, essential nature of an individual and simply seek to identify its components without questioning how social context influences categorization (e.g. Berkey, Perelman-Hall, & Kurdek, 1990; Chung & Katayama, 1996; Coleman, 1987; Ellis, Burke, & Ames, 1987; Gonsiorek, Sell, & Weinrich, 1995; Holden & Holden, 1995; Klein, Sepekoff, & Wolf, 1985; Shively & DeCecco, 1977; Weinrich, Snyder, Pillard, Grant, Jacobson, et al., 1993; Wright & Adams, 1994). The present study suggests that, because categories of sexual orientation are socially constructed, the study of sexual orientation would benefit from an understanding of how ordinary language communities (as opposed to scientific and specialized language communities) define and categorize sexual orientation.

 The discussion that follows elucidates the lack of conceptual clarity in previous research on sexual orientation and argues, from a social constructionist viewpoint, for the consideration of social context in shaping the construction of categories of sexual orientation. In addition, the following discussion suggests that, in order to understand the semantics of socially constructed categories of sexual orientation, it is useful to survey the ordinary language community. The main goal of this study is to test hypotheses regarding the semantics of category labels used in ordinary language, the potential utility of which is elaborated below. The ordinary language community consists of anyone who is competent with the English language who is not also a specialist (e.g. a sexologist, a sexual orientation researcher). It is expected that the results of the current study will reveal instability within the ordinary language community in the use of category labels referring to sexual orientation, demonstrating the difficulty in operationally defining and measuring the social construct. However, it is the hope of the present study that the results will also reveal some consistent patterns in the semantics of ordinary language that would suggest the beginning of an organizing theory of categories of sexual orientation. In the discussion that follows, each of these goals will be elaborated.

Lack of Conceptual Clarity

 To demonstrate the lack of conceptual clarity among researchers of sexual orientation, it is necessary to begin with a brief historical account of the development of terms which first dichotomized sexual behavior into the categories of homosexuality and heterosexuality. In addition, a brief review of research relevant to the conceptual definition of sexual orientation as an identity is provided. The majority of research on the construct of sexual orientation focuses on self-report assessment instruments designed to measure sexual orientation. These instruments and the conceptual components of sexual orientation are discussed in detail to provide a backdrop for the hypothesized components proposed to date.

*Brief History of the Construct of Sexual Orientation*

 The first recorded use of the term *homosexuality* dates back to 1869 in a letter from a Hungarian, Dr. Benkert von Kertbeny, to the Prussian Prime Minister of Justice calling for the decriminalization of sexual relations between men (Katz, 1983; Weeks, 1991). Although terminology to describe behavior considered deviant from the norm is usually coined in reference to the term describing the norm, the term *homosexual* was actually coined prior to the term *heterosexual*. The original meaning of the term *heterosexual* in American medical texts in the mid-1890s referred to a person who had inclinations toward both sexes, which is now commonly referred to as *bisexual* (Bohan, 1996). Later, in a 1901 medical dictionary, the term *heterosexual* described a person with a perverted sexual appetite toward the opposite sex (Bohan, 1996). However, as sexologists studied the range of sexual behaviors, sexual perversions were defined separately from heterosexuality; and heterosexuality came to be used as a term to describe individuals with opposite-sex attractions in the absence of perversions (Bohan, 1996).

 Prior to the nineteenth century, rather than being viewed as part of a person's identity, homosexual acts were viewed simply as behavior in which a person engages. In ancient Greece, it was a common cultural practice for a man with status to have a male sexual partner in addition to a heterosexual marriage (Bohan, 1996). With the rise of Christianity, homosexual acts came to be seen as a sin against God; but, again, the act itself was seen only as a discrete behavior, not part of a person's identity (Bohan, 1996). By the late nineteenth century, sexologists began to try to describe and explain the newly coined term *homosexuality* by seeking to explain the condition as a biological abnormality. Only since the beginning of the twentieth century has sexuality been considered a core part of a person's identity (Bohan, 1996).

 As homosexuality came to be seen as a core identity, the medical and mental health communities became concerned with treating what was considered an abnormality or sexual deviance related to mental illness. Freud's theory of sexual inversion suggested that homosexuality was a result of an unresolved Oedipal complex for boys and unresolved penis envy for girls (Freud, 1922/1959, cited in Storms, 1992). However, Evelyn Hooker's (1957) landmark study comparing community samples of homosexuals and heterosexuals (as opposed to imprisoned homosexuals) demonstrated that the two groups did not differ in terms of mental health as measured by projective and intelligence tests. In addition, Kinsey, Pomeroy, and Martin's (1948, 1953) studies of sexual behavior revealed that significant percentages of men (37%) and women (28%) had engaged in same-sex sexual behavior to the point of orgasm during their adult lives. Kinsey's findings challenged the conceptualization of homosexuality as a discrete category separate from heterosexuality. He proposed that homosexuality could be defined as the polar opposite of heterosexuality, but along the same continuum of sexual orientation in which bisexuality is the midpoint.

 Since Kinsey, there has been continuing interest among researchers to find a cause for homosexuality by studying the characteristics of individuals identifying toward the homosexual end of the Kinsey continuum. However, most of the studies on sexual orientation simply assume that sexual orientations exist without offering any conceptual or theoretical definitions. Without a basic theoretical or operational definition of the construct being studied, researchers are doomed to the conceptual confusion that plagues sexual orientation research in which hypothesized components proliferate without any organizing theory except an implied essentialist stance. Essentialism assumes that the origins of the behavior of interest can be found in nature (Weeks, 1991) such that there are natural kinds of organisms which can be correctly categorized into a taxonomy based on specific characteristics. The problem of assuming an essentialist stance as opposed to considering context will be explained in the next section. The present study seeks to address this problem by studying the context in which sexual orientation terms are constructed -- ordinary language communities. The present study is not concerned with the causes or origins of sexual orientation, per se, but rather with the semantics of the terms which have been culturally constructed to categorize individuals based on their sexual behavior. The utility of this approach will be discussed; but first, a review of the scientific community's attempts to study sexual orientation is presented.

*Previous Research on the Construct of Sexual Orientation*

 Researchers who have attempted to measure sexual orientation have focused mainly on developing assessment instruments to measure the hypothesized underlying components of sexual orientation. The most common assessment method used for determining sexual orientation is self-report (Chung & Katayama, 1996; Shively, Jones, & DeCecco, 1984) which will be the focus of this discussion. However, the hypothesized components of sexual orientation have been included in assessment instruments based on a priori assumptions about sexual orientation without concern for empirical support of the construct. According to Troiden (1988), "the existence of constructs must be inferred from overt behavior or characteristics because the phenomena to which they refer are intangibles that cannot be assessed directly by empirical means" (p. 23). A construct may be defined as "some postulated attribute of people, assumed to be reflected in test performance. In test validation the attribute about which we make statements in interpreting a test is a construct" (Cronbach & Meehl, 1955, p. 283). Therefore, in evaluating the validity of tests to measure sexual orientation, construct validity is of essential importance. As Cronbach and Meehl (1955) point out, "construct validity is ordinarily studied when the tester has no definite criterion measure of the quality with which he is concerned, and must use indirect measures. Here the trait or quality underlying the test is of central importance" (p. 282). Because there is no ultimate criterion against which to measure the construct of sexual orientation, that is, there are no known natural or essential characteristics which determine sexual orientation categories, assessment devices must be judged by their construct validity.

 However, reviews of research on sexual orientation indicate that construct validity has not been adequately addressed (Chung & Katayama, 1996; Shively, Jones, & DeCecco, 1984). Studies that do address the validity of assessments of sexual orientation appear to rely on content validation. In content validation, Cronbach and Meehl (1955) state that "*acceptance* of the universe of content as defining the variable to be measured is essential" (p. 282). Acceptance of the universe of content requires that the theoretical orientation of the investigator be identified since the content is essentially judged by the theoretical stance, however formal or informal, from which it was developed. Therefore, to address the construct validity of instruments purported to measure sexual orientation, researchers must offer a clear conceptual definition within a clearly identified theoretical orientation.

 Unfortunately, reviews of studies on sexual orientation reveal that researchers have not developed a clear conceptual definition of sexual orientation and that most researchers do not provide a theoretical framework for their studies. Shively, Jones, and DeCecco (1984) reviewed the methodology of 228 articles from 47 different journals and found that sexual orientation had been conceptually defined in only 12% of the studies. Of the studies that did define the concept, the most common components included *physical sexual activity, affectional attachment, erotic fantasies, arousal, and sustained erotic preference for one sex*. However, these components were offered as a conceptual definition outside any theoretical context in terms of the origin or nature of sexual orientation. Shively et al's review demonstrates that the field is still a long way from answering questions about the construct of sexual orientation. Namely, the studies fail to do the following: (a) These terms are offered as definitions of sexual orientation while the terms themselves are not defined but rather assumed to be objective realities. Thus, researchers must operationalize these terms for the analysis to be complete; (b) They fail to define the quantitative values that are to be applied to homosexual versus heterosexual behavior to make a judgment as to how one fits into one category or the other; (c) They fail to provide information on how these separate dimensions are synthesized into an orientation statement. As Shively et al. point out,

The conceptual jumble apparent in the research on sexual orientation cannot, we believe, be resolved with greater methodological rigor. It is symptomatic of an underlying confusion. Sexual orientation was treated as if it were a palpable, unitary phenomenon although it was conceived in divergent and sometimes contradictory ways (p. 134).

 Commonly, experts rely on a priori assumptions about the essential ontology of sexual orientation. For example, Gonsiorek, Sell and Weinrich (1995) reveal their assumptions when they make the following distinction between the previous favored term *sexual preference* and the currently favored term *sexual orientation*:

The term *sexual preference* is misleading as it assumes conscious or deliberate choice and may trivialize the depth of the psychological processes involved [referring to the process of discovering one's homosexual identity]. The term *sexual orientation* is instead recommended because most research findings indicate that erotic feelings are a basic part of an individual's psyche and established much earlier than conscious choice would indicate (p. 41).

The above statements are offered as a definition of sexual orientation, the assumption of which is that erotic feelings toward the same sex beginning in early childhood are an indirect indicator of the existence of a true sexual orientation which is to be discovered by the individual.

 Therefore, it appears that researchers continue to study sexual orientation while they rely on a priori assumptions without attempting to clearly conceptualize the construct, possibly due to an implied assumption of an essential nature to sexual orientation. To illustrate the conceptual confusion apparent in the self-report instruments developed to date, following is a brief review of the various devices along with a discussion of the underlying assumptions about the construct of sexual orientation.

*The Kinsey Heterosexual-Homosexual Scale (KHHS)*

 As discussed above, prior to the nineteenth century, same-sex sexual behavior was viewed as a discrete behavior, not a characteristic of an individual. But by the late nineteenth century, the term *homosexuality* was coined to describe a *type* of person who engages in sexual behavior with a member of the same sex, and thus homosexuality was viewed as part of a person's identity. From the late nineteenth century until the mid-twentieth century, homosexual identity was simply assessed categorically based on overt behavior. If an individual engaged in homosexual acts, he was considered homosexual; if an individual did not have these experiences, then he was considered heterosexual.

 Kinsey, Pomeroy, and Martin's (1948, 1953) studies of sexual behavior in human males and females shocked the nation by demonstrating that a considerable percentage of men and women who considered themselves heterosexual nevertheless had engaged in same-sex sexual behavior to the point of orgasm during their adult lives. Kinsey et al. proposed that, rather than viewing homosexuality and heterosexuality as dichotomous variables, these two categories could be considered polar opposites on the same continuum of sexual orientation, with bisexuality as a mid-category equidistant from the two poles indicating an equal mix of both. Kinsey et al. developed the Kinsey Heterosexual-Homosexual Scale (KHHS; Kinsey et al., 1948) a 7-point Likert scale with equal intervals ranging from exclusively heterosexual (0) to exclusively homosexual (6)[[1]](#footnote-1), and they asked individuals to locate the position on the continuum that identified their overt behavior and physical attraction toward the same or opposite sex. This Likert-scale approach appears to view sexual orientation as a trait in which individuals are assumed to possess varying degrees of one trait or the other, regardless of the origins of the trait.

*Expansion of the KHHS*

 Whereas Kinsey et al. (1948, 1953) combined behavior and attraction on one continuum, Bell and Weinberg (1978), in their study of homosexuality, asked respondents to identify themselves in terms of both overt behavior and sexual fantasy on two separate continua. They found that subjects rated themselves differently on the two dimensions. While the overt behavior of the self-identified homosexual respondents was reported to be more toward the homosexual end of the continuum, subjects reported their erotic feelings as more mixed between homosexual and heterosexual. These findings suggest that the construct of sexual orientation may have more than one component, and that the components are not necessarily consistent with each other in terms of the degree of homosexuality or heterosexuality. Again, Bell and Weinberg appear to take the trait approach, assuming that overt behavior and fantasy are signs of an underlying trait of sexual orientation.

*Further Expansion of the KHHS*

 Shively and DeCecco (1977) suggested yet another component. They stated that physical preference, which they defined as the preference for male and/or female sexual partners, is one component of sexual orientation. This theory is similar to Bell and Weinberg's (1978) theory, in that, Shively and DeCecco specify that the physical component should be assessed for both overt behavior and fantasy. But they added a third component, affectional preference, which they defined as a preference for male and/or female *emotional* partners. The reasoning that Shively and DeCecco (1977) offer is, "a theory that includes both the physical and affectional expression of sexual orientation allows an examination of a greater variety of ways of expressing sexuality" (p. 46). However, they offer no empirical support for this reasoning. It appears that components are added to the construct of sexual orientation based solely on the investigators' speculation without any concern for testing the construct validity and without any theoretical framework or model against which to judge its adequacy.

 Shively and DeCecco (1977) go on to suggest that the bipolar view of sexual orientation, in which homosexuality and heterosexuality are opposites, is too limited. They propose that homosexuality is not expressed at the expense of heterosexuality, nor vice versa. Rather, homosexuality and heterosexuality may be viewed as two separate continua. From this perspective, sexual orientation would be measured by six separate continua, yielding a 2 x 3 matrix with the three components (physical behavior, physical fantasy, affectional preference) identified on continua for both heterosexuality and homosexuality.

 Although Shively and DeCecco (1977) do not identify the theoretical conceptualization for their model, nor do they empirically support it, their theoretical position may be inferred. They refer to potential conflicts within an individual between physical and affectional expression and between homosexual and heterosexual sexuality. They suggest that the clinician can help patients resolve conflicts at both the behavior and fantasy levels, and that this is the main purpose for their assessment which is not intended for research. Because of their use of the term "conflicts" and references to Freud and Oedipal theory, it may be inferred that Shively and DeCecco view sexual orientation as an unconscious conflict between heterosexuality and homosexuality. Perhaps consistent with Freudian theory, Shively and DeCecco assume that everyone is biologically predisposed to be bisexual and that the task of clinicians is to help clients resolve anxiety over inner conflicts about sexuality.

*The Sexual Identity Profile (SIP)*

 The Sexual Identity Profile (SIP), developed by Holden and Holden (1995) is another multidimensional self-report assessment of sexual orientation. In this case, Holden and Holden identify their theoretical orientation as Adlerian and state that they believe "that sexual orientation is an innate condition that is highly difficult if not impossible to modify to any significant extent" (p. 103), and that this biological condition sets "limits on one's ability to engage in various sexual behaviors and/or how emotionally and sexually satisfying those behaviors will be" (p. 104). The primary purpose of the Sexual Identity Profile is not to identify sexual orientation, but rather to identify whether or not one's attitudes (to whom one *should* be attracted), overt erotic behavior, one's image as perceived by others, and nonerotic behavior (positive physical contact without erotic intentions) are in alignment on a continuum with one's self-identified sexual orientation. In other words, Holden and Holden view sexual orientation as something one *is*, separate from what one *does*. The theory of this approach is that an individual whose overt behavior, attitudes, erotic response, etc., are closely aligned with one's self-identified sexual orientation will experience the least amount of psychological distress.

 Holden and Holden (1995) state that the SIP has clinical utility in identifying psychological well-being versus distress by measuring the congruence between one's sexual orientation and one's behavior. The SIP is intended for clinical use only in clarifying conflicts about a client's acceptance of his sexual orientation. The SIP has not, however, been studied for its psychometric properties. In addition, sexual orientation is assumed to be a biological given which is simply self-identified by the client, and therefore, the client's self-report is assumed to be an accurate assessment.

*The Multidimensional Scale of Sexuality (MSS)*

 Rather than being concerned about inner conflict, Berkey, Perelman-Hall, and Kurdek (1990) were concerned with developing a scale that would more clearly categorize individuals who fall in the middle of the Kinsey continuum between exclusively heterosexual and exclusively homosexual. Berkey et al. (1990) designed the Multidimensional Scale of Sexuality (MSS) to measure six proposed categories of bisexuality as follows:

(a) Homosexual orientation prior to exclusive heterosexual orientation; (b) heterosexual orientation prior to exclusive homosexual orientation; (c) predominant homosexual orientation (frequent homosexual desires and/or sexual contacts) with infrequent heterosexual desires and/or sexual contacts; (d) predominant heterosexual orientation (frequent heterosexual desires and/or sexual contacts) with infrequent homosexual desires and/or sexual contacts; (e) equal orientation toward members of both sexes, where desires for, and/or sexual contacts with members of both sexes occur on a fairly regular basis (concurrent bisexual); and (f) equal orientation toward members of both sexes, where exclusive homosexual orientation is followed by exclusive heterosexual orientation (or vice versa), on an on-going basis (sequential bisexual) (p. 70).

 In addition to these six categories of bisexual orientation, Berkey et al. (1990) included exclusively heterosexual, exclusively homosexual, and asexual. For each of these nine categories, Berkey et al. developed one item corresponding to each of five components of sexual orientation, including: *sexual behavior, sexual attraction, arousal to erotic material, emotional factors*, and *sexual dreams and fantasies*. This yielded a 45 item questionnaire. However, rather than having respondents answer with Likert scales, each item was written in a true/false format. For example, the statement "In the past, I have felt in love with members of the opposite sex, but currently I only feel in love with members of my same sex" (p. 73) refers to the bisexual category described as "past heterosexual, currently homosexual" (p. 77) with the content referring to emotional factors.

 Berkey et al. (1990) found that subjects' self-identified score on the Kinsey scale correlated significantly with categories on the MSS, with the MSS simply providing more detail. In comparison to the Kinsey scale, those who identified as a Kinsey "3" (equal mix of heterosexual and homosexual) had scores corresponding to the MSS categories of *concurrent bisexuals* and *sequential bisexuals*. In addition, those who identified as a Kinsey "6" (exclusively homosexual) were categorized on the MSS as *exclusively homosexual, homosexual with some heterosexual inclinations,* and *past heterosexual but current homosexual*.

 While the MSS demonstrated correspondence to the Kinsey scale, providing a measure of convergent validity, the Kinsey scale is not an adequate criterion by which to judge any measure. Berkey et al. also fail to offer a theoretical framework within which to interpret their results. An appropriate question would be whether nine is the correct number of categories. With any taxonomy, the categories should be mutually exclusive and exhaustive so that every individual gets categorized. In the case of the MSS, the developers need to offer some decision rules for each of the nine categories and define the criteria by which each individual is categorized. For example, with the category, *sequential bisexual*, in which "exclusive homosexual orientation is followed by exclusive heterosexual orientation (or vice versa)," (Berkey, et al., 1990, p. 70) this definition still begs the question, What is homosexual orientation? However, this study does provide interesting data about the correspondence between the commonly used labels of heterosexual, bisexual, and homosexual and the possible variations in behavior that each label may encompass.

*The Klein Sexual Orientation Grid (KSOG)*

 Finally, another variation of the Kinsey scale, and the one that has received the most attention, was developed by Klein, Sepekoff, and Wolf (1985) called the Klein Sexual Orientation Grid (KSOG). Klein et al. comment on the limitations of viewing sexual orientation from the Kinsey bipolar perspective. Klein et al. state that the KSOG was designed to measure sexual orientation as a multi-variable, dynamic process. This view differs from Kinsey in that sexual orientation is assumed to comprise more than just overt behavior and attraction. The KSOG added five more components for a total of seven variables. In addition to *overt behavior* and *attraction*, the KSOG includes *fantasy, social preference, emotional preference, self-identification*, and *lifestyle*. For each of these components, respondents are asked to locate on a 7-point Likert equal interval scale the number that best describes themselves. The scale is labeled similar to the Kinsey scale, except that the numbers range from 1 to 7, rather than 0 to 6, with 1 representing "other sex only," 7 representing "same sex only," and 4 representing "both sexes equally." In addition to the seven components assumed to make up the construct of sexual orientation, the KSOG includes another dimension -- time. For each of the 7 items, respondents are asked to identify themselves in terms of their *past, present*, and *ideal* situations. The result is a 7 x 3 grid with 21 different scores.

 To explain the intended meaning of each of the seven components, Klein et al. (1985) do not explicitly define the variables, but instead provide a sample of the actual questionnaire from which one can infer the meanings. In the questionnaire, *sexual attraction* is not defined for respondents, but *sexual behavior* is defined as "actual behavior as opposed to sexual attraction. With whom do you have sex?" (p. 41). This leaves open the possibility that respondents could interpret *sexual attraction* in a variety of ways, such as with whom a respondent flirts, at whom they leer in a predatory fashion, toward whom they find themselves taking a second look or becoming sexually aroused, etc. Without examples of sexual attraction, respondents may interpret the question in varying ways, and it is an empirical question whether or not responses would differ. The question regarding *sexual fantasy* refers to fantasies one might have "during masturbation, while daydreaming, as a part of our real lives or purely in our imaginations" (p. 41).

 For *emotional preference*, Klein, et al. (1985) explain to respondents that "our emotions directly influence, if not define, the actual physical act of love. Ask yourself if you love and like only the opposite sex or if you are also emotionally close to the same sex" (p. 41). It is not clear what the authors mean by "emotionally close." If a female respondent feels emotionally close to her mother, her aunts, and grandmother as opposed to her male relatives, does that have something to do with sexual orientation? Perhaps the authors are attempting to measure the degree of emotional intensity felt toward the same or opposite sex in the context of a peer relationship. Without defining the context, a multitude of interpretations is possible. *Social preference* is described as closely related to emotional preference, but different. To explain the distinction, the questionnaire states, "you may love only women but spend most of your social life with men. Some people of all orientations only socialize with their own sex, while others socialize with the opposite gender exclusively" (p. 42). By this definition, if a married, self-identified heterosexual male spends his social time away from his wife exclusively with male friends, his sexual orientation may lean somewhere toward homosexual. Perhaps this variable was designed to identify single individuals who may be homosexual, socialize exclusively with the same sex, but do not self-identify or express their homosexuality through overt behavior. In either case, the relationship of the *social preference* variable to sexual orientation is vague.

 The last two variables included in the KSOG are *self-identification* and *heterosexual/homosexual lifestyle*. The variable *heterosexual/homosexual lifestyle* is described by Klein, et al. (1985) as follows: "Some heterosexuals only have sex with the opposite sex but prefer to spend the majority of their time with gay people. On the other hand, homosexual or bisexual persons may prefer to live exclusively in the gay world, the heterosexual world, or even to live in both worlds. Where do you tend to spend time and with whom?" (p. 42). The problem with this question is that there is no single homosexual lifestyle just like there is no single type of heterosexual lifestyle. Does the question refer to attending gay/lesbian social or political events as opposed to some presumed common heterosexual gathering? Again, the authors provide no operational definitions, and it is difficult to infer how this variable differs from *social preference*. In addition, Klein, et al. (1985) do not define *self-identification*, except to say that it "is a strong variable since self-image strongly affects our thoughts and actions" (p. 42). Respondents are also asked separately as part of demographic questions to identify themselves as either heterosexual, bisexual, or homosexual. Interestingly, the best predictor of a respondent's mean score on the entire KSOG grid was the respondent's self-identification, accounting for 70 percent of the variance in KSOG scores. This raises the question of whether the KSOG is measuring anything different than the simple Kinsey rating scale for self-identification of sexual orientation. If the two are so closely correlated, researchers wishing to measure self-identified sexual orientation would be wise to ask one Kinsey question versus 21 KSOG questions.

 While Klein, et al. (1985) state that "researchers have failed operationally or conceptually to define sexual orientation, by not providing clear or consistent definitions" (p. 35), they conclude their discussion by opting out of the challenge themselves when they state the following: "We do not, at this point, have clear definitions of what constitutes a bisexual, homosexual, or heterosexual. This study has attempted to point out the pitfalls of conventional labeling" (p. 47).

 Since that time, however, other researchers have attempted to analyze the KSOG in terms of its psychometric properties. Indeed, the KSOG is the only instrument of its kind that has been analyzed via factor analysis (Weinrich, Snyder, Pillard, Grant, Jacobson, et al., 1993). Weinrich et al. conducted a factor analysis of the KSOG with data gathered from two different samples: one with an equal mix of self-identified heterosexual, bisexual, and homosexual men (N=90) who volunteered for a fat metabolism study, another consisting of only homosexual and bisexual men recruited from an AIDS research center. Factor analyses for the two samples using both orthogonal and oblique solutions revealed that all 21 items of the KSOG loaded on Factor 1, which Weinrich et al. labeled *General Sexual Orientation*. Interestingly, the items relating to *social preference* and *emotional preference* also loaded separately on Factors 2 and 3. As is argued above, one's emotional and social ties, although for some may be related to general sexual orientation, appear to be factors that are also different from sexual orientation. However, further research is needed with random samples to gain external validity and to more precisely define and factor analyze the various components suggested by Klein et al. (1985).

 Research on the definition and measurement of sexual orientation is still in its infancy. Unfortunately, as has been demonstrated here, researchers have neither clearly defined sexual orientation nor adequately psychometrically validated the self-report questionnaires designed to measure it. Rather, the majority of investigators appear to assume a universal agreement about the construct of sexual orientation as if it were a given, and only seek to find its causes, its correlates, or a more precise method of measuring it. As the above discussion illustrates, sexual orientation is far from being conceptually defined, and as Shively, Jones, and DeCecco (1984) so aptly state, the problem cannot "be resolved with greater methodological rigor" (p. 134). Rather, to develop a taxonomy to classify various sexual orientations, investigators need to begin with an explicit theory, develop testable hypotheses that support or refute the theory, gather and analyze data to find any stable patterns in the data, and build models that consistently describe the data within a theoretical framework (Blashfield, 1984). Without the application of this basic scientific method for developing a classification system, categories continue to multiply and conceptual confusion results. This appears to be the case with self-report assessments of sexual orientation which had begun with one component (Kinsey, et al., 1948, 1953) and have been more currently conceptualized by seven components (Klein, et al., 1985) which have not to date resulted in greater clarification of the construct of sexual orientation.

 The above discussion provided a brief history of the development of hypothesized components associated with sexual orientation as an identity and elucidated the lack of conceptual clarity in research and in the development of self-report instruments designed to measure sexual orientation. The next section offers an argument for the consideration of sexual orientation not as an essential nature of an individual, but rather as a social construction. This is not to say that sexual behavior may not be biologically determined. That question is left to the physiologist (Skinner, 1974, p. 221). Rather, the following discussion addresses how the context of ordinary language communities influences how terminology relating to sexual behavior is developed and applied to individuals.

The Social Construction of Sexual Orientation

 Essentialists are theorists who search for the origins of behavior in nature (Weeks, 1991). For example, an essentialist's search for the origins of homosexuality in humans may involve the study of same-sex sexual behavior in other species. Essentialists have argued that individuals have a basic sexual orientation within themselves, such that if they were able to peel away all the layers of bias, self-deception, cultural expectations, and other interference, they would find the natural essence of their sexual orientation (Rust, 1995). Essentialists believe that within an individual is a true sexual orientation to be discovered and that it exists in a real sense even in the absence of cultural context (Bohan, 1996). The developers of the self-report instruments described above appear to view sexual orientation from an essentialist perspective. From their point of view, because an individual's behavior may be incongruent with his essential sexual orientation, an assessment device based solely on overt behavior or on self-report would result in a number of false negatives. That is, one's true sexual nature may be masked by obligatory cultural conformity or by self-deception. Therefore, one purpose of the multi-dimensional self-report assessments that inquire not only about overt sexual behavior, but also about fantasy, emotional intensity, etc., may be to get beneath an individual's reluctance to use labels such as *lesbian, gay or bisexual*, and try to deceive respondents into truthfully answering questions about their thoughts and attractions versus overt behavior or self-identification. Essentialists may believe that with these measures, one could more accurately assess an individual's true nature or essence.[[2]](#footnote-2)

 Alternatively, social constructionists argue that perhaps many individuals throughout history have had varied sexual desires and behaviors in various cultures, but that societies have developed categories and labels with which to identify individuals. Over time, these labels come to be interpreted as concrete realities, as if an individual *is* gay, lesbian, bisexual, or heterosexual. It is forgotten that the labels were created to describe certain behaviors and instead individuals begin to think, for example, that a woman is essentially *a lesbian*, rather than that a woman exhibits behavior characteristic of someone society has come to categorize as lesbian (Rust, 1995, p. 27-28). This is not the same as the debate over whether nature versus nurture has more of an influence on behavior. Social constructionists would say that, even if researchers were to determine that sexual orientation is completely biologically determined, cultural experiences are what shape how individuals label and attach meaning to their sexual attractions and behavior.

 Because language is developed systemically within cultures, and individuals accept language systems in order to communicate within the culture, the meaning of terms used to categorize sexual orientation can be found within the social community. Bohan (1996) suggests that

psychology has a distinctive contribution to make to our understanding in this area. Psychological approaches to sexual orientation may point to an intersection between the essentialist and constructionist views where the two are not so discrepant as they might first appear, and it is this: The individual's coming to terms with her/his identity involves creating narratives or descriptions about who she or he is. The conceptual categories and the language available for those narratives necessarily consist of the terms to which we have come in our collective constructions of the notion of sexual orientation. At present, those terms are essentialist; the culture we live in constructs sexual orientation as a core, nuclear, essential defining attribute of identity, which can be defined by membership in one of two (or at best, three) discrete categories. Hence, individuals living in this culture assume this understanding and therefore experience their own and others' sexual orientation in these terms (p. 9).

Indeed, it is the semantics of the categories among the ordinary language community that are of interest in the present study regardless of the possible biological origins of sexual behavior.

 Although the essentialist versus social constructionist debate is far from being resolved, the current study was designed from a social constructionist point of view. That is, sexual behavior may be idiographic such that sexual behavior may be as varied as individuals themselves; however, for convenience, verbal communities construct nomothetic labels such as *heterosexual, bisexual*, and *homosexual* to identify individuals who engage in certain behaviors, even if the categories or labels are imprecise. In other words, for each of the hypothesized components of sexual orientation (e.g. overt sexual behavior, physical attraction, fantasy, etc.), the degree of orientation toward the same or opposite sex may fall along a continuum, but verbal communities appear to make judgments about categorical thresholds which result in grouping of individuals based on criteria that define socially constructed categories. From a social constructionist viewpoint, studying the semantics of categories is not intended to reveal the causes or origins of sexual orientation. That endeavor is left to those interested in biological causes. But a biological cause is not necessarily what influences how cultures come to label sexual behavior. To understand the semantics of categories of sexual orientation, it is necessary to survey the social community in which the categories are constructed.

The Utility of Understanding Semantic Categories of Sexual Orientation

 If the hypothesized components of sexual orientation are assumed to be continuous rather than categorical variables, one might question the utility of studying socially constructed categories at all. The following discussion suggests that there is utility in studying the semantics of socially constructed categories of sexual orientation without concern for the congruence with any possible natural or essential origins of sexual orientation. Furthermore, it is argued that surveying ordinary language communities has utility, as opposed to attempting to apply greater methodological rigor to existing scientific language systems of sexual orientation.

*Development of a Classification System*

 If one accepts the viewpoint that sexual behavior is a continuous variable, or, as some have called it, a fluid desire (Hall & Pramaggiore, 1996), then one may question the utility of studying categories. When a phenomenon is divided into intervals which are then labeled and defined, information about the fluidity of the phenomenon is lost, and individuals confuse what is socially created with what is natural and immutable (Richer, 1998). However, the development of a classification system which divides a phenomenon into categories is useful in many ways. Meehl (1995) suggests that classification is an endeavor that seeks to identify categories of entities that are nonarbitrary, in other words, to find the natural cleaves in a phenomenon with which it may be divided (although he is quick to point out that he is not referring to an essentialist explanation and that one should not expect to find clear-cut boundaries).

 Blashfield (1984) offers five purposes of good classification systems. First, he suggests that a classification system provides the nomenclature necessary for communication within a particular field. In the field of sexual orientation research, a consistent nomenclature would be useful when comparing research findings. Second, classification systems are useful for consistent information retrieval. For example, when one is attempting to conduct a literature search on previous studies of depression among homosexual women, there are a multitude of key words that may be used to designate the subject sample, such as homosexuals, gay women, lesbians, lesbian and bisexual women; or researchers may refer to the subjects' sexual preference, sexual orientation, or homophile affiliation. In addition, a consistent system for information retrieval would aid the lay community in folk psychology(or common sense) information retrieval such as self-help books and organizations. Third, a good classification system can be used for descriptive purposes. While it has already been acknowledged that clear-cut boundaries of categories are not likely to be found, descriptions of the prototypic components of various sexual orientations may be provided. Fourth, classification systems can provide a basis for making predictions. For example, the results of the present study may provide a basis for predicting the typical response to antecedents which would evoke among the verbal community various category labels of sexual orientation. This would provide an understanding of the semantics of sexual orientation among the ordinary language community. However, the present study will not attempt to predict whether an individual so labeled will behave congruently with the definition of the category label. Such a study may be possible, however, with results derived from the present study. Lastly, with a foundation of descriptive and predictive data, a classification system can provide the basic concepts necessary for theory formulation. While some sexual orientation researchers have implied an essentialist theory, most offer no explicit theory of sexual orientation. One of the goals of the present study is to provide a basis from which theory formulation will be possible.

 The purpose of developing classification systems, or taxonomies, is to categorize under general laws phenomena which are consistent, as in the natural laws of physics. Taxonomies should have stable categories and should not be derived from social convention alone, but must also include an organizing theory (Follette & Houts, 1996). For example, the *Diagnostic and Statistics Manual of Mental Disorders, Fourth Edition* (*DSM-IV*; American Psychiatric Association, 1994) describes categories of mental disorders (which are hypothetical constructs) based on social convention rather than according to any explicit organizing theory. The problem with describing categories based on social convention alone is that categories continue to proliferate without any organizing theoretical network. With the introduction of an organizing theory, it is possible that the *DSM* categories of mental disorders could be collapsed into organized theoretical taxa at some point in the future. However, the collection of basic data about the conventional use of language can provide a starting point. With regard to the social construct of sexual orientation, in order to develop and apply an organizing theory of categorizations, researchers would benefit from collecting the basic data that make up the social construct and discovering any consistent patterns. This could be accomplished by surveying the ordinary language community. To date, the conventional use of the verbal categories of sexual orientation has not been studied empirically.

*Pragmatic Applications of Categories of Sexual Orientation*

 The major purpose of categorizing sexual orientation is that it is pragmatic. As a social construct, the ontology of sexual orientation is contextualistic, and therefore, the present study does not attempt to find any true, essential categories. However, there are practical uses for categorizing sexual orientation. First, it is convenient for the lay community to organize for political or social causes based on what the community perceives as a common sexual orientation. For example, within the homosexual community, one political organizing approach has been called *identity politics*, a movement in which individuals identify themselves as having an attribute in common with others to promote a political agenda, such as gay civil rights (Gergen, 1998). With identity politics, the personal is considered political so that individuals are encouraged to publicly identify their sexual orientation in the service of political strength. This movement necessarily polarizes thinking so that individuals must identify themselves with either one side or the other (ingroup or outgroup) of the political argument and align themselves with a particular identity. There is evidence for the ingroup-outgroup dichotomy demonstrated by the controversy among gay and lesbian activists about recognizing individuals identifying as bisexual in the titles of their organizations (for example, the National Gay and Lesbian Task Force [NGLTF] and the American Psychological Association's Division 44, the Society for the Psychological Study of Lesbian, Gay, and Bisexual Issues). Groups such as these have argued for and against the inclusion of the term *bisexual* in their titles because bisexuals are commonly viewed as individuals who are really either homosexual or heterosexual but are, for example, confused, immature, lacking in self-knowledge, indecisive, afraid to give up heterosexual privilege, avoiding stigma, or avoiding taking a political stand (Rust, 1995, p. 49).

 Identity politics is not limited to the homosexual community. In the case of the Christian Values Coalition, the purpose is to advocate a heterosexual orientation as the norm (or as the powerful sexual majority) in order to further their political values coined *family values* in which the norm is reproduction. Therefore, because homosexuality is by conventional understanding non-procreative, it is considered abnormal or depraved (Richer, 1998). For the lay community with a political agenda, individuals not clearly identifying themselves as either homosexual or heterosexual are a threat to distinct categorization between the perceived ingroup and outgroup in which identity is important for political strength.

 Secondly, the professional community of researchers appears to be interested in discovering possible causal factors in the expression of sexual orientation (both genotypic and phenotypic) and in understanding how hypothesized groups differ. For example, Turner (1995) hypothesized that the homosexual orientation of Kinsey grades 5 and 6 (toward exclusively homosexual) may be linked genetically to the mother's Xq28 chromosome. More recently, McFadden and Pasanen (1998) compared the auditory systems of males and females who self-identified as homosexual, bisexual, and heterosexual. The premise was that the cochlea's echo-like waveforms emitted by females are stronger than males and may reveal whether individual's identifying as bisexual or homosexual emit waveforms more similar to the opposite gender. The study found that homosexual and bisexual females' emissions were intermediate between heterosexual females and heterosexual males. The authors conclude that homosexual and bisexual women's auditory systems were masculinized in the womb by androgens, thereby supporting the hormonal theory of sexual orientation (even though males did not differ). Aside from the problematic assumptions of the cross-gender theory of sexual orientation (see Storms, 1992), this study may be flawed in its comparisons between groups. How can the experimenters be sure that they have biologically discrete groups when group membership is determined by self-identification of sexual orientation, especially when self-identification has been shown to change over a person's lifespan (Rust, 1995)?

 In addition to investigating the biological causes of homosexuality, researchers are interested in understanding group differences between homosexuals and heterosexuals and seek to correctly discriminate among sexual orientations. For example, Phillips and Over (1995) attempted to correctly classify via discriminant analysis women who self-identified as heterosexual, bisexual, and lesbian by comparing recalled childhood experiences of gender conforming and gender nonconforming behaviors. However, without an organizing theory and a consistent nomenclature, it is difficult to conduct comparative analyses among studies.

 The professional community of clinicians also appears to find clinical utility in assessing sexual orientation among clients who report feeling confused or distressed about their sexual orientation. Coleman (1987) suggests that "psychotherapists need to help their patients define themselves, to recognize and value the complexity of their sexual orientation, and to further their overall sexual identity development and satisfaction" (p. 23). In order to accomplish these goals, both the scientific and ordinary language communities rely on the convenience of categories for describing a complex construct.

Studying the Ordinary Language Community to Understand Verbal Behavior

If one accepts that categories of sexual orientation are socially constructed, one may ask how individuals learn the meanings and application of the category labels. From a verbal behavior perspective (Skinner, 1957), individuals learn self-labeling and categorization of sexual orientation from the verbal community, which will be explained further in the next section. Ullin Place (1998) interpreted the behaviorism of ordinary language philosophers such as Ryle and Wittgenstein. Place (1998) writes that a language which allows individuals to communicate effectively will include “words whose meanings have been learned and conventionally fixed by a process in which a speaker directs the attention of the listener to an objective feature of the stimulus environment in which both are currently situated” (p. 364). Therefore, to examine the components of which sexual orientation is socially constructed, it is useful to survey the verbal community to determine what objective features, if any, are related to sexual orientation. This will allow a behavioral examination of a variety of hypothesized components (antecedents) which evoke a verbal response referring to categories of sexual orientation.

*Philosophy of Ordinary Language*

Surveying the verbal community in order to analyze hypothetical constructs is not a new approach. This approach has a long history in the philosophy of language from Socrates to contemporary philosophers who study ordinary language as a method of understanding socially constructed concepts such as “beauty” (Edwards, 1967). One notable ordinary language philosopher, J. L. Austin (Austin, 1963/1971; Urmson & Sbisa, 1975) asserts that the most important task of a philosopher is the clarification of the various forms and concepts of ordinary language. Austin suggests that the analysis of ordinary language leads to a clearer understanding of a word’s meaning because certain terms in ordinary language would not have survived over time if they were not somehow meaningful in describing the world. Austin acknowledges that ordinary language may not provide a complete analysis because it can be misleading, and that professionals may want to follow up their analyses by drawing clearer distinctions than those in common use. But, generally, Austin is skeptical of developing more precise scientific terms without first analyzing ordinary language use (Graham, 1977) because he asserts that modifications should not be made to language until the ordinary language is fully understood. Perhaps Austin would agree with Valsiner (1994) who argues that an analysis of ordinary language use can reveal practical knowledge about human conduct and is a basic step in theory development. Valsiner (1994) asserts that scientists who attempt to explain psychological phenomena may find that ordinary language concepts have a richness and flexibility that varies with context, which is interesting but difficult to systematically explain lawfully. Thus in theory construction, scientists may control for this flexibility by developing tests which are more systematic, but may be more abstracted than the psychological phenomena they are designed to explain. Eventually, scientists need to interpret their findings with ordinary language terms to generalize the results and communicate their findings to the lay community and to other scientists not involved in the specific psychological research (while making explicit the exact relationship between the more abstract, theoretical concept and the common-sense concept). However, as Valsiner (1994) argues, "the main function of a psychological theory remains to be adequate generalization of knowledge about context-bound psychological processes that are intricately linked with the human use of ordinary language to affect them. As a result, laypersons' use of ordinary language in the process of their psychological experiencing becomes a highly relevant part of the phenomenon that interests us" (p. 56). Valsiner (1994) also supports the study of ordinary language because the semantics of technical psychological vocabulary necessarily begin from ordinary language "since every psychologist who starts off on the treacherous road of theoretical construction in psychology is at the same time a layperson within his or her own culture (and an ordinary language user). From that perspective, the psychologist constructs scientific terminology *on the basis of* the ordinary language users of his or her own and other cultures" (p. 52).

Valsiner's (1994) argument explains J. L. Austin's reasons why he believes the study of ordinary language is important and useful (Edwards, 1967). First, he asserts that it is prudent for any philosophical inquiry, even one which leads to the creation of special technical vocabulary, to be concerned with the terminology already in existence and available for examination. Second, Austin asserts that the use of ordinary language in and of itself is sufficiently interesting to warrant investigation. Third, Austin asserts that understanding the subtle distinctions in ordinary language which over time have survived competing distinctions may provide a path to understanding observable distinctions in the world. He asserts that professionals are unlikely to produce these distinctions solely from within academic circles because

our common stock of words embodies all the distinctions men have found worth drawing, and the connexions [*sic*] they have found worth marking, in the lifetimes of many generations: these surely are likely to be more numerous, more sound, since they have stood up to the long test of the survival of the fittest, and more subtle, at least in all ordinary and reasonably practical matters, than any that you or I are likely to think up in our arm-chairs of an afternoon – the most favoured alternative method (Austin, 1970, cited in Graham, 1977, p. 36).

Although Austin claims no interest in studying the technical terminology of philosophers, he does not object to the terms (Edwards, 1967). His objection is that many technical terms are introduced inappropriately and uncritically, which may be said of the terminology currently in use among professionals who study sexual orientation, which is discussed in the next section.

*Discourse on Sexual Orientation*

As discussed above, professionals who study the concept of sexual orientation either fail to delineate distinctions among the terms they use or they base their distinctions on a priori assumptions presumably developed in their professional armchairs. To date, social scientists have not tapped into the wealth of data that could be gathered from the ordinary language community regarding the semantics of terms used to describe the social construct of sexual orientation.

However, scholars in fields such as English, literature, and linguistics have begun to publish discourses on the social construct *bisexuality* (Hall & Pramaggiore, 1996) to challenge the notion that homosexuality and heterosexuality are binary, fixed dispositions. Much of the discourse in Hall and Pramaggiore’s (1996) edited book, *RePresenting Bisexualities: Subjects and Cultures of Fluid Desire*, is a response to the premises of *queer theory*. Queer theory is a recent movement across social fields to deconstruct categories such as *lesbian, gay,* and *queer*. Deconstruction is the process of breaking down the reification of a construct (which is an intangible such as the term *sexual orientation* which cannot be directly observed but must be inferred from overt behavior or characteristics; Bohan, 1996, p. 8; Malone, 1998). Queer theorists use the term *queer* as an inclusive term for all sexual orientations other than heterosexuality. The term, queer, gained favor around 1991 with the development of the political activist group, Queer Nation, because activists asserted that queer, although previously considered a derogatory term, could be reclaimed and used as a single, inclusive term to represent *lesbian, gay, bisexual,* and *transgendered* (which is an inclusive term representing *transexual* and *transvestite*). Academics who espouse queer theory seek to deconstruct terms that refer to sexuality and to demonstrate the impossibility of a natural sexuality. Through discourse, queer theorists not only question the stability of categories of sexual orientation, but also terms referring to gender, such as *man* and *woman* (Jagose, 1996).

Namaste (1996) presents a critical analysis of queer theory suggesting that the theory is in conflict with the theorists’ goals because, although they seek to question the stability of sexuality, their theoretical approach assumes a static identity. Through the use of logic and rhetoric, queer theorists seek to deconstruct sexual orientation by using the sign approach. Within this theory, the definition of a sign appears to be a Saussurian definition in which a sign is an “entity which is composed of a signifier (an abstract concept) and its signified (the concept which is designated)” (Namaste, 1996, p. 79).

Critics of queer theory (du Plessis, 1996; Namaste, 1996) have pointed out that queer theorists who have focused their rhetorical discourses on the Saussurian definition of signification have thereby assumed a static denotation of the signified (Namaste, 1996, p. 88). That is, queer theorists implicitly assume that the signs *lesbian, gay,* and *queer* are entities which, although they cannot be measured directly, do exist in some static form which can be defined by analyzing their significations. Although queer theorists do not wish to define the category limits of terms such as queer, their theoretical approach assumes a static identity.

In contrast, Namaste, in her 1996 chapter entitled “From performativity to interpretation: Toward a social semiotic account of bisexuality” suggests that to analyze the meaning of terms designating sexual orientation, investigators must reject the Saussurian definition of sign, and instead adopt the theory of sign by Charles Saunders Pierce. According to Namaste (1996), Pierce’s theory of a sign involves three components: (a) a *representamen*, the phonic utterance, such as “queer”; (b) an *object*, the mental image evoked by terms such as queer, for example, limp-wristed fairy; and (c) an *interpretant*, the entire network of relations associated with the lexeme /queer/ in the English language. The interpretant is not a thing or a person, but a function (Namaste, 1996, p. 83). The first two components, a representamen and an object, are similar to Saussure’s signifier and signified. However, Pierce’s third component, the interpretant, moves beyond the static conception of the sign to include context.

From Pierce’s theoretical viewpoint, the sign, *sexual orientation*, is influenced by the interpretation of individuals within a social context. In contrast, queer theorists assume that the signifier merely exists without question, and they apply a philosophy of language that uses the concept of reference. When analyzing reference, academicians ask “how proper names and definite descriptions refer to things” (Namaste, 1996, p. 81). Queer theorists appear to assume that terms such as *lesbian* and *gay* refer to real entities without consideration of the social context in which the terms are constructed. They also appear to take a solipsistic approach in which the only real knowing is by the individuals who call themselves lesbian, gay, or queer. Note that queer theorists have ignored the category, *bisexual*, the omission of which seems to support their theoretical assumption of sexual categories clearly distinct from heterosexuality and suggests a political agenda rather than an objective scientific approach.

Alternatively, Namaste (1996) recommends a social semiotic account of sexuality to understand not the object to which the terms refer, but the dynamic contextual meaning of signs such as *bisexual* and *queer*. Namaste (1996) defines semiotics as “the ways in which meaning is generated and interpreted” (p. 71). To analyze the social semiotics of sexuality, investigators would appropriately direct their inquiries not toward the deconstruction of terms with the assumption of a static definition but rather toward the interpretation of terms within various dynamic social contexts. Namaste points out that, to date, the examination of the meanings of social constructions of sexuality have been limited to rhetorical discourses within the areas of film, literature, and cultural studies. She suggests that this area of study would benefit from social scientists’ offering alternative models for theorizing about the meanings of categories of sexual orientation.

Experimental Semantics

Although the present study approaches sexual orientation from a social constructionist viewpoint, social constructionism is generally confined to analyzing constructs by rhetoric and discourse (e.g. Hall and Pramaggiore, 1996; Jagose, 1996; Ringer, 1994). The problem with rhetoric and discourse as a method for social science is that the goals are not stated ahead of time and are, therefore, unfalsifiable by the scientific method (Roche, 1998). The present study addresses this problem by taking an experimental approach and proposes testable hypotheses which are falsifiable.

The present study proposes the use of a method of studying linguistic meaning called *experimental semantics* (O’Donohue, 1989). According to O’Donohue,

experimental semantics is a behavioral approach to linguistic meaning which views language as human behavior that can be analyzed experimentally to determine if and what relationships exist between the occurrence of various linguistic units and certain environmental events. It uses true experimental methods and actual language users to test hypotheses that attempt to provide lexical definitions of terms by giving general descriptions of the antecedent stimulus conditions found to be functionally related to the occurrence of these terms (1989, p. 23).

With experimental semantics, the lexical definitions of terms are studied systematically. This is done by presenting subjects with varying antecedent stimulus conditions which are predicted to evoke certain verbal responses and then comparing the probability of the occurrence of the verbal responses. For example, O’Donohue (1989) tested the antecedent stimulus conditions which evoke the verbal response “prejudice” which is commonly defined in dictionaries as a prejudgment or as “an adverse judgment or opinion formed beforehand or without knowledge or examination of the facts” (Boyer et al., 1982, p. 977). However, O’Donohue found that the use of the term prejudice is controlled by more factors than this simple definition would indicate. Subjects in O’Donohue’s study were presented with statements comparing characteristics (either socially desirable attributes or value neutral) of two groups of people (one empowered, e.g. Whites, and one less empowered, e.g. Blacks) with the statements either justified by scientific evidence or containing no epistemic justification at all. The results indicate that the verbal response “prejudice” was evoked significantly more often when the statement was not epistemically justified and when it favored an empowered group over a typically less empowered group. Thus, O’Donohue found that more factors than simply a “prejudgment” are involved in the semantics of the word “prejudice” demonstrated by the different conditions which controlled the use of the word. As O’Donohue (1989) concludes, the lexical meaning of terms can be subjected to experimental analysis by sampling the ordinary language community via experimental semantics to determine the antecedent stimuli that systematically evoke the terms being studied.

*Advantages of Experimental Semantics*

 The methodology of experimental semantics offers many exciting possibilities for examining systematically the semantics of sexual orientation. As discussed above, most researchers in the field of sexual orientation appear to assume a universal agreement about the definition of the construct in their studies (Shively, Jones, & DeCecco, 1984). Other researchers who have sought to develop self-report assessment instruments offer definitions that involve a variety of components such as overt sexual behavior and sexual fantasy, but they seem to have naïve views of definitions of sexual orientation. They fail to define the proposed components and fail to specify how these components are synthesized into a sexual orientation. They also fail to systematically test their hypothesized components within a theoretical framework except to measure the congruence between their definition and subjects’ self-identified sexual orientation as if self-identification were an accurate criterion.

 This naivete may stem from our culture’s prototype for the source of lexical meaning – the dictionary. It is possible that the scientific and ordinary language communities alike assume that the use of terms relating to sexual orientation directly correspond to simple dictionary definitions. For example, the dictionary definition for the term *homosexuality* is “sexual desire for others of one’s own sex” or “sexual activity with another of the same sex” (Boyer et al., 1982, p. 619). This definition corresponds to many of the researchers’ definitions cited above who refer to the most commonly assumed components of homosexuality: overt sexual behavior, sexual attraction, and sexual fantasy.

 However, the problem with most professionals’ depending on dictionary-type definitions is that the semantics of ordinary language may be quite divergent from the lexical meaning provided in dictionaries. Although dictionary definitions are intended to reflect conventional use, it is an empirical question as to whether the talk about the conventional use reflects the way in which words are actually used in different contexts. Alternatively, others such as J. L. Austin (Austin, 1963/1971; Graham, 1977), Eleanor Rosch (1975), and B. F. Skinner (1957) argue that individuals do not use language in a straight-forward and consistent manner, but rather use judgments, prototypes, and heuristics.

 The methodology of experimental semantics is an improvement on the sexual orientation research to date because it does not rely solely on a priori definitions but instead has the ability to detect nuances and differences in meaning by varying the antecedent stimuli and analyzing subjects' verbal responses. The methodology can also detect whether or not meaning is uniform among individuals which could suggest that the assumption of distinct categories of sexual orientation and the assumption of a consensus in meaning are incorrect. In addition, studying sexual orientation via experimental semantics is an improvement on the literature of ordinary language philosophy because, unlike rhetoric and discourse, experimental semantics proposes testable hypotheses which are falsifiable.

*Experimental Semantics Applied to Sexual Orientation*

 One of the problems with naive views of definitions of sexual orientation is that the simple definitions do not account for context. Our understanding of and judgment toward sexual behavior varies from culture to culture and has changed throughout history (Foucault, 1979; Weeks, 1991, 1996) suggesting that the way in which individuals talk about sexual orientation may be the result of shaping of an individual's verbal behavior by the verbal community. Skinner (1957) theorizes that speech, whether overt or covert, is verbal behavior and is governed by the same operant behavior principles as any other behavior. Thus, verbal behavior is learned from the verbal community by the presentation of antecedent stimuli and the reinforcing consequences which follow utterances that are correct according to the verbal community. From a verbal behavior perspective, correct categorical labeling of sexual orientation depends on and varies according to the context in which the terms are learned and spoken.

 However, the construct of sexual orientation poses a particularly difficult problem for the verbal community in that the stimulus properties of sexual orientation are abstract rather than tangible. Skinner (1957) gives an account of how abstract concepts such as "red" are difficult to teach in a single instance of reinforcement between speaker and listener, because even if the listener uttered the correct response "red" in the presence of a red apple, one could not be sure to which abstract property the listener had responded, e.g. color, shape, texture, etc. Only when the listener is differentially reinforced for responding to other examples of the color red which do not share common properties with apples can one be confident that the listener is responding to the color red. The interesting empirical question in terms of abstraction as it relates to sexual orientation is, What are the stimulus properties to which listeners respond with utterances such as "gay," "straight," "queer," etc.? According to Skinner (1957), the important relation to study in order to determine the semantics of abstract terms is by analyzing the stimulus-response relations. One could extend this line of thinking to mean that the best method for identifying the semantics of sexual orientation would be to "manipulate stimuli and, through the presence or absence of the response, identify the effective controlling properties" (Skinner, 1957, p. 113). This approach would not only reveal the semantic properties of sexual orientation but also would avoid the problem of identifying referents or signs (Skinner, 1957, p. 115) which are intangibles.

 Accordingly, there are a myriad of questions that could be investigated by manipulating possible stimulus properties of sexual orientation and analyzing verbal responses. Before describing the specific hypotheses of the present study, a number of possibilities will be briefly discussed.

*Between Group Differences*

An investigator may be interested in analyzing differences among a variety of verbal communities. Semantic differences between verbal communities would be interesting for demonstrating how sexual orientation may be a fluid concept as opposed to a static identity. Some examples of possible between-group comparisons are: (a) ingroup versus outgroup variability and (b) scientific versus ordinary language community judgments.

 *Ingroup versus outgroup perceptions of variability.* Ingroup versus outgroup perceptions of heterogeneity versus homogeneity have been widely studied (for reviews, see for example, Mullen & Hu, 1989; Sedikides & Ostrom, 1993). Individuals consider themselves as part of an ingroup if they perceive members of the group as similar to themselves based on any number of particular features (for example, ethnicity, social class, age, gender, etc.). Likewise, an individual perceives members of an outgroup as unlike themselves.

 Reviews of studies comparing ingroup versus outgroup perceptions consistently indicate that individuals perceive members of the ingroup as having greater variability, i.e. greater heterogeneity, than members of the outgroup, who are perceived to be more homogeneous (Mullen & Hu, 1989; Sedikides & Ostrom, 1993). Based on these findings, one could investigate whether individuals identifying as belonging to a particular group, say, heterosexuals, will demonstrate less variability in their labeling of behavior identified as different from themselves, for example, behavior considered to be bisexual or homosexual. However, this line of investigation poses problems in the field of sexual orientation research. How, for instance, would an investigator define whether a subject belongs to a particular group except by self-identification of sexual orientation which still begs the question of the semantics of categorization?

 *Scientific versus ordinary language community judgments*. Another possible question concerns between-group differences involving the scientific versus ordinary language communities. Among professionals, such as researchers and clinicians, it may be assumed that training in a particular field of study reduces the probability of bias in judgment relative to laypersons. However, when labeling sexual orientation, professionals may be subject to the same controlling variables as laypersons. Tversky and Kahneman (1974) present several types of heuristics and biases that individuals use when they are making a judgment under uncertainty. For example, both the scientific and ordinary language communities, when presented with a description of a man whose occupation is hairdresser, who speaks with a lisp, and who enjoys gardening may label the individual "gay" even without any information about his sexual behavior. This is an example of a representativeness heuristic in which the individual is judged by the degree to which he fits the stereotype of a gay man (Tversky & Kahneman, 1974). This line of investigation could yield several different hypotheses about heuristics and biases and whether or not professionals are subject to the same biases as laypersons when categorizing sexual orientation.

*Category Labels and Boundaries*

 Another line of investigation involves the categorization of individuals and the boundary conditions that may or may not distinguish one category from another. The classical model of categorization asserted by philosophers and scientists since Aristotle (MacLaury, 1991) holds that each category has clear boundaries and is defined by a set of necessary and sufficient conditions so that all members belonging to a particular category are equally representative of that category (MacLaury, 1991; Lakoff, 1990; Smith & Zarate, 1990). Both Wittgenstein (1953; cited in Lakoff, 1990) and J. L. Austin (1961; cited in Lakoff, 1990) may be credited with the earliest challenge to the classical theory of categorization by suggesting that many categories have members whose properties are not shared by all members of the category. For example, Wittgenstein analyzed the category, *game*, suggesting that there is no ideal set of attributes that all games share because, for instance, some involve strategy while others do not, and some are played with cards while others are not. Wittgenstein suggested that members within a category are related to each other more by a *family resemblance* such that members within a category share some but not all attributes in common, but that the members are similar enough to differentiate them from members of another category (Rosch & Mervis, 1975).

 *Classical Approach Versus Prototype Theory of Categorization.* The most significant challenge to the classical notion of categorization is credited to cognitive psychologist, Eleanor Rosch (1973), who empirically tested natural categories such as color and birds. Rosch and her colleagues demonstrated over a series of studies (e.g., Mervis & Rosch, 1981; Rosch, 1973, 1975; Rosch & Mervis, 1975; Rosch, Mervis, Gray, Johnson, & Boyes-Braem, 1976; Rosch, Simpson, & Miller, 1976) that categorization is assymetrical, an effect that she called the *prototype effect*. That is, within a particular category, subjects judge certain members as more representative than other members. For example, subjects judge a robin to be a more representative example than a penguin within the category, bird (Rosch, 1975). One of the dependent measures of Rosch's studies that is assumed to measure representativeness of objects within a category is response time, that is, the length of time from the presentation of a stimulus to the subject's response. When subjects are shown images of different birds, the response time is much shorter for a robin than for a penguin suggesting that not all members of a category are equally representative.

 In terms of sexual orientation, the present investigators considered applying methods used in Rosch's work, such as response time, to reveal the semantics of categories of sexual orientation. For example, one could vary antecedent stimuli by giving subjects descriptions of individuals who differ in terms of overt sexual behavior, sexual fantasy, and sexual attraction and ask subjects to apply a label to the individual. A dependent measure of response time would indicate the relative strength of conditioning of various verbal responses to discriminative stimuli. Shorter response times for certain stimuli could be interpreted such that certain descriptions of sexual behavior would be more prototypical of a category of sexual orientation labeled by a majority of subjects.

 However, the use of response time as a measure is problematic with complex concepts. Rosch's work has been confined to the analysis of *natural* categories such as colors, fruit, furniture, birds, vehicles, letter strings, etc., in which subjects could be presented with stimuli consisting of either a single word or a picture. For example, subjects may be presented via a computer program with a picture of a robin followed by a picture of a penguin and for each stimulus asked to hit a key indicating whether the item is a bird or is not a bird. In this example, the presentation of the stimuli does not vary in terms of time.

 However, for descriptions of sexual orientation, there are no instant visual stimuli or one-word descriptions that would evoke verbal responses related to the abstract categories of sexual orientation. For such a complex construct, one could present subjects with textual descriptions of sexual behavior and measure verbal responses, but it would be impossible to accurately measure response time. For example, Coleman and Kay (1981) measured the semantics of the word *lie* by varying three components which were hypothesized to constitute a lie (i.e. that a proposition is false, that a speaker believes the proposition to be false, and that in uttering the proposition, the speaker intends to deceive the listener). They gave subjects textual descriptions of different scenarios in which the components were varied by being either present or absent in different combinations. Their dependent variable consisted of a 7-point Likert scale ranging from "very sure not a lie" to "very sure a lie." In this way, Coleman and Kay measured the relative strength with which subjects judged scenarios to be representative of a lie, thus providing a measure of what they called the prototype semantics of the word *lie*. Coleman and Kay noticed that subjects judged some scenarios more quickly while for others they hesitated, and therefore, they considered using response time as a dependent measure. However, as Coleman and Kay (1981) concluded, "response time would be virtually meaningless with stimuli of this complexity, e.g., it would have been impossible to control for reading speed" (p. 30). Other researchers who have studied the semantics of complex concepts have similarly presented subjects with varying scenarios and used Likert scales, rather than response time, as outcome measures of category representativeness (Capozza & Nanni, 1986; Lysak, Rule, & Dobbs, 1989; Rickabaugh, 1995).

 *Experimental semantics*. The method of experimental semantics (O'Donohue, 1989) could be applied to the investigation of categories of sexual orientation. That is, one could vary the antecedent stimuli which are hypothesized to evoke category labels of sexual orientation (such as heterosexual, bisexual, homosexual) and compare the frequencies with which subjects judge various descriptions as belonging to particular categories. Because verbal behavior is learned and reinforced by the verbal community, understanding the antecedent stimuli related to the utterance of sexual orientation categories would provide an understanding of the meaning of the category labels. This is the method that will be used in the current study as described in the following section.

The Current Study

 Given all of these possible questions for investigation, and given the limitations of a single empirical study, the most sensible area to investigate at this early stage of theoretical development is the semantics of sexual orientation. The most basic and interesting question at this point is: What are the semantics of various category labels of sexual orientation used in ordinary language?

 The purpose of the present study is to determine the semantics of sexual orientation by manipulating the antecedent stimulus conditions which are hypothesized to evoke among the ordinary language community terms relating to categories of sexual orientation. The goal of this approach is to determine whether the ordinary language community judges categories of sexual orientation to be discrete, that is, whether the categories have sharp boundaries containing hypothesized necessary and sufficient conditions, or whether the categories have "fuzzy" boundaries such that membership in a category is a matter of degree rather than all-or-none (Fehr & Russell, 1984). Because the ordinary language community is not a homogeneous group, but rather is composed of subgroups, it is expected that the results will reveal inconsistencies in labeling behaviors as “heterosexual,” “homosexual,” and “bisexual.” If this result is demonstrated, the implications would be that (a) the essentialist assumption of discrete categories of sexual orientation with necessary and sufficient conditions would be unsupported, (b) a model can be developed to describe the semantics of sexual orientation, (c) future research can focus on further refinement of the model in terms of testing different stimulus components that evoke terms, and (d) future research could be directed toward understanding how sexual orientation is socially constructed, for example, how does membership in different subgroups (such as age, gender, religiosity, self-identified sexual orientation, etc.) influence the use of terms relating to sexual orientation.

*Antecedent Stimuli Hypothesized to Evoke Categories of Sexual Orientation*

 Researchers in the field of sexual orientation are also part of the ordinary language community. Therefore, the language that they use to describe sexual orientation is influenced by the ordinary language community. In addition, researchers may develop specialized, technical language that does not occur in the ordinary language community. The present study can demonstrate whether or not components a priori assumed by researchers to be associated with sexual orientation are predictive of the use of terms relating to sexual orientation.

The problem with sexual orientation research to date is that components are hypothesized as part of the construct, but there has been no systematic study of how to judge the accuracy of the construct. The hypothesized components as reviewed above range from two to seven components. The current study proposes to systematically examine three of these components, the choice of which is explained below.

Studies by Kinsey, Pomeroy, and Martin (1948, 1953) and by Bell and Weinberg (1978) hypothesized two components: overt sexual behavior and sexual fantasy. Shively and DeCecco (1977) added a third component: affectional preference (defined as a preference for male or female emotional partners). Berkey, Perelman-Hall, and Kurdek (1990) addressed these three (overt sexual behavior, sexual dreams and fantasies, and emotional factors), but added two more factors: sexual attraction and arousal to erotic materials. However, the present author argues that arousal to erotic materials is a type of sexual attraction in that an individual can be attracted to a live person, a picture, or a video. In all of these instances, the individual is sexually attracted to another individual of the same or opposite sex with the only difference being the medium with which the other person is encountered. Therefore, from this discussion so far, there are four hypothesized components: overt sexual behavior, sexual attraction (to individuals in person, or in pictures and video), sexual dreams and fantasies, and emotional preference.

 Klein, Sepekoff, and Wolf (1985) proposed, in addition to these four factors, another three factors: social preference, self-identification, and lifestyle. However, a factor analysis of these seven components revealed that both emotional and social preference loaded separately from a general factor labeled general sexual orientation (Weinrich, Snyder, Pillard, Grant, Jacobson, et al., 1993). In addition, self-identification of sexual orientation and lifestyle may be considered a sort of criterion measure or a consequent of sexual orientation, but do not appear to be face valid as components of the construct, sexual orientation.

 In summary, the three components most commonly proposed among researchers and those that have been shown by factor analysis to load most consistently on a general factor labeled sexual orientation (Weinrich, Snyder, Pillard, Grant, Jacobson, et al., 1993) are: (a) overt (physical) sexual behavior, (b) sexual attraction, and (c) sexual fantasies. These three factors appear at least topographically to be conceptually distinct from one another in that overt sexual behavior may be defined as physical sexual contact with another individual, sexual attraction may be defined as an individual's arousal in response to another individual, and sexual fantasy may be defined as sexual arousal in response to one's own sexual thoughts. In addition, these three factors may be considered theoretically distinct from one another in terms of content and function. For example, an individual may engage in overt sexual behavior with a member of the opposite sex (for a variety of reasons, such as procreation), but the individual may be exclusively attracted to members of the same sex. In this case, the function of the overt behavior is procreation rather than sexual arousal. Indeed, the individual in this example may need to engage in sexual fantasy about members of the same sex in order to perform the physical sexual act. The distinction between sexual attraction and sexual fantasy is not as clear, however. The function of both is sexual arousal with the only difference being the stimuli to which an individual responds (either external or internal stimuli). However, as described below, members of the ordinary language community who attempt conversion from homosexuality to heterosexuality (Miller, 1998; Leland & Miller, 1998) make a distinction among these three factors in their definition of sexual orientation in that sexual attraction to members of the same sex may be considered less intentional and therefore allowable within the definition of heterosexuality, whereas masturbatory fantasy about members of the same sex may be considered a relapse to homosexuality.

 Haldeman (1994) reviewed the practice and ethics of sexual orientation conversion therapy and found that outcome studies define a successful shift in sexual orientation as "an expansion of the sexual repertoire toward heterosexual behavior" (p. 222), which included no current overt homosexual behavior, desires, or fantasies. The language of the scientific and the ordinary language community appears to converge on these three components as determinants of categories of sexual orientation. Among the folk language community, these three components appear to be important determinants of sexual orientation. For example, in two recent *Newsweek* articles (Miller, 1998; Leland & Miller, 1998), individuals who underwent sexual orientation conversion, conducted by conservative Christian organizations, describe how they view successful conversion from homosexuality to heterosexuality. Miller (1998) describes one man, John Paulk, who thinks of himself as a former homosexual. The success of his conversion is explained by the fact that he is now in a heterosexual marriage with a woman who describes herself as a former lesbian, and by the fact that the couple have conceived a child. For John Paulk, the change in his overt behavior with an opposite-sex partner solely determines his successful conversion, even though he continues to feel attractions toward men. As Miller (1998) reports, Paulk says that, "I still find men attractive, [but] my orientation is as a straight man" (p. 27). Others who have undergone sexual orientation conversion, who are not successful in their attempts to engage in sexual behavior with the opposite sex, view abstinence from same-sex physical sexual behavior as successful conversion to heterosexuality (Leland & Miller, 1998). However, some individuals report suffering lapses into masturbatory fantasy about the same sex (Haldeman, 1994). Still others are concerned with changing not only overt behavior, but sexual attraction as well. Leland and Miller (1998) report on an individual named Matt who says that while he has experienced a reduction in his attraction to men, he has not yet dated a woman, but feels that the move is "imminent" (p. 49).

 It is reasonable to hypothesize that, at least among those in the ordinary language community who attempt to change their sexual orientation, the components that define sexual orientation are overt sexual behavior, attraction, and fantasy. All of the interviewees viewed sexual orientation as a dichotomous variable involving the labels "heterosexual" and "homosexual" and all described their overt sexual behavior as a determinant of their sexual orientation category. However, even among this small sample of interviewees, there is disagreement about whether sexual attraction and sexual fantasy are problematic in crossing the threshold toward complete conversion to heterosexuality. It is reasonable to hypothesize that, among the ordinary language community, overt behavior overrides attractions and sexual fantasies, such that the lay community may be operating under a protobehavioral theory in which overt behavior matters most. For example, members of the ordinary language community may believe that individuals can lie about their attractions and fantasies, so the important distinction is how they act. This suggests that all three components may influence how individuals identify sexual orientation, and that the components may not be equally applied. The current study is designed to reveal the relative importance of these factors in predicting the categorization of sexual orientation.

 For the current study, stimuli in which these three components are manipulated (overt sexual behavior, sexual attraction, and sexual fantasy) with two levels each (same- or opposite-sex oriented) along with a fourth stimulus condition, gender (male or female), are hypothesized to influence the probability of verbal responses representing categories of sexual orientation. For the purposes of this study, the three components relating to sexual behavior are operationally defined as follows: (a) *overt sexual behavior* is defined as physical sexual contact between individuals of the same or opposite sex; (b) *sexual attraction* is defined as an individual's experience of sexual arousal in response to another individual of the same or opposite sex; (c) *sexual fantasy* is defined as an individual's experience of sexual arousal in response to one's own thoughts about other individuals of the same or opposite sex. It is predicted that descriptions involving these stimuli will evoke verbal responses of "homosexual," "heterosexual," "bisexual," "other/off target," or responses which will a priori be determined to be within the same response class. Therefore, a 2 x 2 x 2 x 2 factorial design was used yielding sixteen experimental scenarios described in the *Methods* section below.

*Hypotheses of the Current Study*

 The main purpose of the current study is to test the semantics of categories of sexual orientation. The question of interest is whether or not the ordinary language community consistently classifies sexual orientation by discrete categories according to necessary and sufficient criteria. Based on the above anecdotal evidence from the ordinary language community in which there is disagreement about criteria for crossing thresholds among categories of sexual orientation, the present study predicts that the categories will not be discrete in that the antecedent stimuli will not consistently evoke responses "heterosexual," "homosexual," or "bisexual."

*Necessary and Sufficient Conditions*

 Specifically, it is hypothesized that none of the antecedent stimuli (overt sexual behavior, sexual attraction, and sexual fantasy) will be either necessary or sufficient conditions for categorizing descriptions of target individuals as "heterosexual," "homosexual," or "bisexual." In other words, to test necessary conditions, it is predicted that the absence of any one level of a predictor will not reduce the frequency of any response on the opposite level of a predictor to zero. In terms of sufficient conditions, in order for a stimulus condition to be a sufficient predictor, it would have to evoke a target response 100% of the time. It is hypothesized that none of the stimulus conditions will be sufficient to predict 100% of any response.

*Relative Strength of Prediction Among Components*

 While none of the stimulus components is expected to be either a necessary or sufficient condition, it is hypothesized that overt sexual behavior, whether same- or opposite-sex oriented, will be the most influential factor in evoking responses of "homosexual," "heterosexual," or “bisexual.” This prediction is derived from the discussion of sexual orientation conversion therapy above in which individuals who changed their overt same-sex sexual behavior were judged to have changed to the category "heterosexual" even though they continued to have same-sex oriented attractions and fantasies.

*Impurity Hypothesis: Effect of Same-sex Oriented Behavior*

 In addition, a specific hypothesis involving social bias is proposed in that it is expected that for stimulus conditions involving mixed components of same-sex and opposite-sex oriented behavior, there will be a significantly greater frequency of responses of "homosexual" than "heterosexual." This hypothesis is based on what will be called *the impurity hypothesis* in that it is possible that any same-sex oriented behavior, whether overt or private behavior, will be judged to taint the sexual orientation of the target individual because same-sex oriented sexual behavior is considered socially undesirable. This is similar to how Blacks have historically been categorized in the United States in which any Black ancestry, no matter how small, places an individual in the category, Black or mulatto. Whereas, a Black individual with a small amount of White ancestry does not similarly cross categorical boundaries and receive the label "White." Similarly, according to the impurity hypothesis, same-sex oriented behavior is hypothesized to "taint" the category, "heterosexual," thereby evoking more frequent responses of "homosexual."

*Effect of Gender Component*

While the Kinsey scale (Kinsey, Pomeroy, & Martin, 1948; 1953) and other scales for measuring sexual orientation assume a one-to-one correspondence when categorizing both men and women, it is possible that the ordinary language community judges male sexual orientation differently from female sexual orientation. Therefore, interactions among gender and the three other stimulus components will be explored. This question is based on the observation that as the visibility of lesbianism emerged in American culture with the feminist movement (Jagose, 1996), sexual relationships between women were assumed to be as much about political choice and affectional preferences as about physical sex. Jagose (1996) quotes a description of lesbianism as follows:

Love between women has been primarily a sexual phenomenon only in male fantasy literature. 'Lesbian' describes a relationship in which two women's strongest emotions and affections are directed toward each other. Sexual contact may be a part of the relationship to a greater or lesser degree, or it may be entirely absent (Faderman, 1985; cited in Jagose, 1996, p. 64-65).

 It is hypothesized that stimulus descriptions involving men will be predicted by a different model compared to descriptions involving women. Specifically, it is predicted that overt behavior will be the most important predictor for scenarios involving males. However, for descriptions of women, it is expected that overt sexual behavior will be less influential than sexual attraction or fantasy.

Method

*Subjects*

Subjects were 371 volunteers recruited from the University and Community College System of Nevada via announcements in classrooms and via the Psychology Department subject pool.Subjects were eligible for the study if they were at least 18 years old and if English was their first language. Of the 371 subjects, two did not fully complete the questionnaire, and one subject identified her first language as Spanish. Therefore, three subjects were excluded from the analyses, resulting in a total of 368 subjects.

 Subjects' ages ranged from 18 to 54 years with a mean age of 22.8. Among the 368 subjects, 129 (35%) were male and 239 (65%) were female. Subjects' ethnicities were identified as follows: 302 (82%) White; 13 (3.5%) Mexican; 12 (3.3%) Filipino; 8 (2.2%) Black; 7 (1.9%) American Indian; 5 (1.4%) Chinese; 15 (4.1%) Other; and 1 (0.3%) for each of the following: Puerto Rican, Japanese, Korean, Asian Indian, Vietnamese, Guamanian. Within the ethnicity category of "Other," the 15 subjects self-identified as follows: Thai, Pakistani, Latina, 1/2 Chinese and 1/2 White, Central American (Guatemalen), Asian Pacific, Lebanese/Salvadorean, Costa Rican, Eurasian, Tlingit (Southeast Alaskan Native), Greek, Asian, Canadian/Austrian, 1/2 Puerto Rican and 1/2 Black, and one subject did not state.

*Procedure*

 Participants were informed that the study was designed to investigate the accuracy of character descriptions to be used in the development of a screenplay entitled "New York Detective Mystery" for the Community Theatre. This deception was necessary to control for response bias. It was expected that, if subjects had been aware that they were being asked to label or categorize sexual behavior, they may alter their responses in several ways. For example, subjects may have anticipated the hypotheses and tried to give "correct" answers rather than their typical response; or subjects may have feared that, in the context of a study on sexual behavior, giving responses such as "queer" may seem prejudice, and they may alter their answers. However, the deception was not considered harmful, and subjects were debriefed afterward.

 Subjects were asked to read a "Statement of Risks and Benefits of Participation in a Research Study" in which they were notified of their rights as a research participant, including notification that their responses were to be kept confidential and that they had the right to withdraw from the study at any time without penalty. Each subject was asked to complete a paper-and-pencil questionnaire as described below. Subjects were given written instructions to complete the questionnaire using an ink pen, and to answer the questions in the order in which they appeared without going back to any previous questions. They were informed that data from questionnaires with crossed-out answers would not be used. Following the completion of the questionnaire, subjects were given a written debriefing statement about the actual purpose of the study and an explanation about the necessity for deception.

*Apparatus*

 The paper-and-pencil questionnaire consisted of 12 questions divided into three sections. For the first section, subjects were asked demographic information about their age, gender, ethnicity, and primary spoken language. In the second section, subjects were presented with five scenarios including one target scenario and four distracter scenarios. The target scenarios described individuals whose characteristics varied among four experimental variables with two levels each including same- or opposite-sex oriented a) overt sexual behavior, b) sexual attraction, c) sexual fantasy, and d) gender of target individual (male or female). For this 2x2x2x2 factorial design, each of the 16 target scenarios were written alike except for the experimental manipulation. For example, Target Scenario 1 reads as follows (with brackets indicating the experimental manipulations): "[Tom] is currently dating a [woman], and [he] is sexually intimate with [her]. [Tom] is attracted to [women], sometimes feeling sexually aroused when they walk by. When [Tom] has sexual fantasies, [he] imagines [himself] with [women]."

 The four distracter scenarios, which were the same across forms, were designed to contribute to the deception of the study. The distracter scenarios describe individuals with characteristics unrelated to sexual behavior but similar in form to the target scenarios with both male and female individuals and either consistent or mixed content involving behavior which would typically be described as a) athletic, b) extroverted, c) artistic, and d) feminist. For a complete list of the scenarios, see Appendix A.

 Following each target and distracter scenario, subjects were instructed to fill in the blank by writing a one-word response to the following: "This description indicates that [Tom] is \_\_\_\_\_\_\_\_\_\_." A written reminder following each blank stated "(one word only)." This instruction was added after the questionnaire was piloted on a small group (see "Pilot Data" below), and the investigators found that many subjects provided multi-word responses which would have been difficult to code.

 The target scenario and the four distracter scenarios were counterbalanced to control for order effects using a block randomization procedure (Elmes, Kantowitz, & Roediger, 1989). There were 32 different forms of the questionnaire which were randomly assigned among subjects.

 In the third section, after subjects responded to the scenarios, they were asked to guess the purpose of the study. That is, they were asked, "What do you think the experimenters are trying to investigate in this study?" This question was designed to determine whether or not the deception was effective. Of the 368 subjects, only one guessed that the study was related to sexual orientation indicated by the individual's response to this question, which simply stated, "homosexuality." The most typical guess was that the experimenters were investigating stereotypes or perceptions of people based on brief descriptions. One answer that is worth noting was, "How we view the world and how that view can only be expressed in a somewhat limited fashion due to our limited language."

 On the last page of the questionnaire, an exploratory question was posed in which subjects were asked to fill in the blank for the following: "If you had to describe your sexual orientation, how would you describe yourself?" This exploratory question was intended to be used to examine whether the subject's self-identified sexual orientation affects the variety of responses to the scenarios such that subjects with various self-identified sexual orientations may have had either more or less opportunities to be taught by the verbal community different categories of sexual orientation. Unfortunately, responses to this question were difficult to code because subjects were not instructed to use only one word. In addition, many subjects seemed to have misunderstood the question and responded with descriptions of their frequency of sexual activity or their comfort with or moral position on sexual activity in general. However, these responses do indicate a surprising finding such that the term, "sexual orientation," is apparently not consistently understood to mean one's orientation toward the same or opposite sex.

*Pilot Data*

 The study was first piloted on a group of 26 volunteers recruited from a psychology class at a community college. The purpose of piloting was to determine a) whether the deception was effective, b) whether subjects understood the instructions, and c) whether subjects would respond within the range of expected results, i.e. with responses such as "heterosexual," "homosexual," and "bisexual."

 Out of the 26 pilot subjects, none had guessed that the study was related to sexual orientation. Most subjects hypothesized that the study involved "stereotypes" or "how people perceive others." Other subjects' guesses were related to the stated purpose of the study, for example, "characters in a play that represent people in everyday life."

 Secondly, all subjects appeared to have understood the instructions and filled in the blanks with a word or phrase relevant to the scenario. Because some subjects' responses involved descriptions with more than one word, which would have created difficulties in coding, the instructions were revised for the main study. Specifically, following each target and distracter scenario, subjects were instructed to fill in the blank by writing a *one-word* response to the following: "This description indicates that [Tom] is \_\_\_\_\_\_\_\_\_\_." A written reminder following each blank stated "(one word only)." Additionally, on the first page of the questionnaire entitled, "Introduction," the instructions were revised as follows: Rather than the instruction, "For each description, you are asked to write in your response to the statement: 'This description indicates that [name] is \_\_\_\_\_\_\_\_.', subjects were given the instruction, "For each description, you will be asked to give a one-word response."

 Finally, with regard to the correspondence of pilot data to expected results, subjects responses appeared to fall within the range of expected results. These are listed in Table 1. The frequencies per condition are not equivalent as some subjects' primary language was other than English, but they chose to participate for a classroom exercise. Their responses are not reported here.

Table 1

Responses to Target Scenarios from a Pilot Sample (N=26)

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Condition No. Response

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 1 heterosexual

 1 a normal guy

 2 straight

 3 bi-curious

 3 closet homo

 3 gay but hiding it

 4 bisexual

 5 bisexual

 5 bisexual

 5 confused

 6 confused

 7 bisexual

 7 unsure of himself

 7 repressed homosexual, or could be bi

 8 sexually intimate

 9 bisexual

 9 confused

 10 confused

 11 bisexual (more fascinated with men)

 12 bisexual

 13 not sure about his sexuality

 13 curious

 14 confused

 15 queer

 15 homosexual

 16 a lesbian

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Coding Rules*

 For the main study, subjects' responses to the target scenarios were divided into four categories (*heterosexual, homosexual, bisexual*, and *other/off-target*) based on a priori coding rules. For each category, alternative responses which were considered by the investigators to be within the same response class and coded within that category were as follows: a) for the category, *homosexual*, alternative responses were "gay," "fag," "queer," "dyke," "lesbian;" b) for the category, *heterosexual*, an alternative response was "straight;" c) for the category label, *bisexual*, no alternative responses were coded. All other responses were coded in the category, *other*. Although the investigators anticipated many other alternative responses (for example, that "normal" may be a frequent response to scenarios which would also be labeled "heterosexual," and that "confused" may be a frequent response to scenarios which would also be labeled "bisexual") an a priori decision was made to use a strict coding system in which only words clearly associated with sexual orientation would be coded as heterosexual, homosexual, or bisexual.

Results

 Data were analyzed using SPSS v. 9.0 via multinomial logistic regression, a technique related to multiple regression and the logit form of multiway frequency analysis. Multinomial logistic regression allows one to predict a discrete outcome using nominal data with more than two levels (Tabachnick & Fidell, 1996). In the current study, dichotomous predictors were overt sexual behavior (OVERTBEH; same- vs. opposite-sex oriented), sexual attraction (ATTRACTN; same- vs. opposite-sex oriented), sexual fantasy (FANTASY; same- vs. opposite-sex oriented), and gender of the individual in the target scenario (GENDER; male vs. female). The multinomial dependent variable was subjects' responses to the target scenarios coded into four nominal categories (CATEGORY; heterosexual, homosexual, bisexual, and other/off target).

*Preliminary Analyses*

*Inspection of Observed Frequencies*

 The observed frequencies of responses relating to the categories, *heterosexual, homosexual, bisexual,* and *other* are illustrated in Table 2. At first glance, the data appear to be distributed among the target outcome categories as expected with the majority of responses distributed among the categories *homosexual* and *bisexual*.

Table 2

Observed Frequencies of Responses to Target Scenarios

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Overt

 Sexual Sexual Sexual "Hetero- "Homo- "Bi-

 Behavior Attraction Fantasy Gender sexual" sexual" sexual" "Other"

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 1) Opposite Opposite Opposite Male 6 0 0 17

 2) Female 4 0 0 19

 3) Same-sex Male 0 2 3 18

 4) Female 0 0 4 19

 5) Same-sex Opposite Male 1 0 13 9

 6) Female 1 1 13 8

 7) Same-sex Male 0 7 8 8

 8) Female 0 6 13 4

 9) Same-sex Opposite Opposite Male 0 0 16 7

 10) Female 2 2 15 4

 11) Same-sex Male 0 3 13 7

 12) Female 0 6 15 2

 13) Same-sex Opposite Male 0 10 7 6

 14) Female 0 3 12 8

 15) Same-sex Male 0 20 0 3

 16) Female 0 19 1 3

 \_\_ \_\_ \_\_\_ \_\_\_

TOTAL 14 79 133 142

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 A closer look at the distribution among the 16 conditions reveals some interesting trends. Conditions 1 and 2, which were consistently opposite-sex oriented and expected to evoke the response "heterosexual," evoked only 10 such responses out of 46 (22%). The remainder of responses for Conditions 1 and 2 were coded as "other" and are listed in Appendix B. Conversely, Conditions 15 and 16, which were consistently same-sex oriented and expected to evoke the response "homosexual," evoked 39 out of 46 (85%) responses of "homosexual," 1 response of "bisexual," and only 6 "other" responses.

 Secondly, it is particularly noteworthy that for the conditions involving mixed same-sex and opposite-sex behavior (Conditions 3-14), 9 out of 12 of the observed cell frequencies for the category, *heterosexual*, are zero. In addition, among all of the conditions that involve any type of same-sex behavior, only 1 male was labeled "heterosexual" (Condition 5). Moreover, under all conditions in which same-sex sexual fantasy was involved (regardless of gender, or whether there was same- or opposite-sex overt behavior or sexual attraction), there was never a response of "heterosexual." A visual inspection of the data appears, preliminarily, to strongly support the *impurity hypothesis* which will be discussed in a later section. The results of the inferential statistics for these data are presented in the section entitled, "Planned Analyses."

*Adequacy of Expected Frequencies*

 As a preliminary check to determine the adequacy of expected cell frequencies, a direct multinomial logistic regression was performed on CATEGORY ("heterosexual," "homosexual," "bisexual," and "other") as the dependent variable and all four predictor variables (OVERTBEH, ATTRACTN, FANTASY, and GENDER). A test of the full model indicated that there was a quasi-complete separation in the data as evidenced by a parameter estimate tending to infinity (FANTASY x "heterosexual"). According to Tabachnick and Fidell (1996), "complete separation of groups by a dichotomous predictor occurs when all cases in one outcome group have a particular value of a predictor ... while all those in another group have another value of a predictor" (p. 579). When this occurs, the validity of the model is uncertain. Complete separation of groups can occur a) when there are structural zeroes because certain cross-classifications of variables cannot logically occur, b) when the sample size is too small so that the statistical regression overfits the data, c) when a phenomenon is so rare that certain cross-classifications may not have been sampled from the population; or d) when an outcome group is perfectly predicted by a variable (DeMaris, 1992; Tabachnick & Fidell, 1996).

 Theoretically, for the current data set, there should be no structural zeroes as all combinations of the independent variables could logically occur. Secondly, sample size does not appear to be problematic. In planning for adequate power prior to data collection, the investigators anticipated needing at least 20 data points per cell to adequately calculate the expected frequencies (Tabachnick & Fidell, 1996). Some statisticians (DeMaris, 1992) suggest that, for chi-square types of analyses, a rule of thumb is that *average* cell size should be at least five. Others (Tabachnick and Fidell, 1996) recommend that, for the model to be considered valid, no more than 20% of the *expected* frequencies should be less than five. The current data set is considered to have adequate power as it contains 23 data points per cell (368 data points among 16 cells). Despite the large sample size, the logistic regression analysis of the full model revealed that 29.7% of the outcome categories had *observed* frequencies of zero which caused more than 20% of the *expected* cell frequencies to be less than five.

 When a problem with zero cell frequencies occurs, Tabachnick and Fidell (1996) recommend either a) collapsing categories if possible, or b) removing the problematic variable from the model if it is not necessary. For the current data set, there was one parameter estimate that tended to infinity -- the parameter estimate for the predictor variable, FANTASY, in predicting the outcome CATEGORY, *heterosexual*. An inspection of the cell frequencies for FANTASY, across all other variables, revealed that there were zero responses of "heterosexual" whenever a scenario involved same-sex FANTASY, regardless of whether same-sex or opposite-sex OVERTBEH or ATTRACTN were involved, and regardless of GENDER. However, collapsing the nominal category, *heterosexual*, with another category would not be theoretically appropriate. In terms of removing variables from the model, the FANTASY variable could be removed, but it may result in loss of important predictive value. It is possible that the zero cell frequencies for "heterosexual" were due to the strength of the predictive value of same-sex FANTASY, such that this variable may approach the significance of a perfect predictor.

 Alternatively, Clogg and Eliason (1988) recommend adding a small constant to cell frequencies so that parameter estimates are calculable but are not unduly influenced by the constant. They state that a common recommendation is to add .5 to each cell. However, this common practice does not account for the marginal distribution of the dependent variable. Instead, Clogg and Eliason (1988) recommend adding a small constant that is proportionate to frequencies in the marginal distribution compared to the total number of observations and one which accounts for the number of parameters to be estimated. Using Clogg and Eliason's (1988) formula, the recommended constant for the current data set was calculated at .25. Therefore, for the inferential statistics which follow, a constant of .25 was added to each analysis.

*Planned Analyses*

*Hypotheses 1 and 2: Necessary and Sufficient Conditions*

 It was hypothesized that none of the component antecedent stimuli would be either necessary or sufficient conditions for categorizing descriptions of target individuals as heterosexual, homosexual, or bisexual.

 *Necessary conditions:* To test necessary conditions, it was predicted that the absence of any one level of a predictor would not reduce the frequency of any response on the opposite level of a predictor to zero. This hypothesis was not supported as there was one variable that was a necessary condition for being labeled "heterosexual." For the antecedent stimulus, FANTASY, the absence of opposite-sex FANTASY reduced the frequency of responses of "heterosexual" to zero, demonstrating that opposite-sex sexual FANTASY is a necessary condition for being labeled “heterosexual.” However, the design of the present study did not allow an exact experimental test of necessary conditions which would have involved scenarios in which opposite-sex fantasy was alternately present and absent (no opposite-sex fantasy). In the current study, the condition alternating with opposite-sex fantasy was same-sex fantasy. Therefore, in interpreting this result, one must consider the influence of same-sex fantasy. The result may alternatively be interpreted such that the presence of same-sex sexual fantasy consistently ruled-out responses of "heterosexual."

 *Sufficient conditions:* In terms of sufficient conditions, in order for a stimulus condition to be a sufficient predictor, it would have to evoke a target response 100% of the time. It was hypothesized that none of the stimulus conditions would be sufficient to predict 100% of any response of "heterosexual," "homosexual," or "bisexual." This hypothesis was supported when considering the total distribution of responses including the category, *other*. However, among the categories, *heterosexual, homosexual,* and *bisexual* (disregarding the category, *other/off target*), several conditions were sufficient to produce 100% of the responses in one category with zero frequencies in the other two categories. Referring to Table 2, cell frequencies across outcome CATEGORY indicate the following: Conditions 1 and 2 were sufficient to evoke responses of "heterosexual"; Conditions 4 and 9 were sufficient to evoke the response, "bisexual"; and Condition 15 was sufficient to evoke the response "homosexual."

 While Conditions 1, 2, and 15 would have been expected to produce such a consistent result as they all involve scenarios with consistent levels of opposite- or same-sex behavior across predictors, Conditions 4 and 9 present some interesting results. Specifically, Conditions 3 and 4 are identical except for GENDER (opposite-sex OVERTBEH and ATTRACTN with same-sex FANTASY). However, while both males and females were labeled "bisexual," only males were labeled "homosexual" (Condition 3).

 The reverse is true for Condition 9. Conditions 9 and 10 are identical except for GENDER (same-sex OVERTBEH with opposite-sex ATTRACTN and FANTASY). In this case, while both genders were labeled "bisexual," females were additionally labeled "homosexual" and "heterosexual" (Condition 10). Finally, Condition 16 contains an apparent anomaly in which, like Condition 15, should have produced 100% of responses of "homosexual." However, even though Condition 16 is consistently same-sex oriented OVERTBEH, ATTRACTN, and FANTASY, one subject responded "bisexual" for the scenario involving a female. The results of inferential tests of gender differences are presented in the section entitled, "Hypothesis 5: Effect of Gender."

*Hypothesis 3: Relative Strength of Prediction Among Components*

 It was hypothesized that OVERTBEH, whether same- or opposite-sex oriented, would be the most influential factor in evoking responses of "heterosexual," "homosexual," or "bisexual." A multinomial logistic regression was run with CATEGORY (omitting "other" responses) as the dependent variable and OVERTBEH, ATTRACTN, FANTASY and GENDER as predictor variables. A test of the full model with four predictors against an intercept-only model was statistically reliable, χ2 (8, N=226) = 138.388, *p*<.001, indicating that the predictors, as a set, reliably distinguished among "heterosexual," "homosexual," and "bisexual" categories. The total contribution of the four predictors to the model fit was 38% (pseudo-*R*2 = .38)[[3]](#footnote-3).

 To compare the relative contribution of each predictor to the model, Table 3 shows the improvement in the full model compared to a reduced model with each predictor successively removed from the equation via a likelihood ratio test. Tests of the significance of individual predictors differ in the multinomial case versus tests of models with dichotomous outcomes (DeMaris & Rao, 1993). The global test is the same for both cases such that the likelihood ratio Chi-squared statistic represents the ratio of the maximum likelihood estimates for all the effects compared to the null hypothesis (in which all coefficients except the intercept are zero). However, tests of individual predictors differ. To test the relative strength of individual predictors in the dichotomous case, the effect is computed by dividing an estimate by its standard error. In the multinomial case, to determine the relative contribution of a predictor to the full model, a -2 log likelihood (-2LL) statistic is calculated by dividing the maximum likelihood estimate for the full model by the likelihood function for a reduced model that excludes that particular effect. In Table 3, the chi-square improvement is the difference between the -2LL for the full model and a reduced model excluding the effect of each predictor.

Table 3

Likelihood Ratio Tests on Individual Predictors (N=226)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 -2 Log Likelihood Chi-Square

Effect of Reduced Model (improvement) df Sig.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Intercept Only 86.850

OVERTBEH 143.878 57.028 2 .000

ATTRACTN 156.800 69.950 2 .000

FANTASY 141.632 54.782 2 .000

GENDER 88.740 1.890 2 .389

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

 The chi-square improvement was significant for three of the predictors -- OVERTBEH, ATTRACTN, and FANTASY. The predictor, GENDER, did not significantly contribute to the model fit. Contrary to the hypothesis regarding the relative contribution of each predictor, among the four predictors, ATTRACTN rather than OVERTBEH contributed the greatest amount of prediction to the model, χ2 (2, N=226) = 69.950, *p*<.001. Comparison among the four predictors is presented in the next section.

*Hypothesis 4: Impurity Hypothesis*

 It was hypothesized that for stimulus conditions involving mixed components of same-sex and opposite-sex oriented behavior, there would be a significantly greater frequency of responses of "homosexual" than "heterosexual." A chi-square analysis was run with the 12 mixed-component scenarios by the outcome categories "heterosexual" and "homosexual." The difference in the frequencies between responses of "homosexual" (N=44) compared to responses of "heterosexual" (N=4) was statistically significant, χ2 (1, N=44) = 29.445, *p*<.001.

 To provide a more detailed account of how the frequencies among the outcome categories compared, Table 4 shows regression coefficients, Wald statistics, odds ratios, and 95% confidence intervals for odds ratios for each of the four significant predictors. In multinomial logistic regression, because there are more than two levels of the dependent variable (vs. yes/no, present/absent in the dichotomous case), interpretation becomes more complicated because the model is non-linear. There is no comparable statistic for probability estimates. Rather, to report the partial effect for each level of an independent variable on the odds of being in one outcome category versus another, the exponentiated beta [exp(β)] statistic is used. The exp(β) statistics are reported as "odds ratios" in Table 4. The odds ratio is the odds of an outcome for cases in a particular category of a predictor divided by the odds of that outcome for the other category of the predictor. In addition, when comparisons among outcome categories are calculated, a reference category must be designated so that each of the other categories are compared to the reference category. In Table 4, the outcome category, *heterosexual*, was selected as the reference category, and comparisons were calculated for the categories, *homosexual* and *bisexual*. This decision was made because it was expected that, since the frequencies for *homosexual* and *bisexual* were greater than those for *heterosexual*, the calculation of odds ratios would result in whole numbers which would assist in interpetation. For the levels of the independent variables, the level, *same-sex oriented,* was compared to the level, *opposite-sex oriented,* as the reference category. Interpretation of the odds ratios follows Table 4.

Table 4

Direct Multinomial Logistic Regression for Category of Sexual Orientation as a function of Overt Sexual Behavior, Sexual Attraction, Sexual Fantasy, and Gender

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 95% Conf. Interval

 Wald test Odds for Odds Ratio

Outcomea Predictorb β SE (*z*-ratio) Ratio Lower Upper

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Homosexual Intercept -6.04 1.01 35.54

 OVERTBEH 5.50 .92 35.56\*\* 243.36 39.99 1481.08

 ATTRACTN 5.78 .94 37.88\*\* 323.17 51.33 2034.86

 FANTASY 4.95 1.00 24.35\*\* 141.19 19.77 1008.52

 GENDER -0.64 .72 .79 .53 .13 2.17

Bisexual Intercept -0.93 .68 1.87

 OVERTBEH 3.21 .80 16.01\*\* 24.69 5.13 118.72

 ATTRACTN 3.04 .81 13.93\*\* 20.89 4.23 103.09

 FANTASY 2.59 .91 8.11\* 13.35 2.24 79.48

 GENDER -0.17 .64 .07 .85 .24 2.98

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\**p*<.01; \*\**p*<.001

aResults show the categories, *homosexual* and *bisexual* compared to *heterosexual* as the reference category.

bResults show each predictor comparing the level, *same-sex oriented*, against *opposite-sex oriented* as the reference category.

 The results indicate that in terms of OVERTBEH as a predictor, subjects were 243 times more likely to respond "homosexual" than to respond "heterosexual" when responding to scenarios involving same-sex OVERTBEH compared to opposite-sex OVERTBEH, holding all other variables constant. In addition, subjects were 24 times more likely to respond "bisexual" than to respond "heterosexual" when responding to scenarios involving same-sex OVERTBEH compared to opposite-sex OVERTBEH, holding all other variables constant.

 In terms of the predictor ATTRACTN, subjects were 323 times more likely to respond "homosexual" than to respond "heterosexual" when responding to scenarios involving same-sex ATTRACTN compared to opposite-sex ATTRACTN, holding all other variables constant. Secondly, subjects were 20 times more likely to respond "bisexual" than to respond "heterosexual" when responding to scenarios involving same-sex ATTRACTN compared to opposite-sex ATTRACTN, holding all other variables constant.

 For the predictor variable, FANTASY, subjects were 141 times more likely to respond "homosexual" than to respond "heterosexual" for scenarios involving same-sex FANTASY compared to opposite-sex FANTASY, holding all other variables constant. Finally, subjects were 13 times more likely to respond "bisexual" than to respond "heterosexual" for scenarios involving same-sex FANTASY compared to opposite-sex FANTASY, holding all other variables constant.

*Hypothesis 5: Effect of Gender*

 It was hypothesized that stimulus descriptions involving men would be predicted by a different model compared to descriptions involving women. Specifically, it was predicted that overt behavior would be the most influential predictor for scenarios involving males. However, for descriptions of women, it was expected that overt sexual behavior would be less influential than sexual attraction or fantasy. Two separate direct multinomial logistic regression analyses were run selecting first for scenarios involving male targets and secondly for scenarios involving female targets, and with CATEGORY ("heterosexual," "homosexual," and "bisexual") as the dependent variable and OVERTBEH, ATTRACTN, and FANTASY as predictors. Consistent with the hypothesis for females, while all three predictors significantly contributed to the model fit [χ2 (6, N=117) = 60.598, *p*<.001], OVERTBEH contributed less prediction than FANTASY and ATTRACTN (FANTASY > ATTRACTN > OVERTBEH; See Table 5). However, contrary to what was expected, for scenarios involving males, while all predictors significantly contributed to the overall model fit [χ2 (6, N=109) = 79.142, *p*<.001], ATTRACTN, rather than OVERTBEH, contributed the greatest improvement to the model fit (ATTRACTN > OVERTBEH > FANTASY; See Table 5).

Table 5

Likelihood Ratio Tests on Individual Predictors For Males vs. Females

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 -2 Log Likelihood Chi-Square

Effect of Reduced Model (improvement) df Sig.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

FEMALE SCENARIOS:

Intercept Only 39.276

OVERTBEH 64.349 25.073 2 .000

ATTRACTN 66.177 26.901 2 .000

FANTASY 67.895 28.618 2 .000

MALE SCENARIOS:

Intercept Only 44.885

OVERTBEH 77.113 32.228 2 .000

ATTRACTN 89.250 44.365 2 .000

FANTASY 71.428 26.543 2 .000

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

*Post-Hoc Analyses*

*Effects of Subject Characteristics*

 Although the effects of subject characteristics were not part of the planned data analysis, inter-subject variation in labeling sexual orientation may be of interest for future research. To test for inter-subject variation based on demographic variables, direct multinomial logistic regression analyses were run for subjects' gender, age and ethnicity as predictors and CATEGORY as the outcome variable. There were no significant effects of subject characteristics on outcome. However, these results were not surprising as the sample was fairly homogeneous, e.g. 78% were between the ages of 18-24 and 82% identified as White. With regard to subject gender, it is possible that the proportion of female to male subjects, nearly a 2 to 1 ratio, affected the ability of infertential tests to detect differences such that male subjects may have been undersampled.

Discussion

 The following section provides a summary of the results and a discussion of the limitations of the current study. In addition, implications for sexual orientation research and assessment, experimental semantics, and social constructionism versus essentialism are discussed, and recommendations for future research are provided.

*Summary of Results*

*Hypotheses 1 and 2: Necessary and Sufficient Conditions*

 Contrary to what was hypothesized, the results demonstrate that there were some necessary and sufficient conditions for categorizing sexual orientation. Opposite-sex oriented sexual fantasy was a necessary condition for predicting responses of "heterosexual." However, this finding must be interpreted with caution as the overall frequency of responses of "heterosexual" was low. It would be interesting to replicate this study on another sample to find out whether this result is consistent.

 Sufficient conditions for being labeled "heterosexual" were scenarios in which both male and female individuals were described as consistently opposite-sex oriented in terms of overt sexual behavior, sexual attraction, and sexual fantasy. Similarly, a sufficient condition for being labeled "homosexual" was being a male with consistently same-sex oriented overt sexual behavior, sexual attraction, and sexual fantasy. Among scenarios with mixed levels of predictors, being female with opposite-sex oriented overt sexual behavior and sexual attraction with same-sex sexual fantasy was a sufficient condition for being labeled "bisexual." Additionally, being a male with same-sex oriented overt sexual behavior despite opposite-sex oriented sexual attraction and fantasy was sufficient to be labeled "bisexual."

*Hypothesis 3: Relative Strength of Prediction Among Components*

 The proto-behavioral theory, in which overt sexual behavior was hypothesized to be the most important predictor of category of sexual orientation, was not supported. Rather, sexual attraction was the strongest predictor, followed by overt sexual behavior, and sexual fantasy, respectively. However, the strength of the predictors changes when comparing males scenarios to female scenarios, explained below in the section, "Effect of Gender."

*Hypothesis 4: Impurity Hypothesis*

 The most impressive finding of the current study is the overwhelming support for the impurity hypothesis in which it was expected that any same-sex oriented sexual behavior would be judged to contaminate the individual's sexual orientation resulting in greater frequencies of responses of "homosexual." This finding was supported in that the odds of a subject responding "homosexual" were hundreds of times greater than responding "heterosexual." In addition, the odds of responding "bisexual" were up to 25 times greater than responding "heterosexual." This is the most interesting finding because it demonstrates that the ordinary language community may not apply equally the criteria for judging an individual's sexual orientation. For example, individuals who had engaged in consistently opposite-sex oriented overt sexual behavior, sexual attraction, and sexual fantasy were labeled "heterosexual" 100% of the time. As soon as the individual was described as having same-sex sexual fantasy, despite having opposite-sex overt sexual behavior and sexual attraction, the frequency of "heterosexual" responses dropped to zero. However, opposite-sex sexual fantasy was not similarly powerful enough to evoke a response that crosses a category threshold and receives the label, "heterosexual." That is, the reverse scenario in which an individual engaged in opposite-sex sexual fantasy despite same-sex overt sexual behavior and sexual attraction still had zero responses of "heterosexual" and substantially greater responses of "homosexual" and "bisexual." This demonstrates that the criteria for labeling sexual orientation are not applied consistently, but rather may be subject to social bias such that same-sex sexual behavior taints the "pure" heterosexual category, but not vice versa.

*Hypothesis 5: Effect of Gender*

 Consistent with what was expected, the sexual orientation of females was judged by a different model than men's. As predicted, overt sexual behavior was least predictive of the sexual orientation of females. The model for women was that sexual fantasy was most important, followed by sexual attraction, and lastly, overt sexual behavior. The model for males was slightly different than expected, with sexual attraction being most important, followed by overt sexual behavior, and finally, sexual fantasy.

 A possible explanation for the finding that overt sexual behavior was least important for females may be due partly to the connection between feminism and lesbianism in America in which during the feminist movement, some women were believed to have chosen lesbianism due to an affectional preference for women rather than for physical sexual interaction (Jagose, 1996). However, among the young college sample in the current study, subjects are likely to have little experience with the history of the feminist movement of the 1970s.

 Another possible explanation may have to do with the traditional role of women as sexually passive. The assumption of the ordinary language community may be that overt sexual behavior would be the least important indicator of a woman's sexual orientation because, in American culture, a woman's participation in sexual coupling is traditionally more passive than that of a man's. The traditional cultural expectation is that a woman should wait to be selected by a potential partner whereas a man is expected to actively pursue his desires. Therefore, in American culture, a woman's reported fantasy and attraction may be a more reliable indicator of her true orientation, whereas her overt behavior is subject to whether or not a potential partner desires and pursues her. For men, the greater contribution of sexual attraction compared to overt sexual behavior in predicting sexual orientation may be explained by the idea that a man who is attracted to men may alter his overt sexual behavior to conform to societal pressure to be coupled with women. However, the ordinary language community may believe that one's sexual attraction, a private behavior, is more revealing of one's true sexual orientation.

*Limitations of the Study*

*Underdetermination of Responses*

 The stimuli in the present study underdetermine the frequency of responses of "heterosexual" compared to "other." For example, for Scenarios 1 and 2 for which behavior is described as consistently opposite-sex oriented, only 22% of responses were “heterosexual” whereas 78% of responses were “other.” (This is in contrast to Scenarios 15 and 16 which were described as consistently same-sex oriented, but did not have the same problem with undetermination, i.e. 85% of responses were “homosexual” and only 13% of responses were “other.”) Unfortunately, in research, no matter how much an investigator tries to specify and constrain the task in an experiment, not all subjects will respond to the task as intended. The underdetermination of "heterosexual" may have to do with the historical development of the term. Recall that the term, *heterosexual*, was coined after the term, *homosexual*, and was eventually used to describe individuals with opposite-sex attractions in the absence of perversions (Bohan, 1996). Therefore, the term, *heterosexual*, came to be used to describe behavior considered to be the norm, but the term was only necessary as a discriminative description in contrast to the term, *homosexual*, used to label deviant behavior. If subjects in the current study had been presented with a discrimination task after having been primed with terms relating to sexual orientation, the frequency of responses of "heterosexual" would likely have been increased.

 However, for the current study, if one considers the near zero probability of the subjects' responding "heterosexual," "homosexual," or "bisexual" (out of an infinite number of possible responses) prior to being exposed to the experimental stimuli, then the on-target responses of 226 out of 368 (61%) demonstrate a high probability that the stimuli were responsible for evoking such responses. Moreover, to control for demand characteristics, the purpose of the current study was disguised so that subjects were not primed to expect stimuli relating to sexual orientation. Therefore, while target responses may be underdetermined, when one considers the prior probability of target responses along with the deception of the study, the observed frequencies are quite impressive.

 An additional point is worth noting regarding the 39% (142 out of 368) "other" responses among which there were some consistent patterns. Of the 142 "other" responses, 36% of the respondents wrote "confused"; 20% "sexual" or "oversexed"; 12% "horny"; and 12% "normal"; along with variations of these terms. There are two issues with regard to the frequency of these responses. The experimental conditions appear to have had stimulus properties in common with other response classes such that discriminative stimuli necessary for making finer discriminations were not present. Second, it is possible that certain scenarios evoked more evaluatively negative “other” responses (Osgood, Suci, & Tannenbaum, 1957). Although the “other/off target” responses were not intended as a focus of analysis in the present study, an interesting follow-up study would be to compare the “other” responses in terms of evaluatively positive versus evaluatively negative responses to the scenarios. Recommendations for future research involving finer discriminations and positive versus negative evaluations are provided in the section entitled, "Future Research."

*Verbal Behavior and the Ordinary Language Community*

 Another limitation of this study is that it assesses subjects responses to the behavior of others rather than their own behavior. In the case of sexual orientation, it remains an empirical question as to whether the same or different definitional criteria are used in labeling one's own sexual orientation versus labeling others'. Unfortunately, the data from the exploratory question which asked subjects to describe their own sexual orientation were difficult to code reliably as most subjects gave multiple word responses and many misunderstood the question as having to do with their level of sexual activity in general.

 Despite these limitations, however, the overall results of the current study were impressive in terms of supporting the impurity hypothesis and in providing interesting insights into how the ordinary language community categorizes sexual orientation. The implications of these results as well as recommendations for future research are described below.

*Implications*

*Research on Sexual Orientation*

 The most important implication of this study is that researchers who study differences between groups of purportedly homosexual, bisexual, and heterosexual individuals must be careful to specify how the groups were determined. Frequently, group determination is simply via subjects' self-identification as in McFadden and Pasanen's (1998) attempts to find biological differences in auditory systems among the self-identified groups. The results of the current study suggest that the ordinary language community, from which individuals learn to label their own sexual orientation, applies varying labels to the same definitional criteria.[[4]](#footnote-4) In addition, the ordinary language community judges the category of sexual orientation differently for males and females. Researchers may have subjects who engage in the same behavior but label themselves differently, and would, consequently, be assigned to different groups. Therefore, the assumption that comparisons are being made between distinct groups is seriously flawed.

*Test construction*

 Another implication of the present study is that the construct of sexual orientation is far from being clearly defined. Further research is necessary to both replicate the current findings and to refine the meaning of the construct. This has implications for researchers who are currently attempting to refine assessment instruments designed to measure sexual orientation. The greatest single weakness with the validity of these instruments is that they appear to be based on the assumption that there is general agreement about the essential existence of sexual orientation, an assumption which is evident by researchers' neglect of providing operational definitions. The researchers merely attempt to refine the instruments to tap into some true sexual orientation, the discovery of which is assumed to provide a reliable assessment across time and context. This is not to suggest that there is no biological basis to sexual orientation, but, rather, that this is not likely to be discovered unless researchers first understand the definitional criteria that comprises self-identification.

 However, because there may be inter-individual as well as intra-individual differences (across time and context) in self-identification of sexual orientation, physiological responses may be more reliable. This is perhaps why category of sexual orientation in the present study was determined more by arousal related to sexual attraction and fantasy rather than overt sexual behavior. The ordinary language community may be responding to a true distinction in nature such that one may change their overt behavior depending on the demands of the environment, but one's private behavior in terms of arousal may be more of a true test of orientation toward the same and/or opposite sex.

This concept has implications for test construction as well. Perhaps more reliable estimates of sexual orientation toward the same and/or opposite sex would be measures of sexual arousal in response to sexual stimuli. For example, although plethysmography has its own assessment problems with effects of stimulus content and reliability of measurement (e.g. Abel, Blanchard, & Barlow, 1981; Simon & Schouten, 1991), such physiological assessment techniques may have more promise in finding reliable determinants for discrimination among groups regardless of self label. The development of physiological measures of sexual arousal to same- or opposite-sex stimuli deserve further study. For those researchers interested in discovering biological indicators of sexual orientation, an interesting assessment technique for assigning subjects to groups may be to measure the intensity of sexual arousal (measured by such devices as the penile plethysmograph) in response to varying sexual stimuli (such as videos or photographs). Once subjects are assigned to groups based on levels of arousal to same- or opposite-sex stimuli, the tests of biological differences among groups (such as the echoic response patterns in individuals’ auditory systems; McFadden & Pasanen, 1998) may be demonstrated to be more consistent.

*Social Constructionism vs. Essentialism*

 The assertion that physiological arousal may be a more consistent measure for group assignment is based on J. L. Austin’s argument (Edwards, 1967) that when language survives competing contingencies over time, it likely refers to some natural distinctions in the world. Alternatively, one could argue that language may be passed from generation to generation over thousands of years *not* because it refers to some real distinction, but because the verbal community supports certain beliefs, such as religious ideology. Again, the counterargument to this is that the religious ideology may have been originally developed because it was useful in describing some reality. With certain dichotomies, such as nature vs. nurture or essentialism vs. social constructionism, rather than finding sole support for either one or the other side of the argument, scientists often find support for both. For example, it is possible that there are biological determinants of a range of sexual orientations, and that the ordinary language community has developed language to describe some broad categories based on observed natural distinctions. However, context also matters, such that the natural distinctions may have been blurred by cultural and individual differences.

 In the current study, rather than demonstrating the superiority of either the social constructionist or the essentialist viewpoints, the current results provide support for both. Support for the essentialist perspective is demonstrated in terms of how the contamination of same-sex sexual fantasy rules out the possibility of fitting into the "pure" category of heterosexual such that, at least for one category, there appears to be a necessary criterion. In addition, for scenarios with mixed components, 51 out of 276 subjects (18%) responded "confused." For these subjects, one could make the inference that they view sexual orientation from an essentialist stance in which they think of sexual orientation as a dichotomous characteristic and expect individuals to make a clear and consistent decision between heterosexual or homosexual. On the other hand, the response, "confused," could indicate that the ordinary language community simply does not have the language developed to describe a third category.

 However, the variation in responses and the evidence of a different model for males and females suggests that, in terms of the social construction of sexual orientation, there is much more variance that needs to be explained. Therefore, recommendations for future research are provided.

*Experimental Semantics*

 The method of experimental semantics (O’Donohue, 1989) has been shown in the current study to be a useful tool for gaining insight into the meaning of social constructs. Experimental semantics has the strength of being an empirical method of investigation compared to the traditional methods of either a critique of the literature or social-constructionist discourse. Therefore, the results are not simply a result of armchair philosophy but rather a study of ordinary people using ordinary language. This method is not necessarily superior to rhetoric and discourse, but it is an important counterbalance to it because the empirical method of experimental semantics has the benefit of falsifiability of hypotheses as demonstrated in the current study.

*Future Research*

*Finer Discriminations*

A study similar to the present one could be developed with scenarios that may evoke finer discriminations. The current study manipulated only dichotomous levels of the independent variables, either 100% same-sex or 100% opposite-sex oriented behavior for each independent variable. Future studies could manipulate varying proportions of same- and opposite-sex oriented behavior for a single variable. For example, one could describe an individual as having had four sexual encounters with the opposite sex and one sexual encounter with the same sex, and continue in this format with varying proportions to determine where most people consider an individual to have crossed a threshold from one category to another. This would result in finer discriminations with regard to the impurity hypothesis in terms of the proportion of same-sex sexual behavior that would be considered enough to contaminate a heterosexual orientation.

It would also be interesting to conduct a study in which each of the predictors from the current study was presented by itself to find out whether the predictors alone would evoke responses similar to the current study. Other factors that could be tested are the effects of time, e.g. length of time in same-sex versus opposite-sex relationships, and the effects of sequentiality of relationships, e.g. recency versus primacy. The current study was also limited to three factors relating to sexual behavior (overt sexual behavior, sexual attraction, and sexual fantasy). Other factors, such as social preference and affectional preference for the same or opposite sex, may additionally account for how the ordinary language community determines sexual orientation.

*Evaluatively Positive versus Negative Judgments*

The 142 “other/off target” responses (See Appendix B), which were not included in the current analysis, may reveal some consistent patterns of responding among various scenarios in terms of evaluative judgment. For example, scenarios involving all opposite-sex components may have been judged more negatively for the scenario involving a female verus a male. While both males and females were described by subjects as “horny,” “normal,” “sexual,” and “promiscuous,” females were also described as “freaky,” “nymphomaniac,” and “slutty.” The scenarios involving some same-sex components may have also been judged more evaluatively negative than the opposite-sex scenarios. For example, while the most frequent “other” responses to scenarios involving mostly opposite-sex components were “normal,” “horny,” and “sexual,” the responses to scenarios involving mostly same-sex components included “confused,” “perverted,” “disgusting,” and “immoral.” An interesting follow-up study would involve an analysis of these responses in terms of evaluative judgment.

Researchers of semantic word norms (e.g. Osgood, May, & Miron, 1975; Osgood, Suci, & Tannenbaum, 1957; Postman & Keppel, 1970; Snider & Osgood, 1969; Toglia & Battig, 1978) have measured different semantic characteristics of words such as a word’s pleasantness (Toglia & Battig, 1978) and the evaluatively positive or negative association of words (Osgood, et al., 1957). By asking a sample of respondents to rate words on a scale of 1-7 based on a word’s pleasantness, Toglia and Battig (1978) were able to perform parametric statistical analyses using the word’s mean pleasantness score. This technique would be useful with the current data set. Of the 142 “other” responses in the current data set, four were included in Toglia and Battig’s (1978) studies. (None were included in Osgood et al’s (1957) “Atlas of Word Meaning.”) The four words that had been previously rated for pleasantness had the following mean values: sick, 2.08; intimate, 5.57; cool, 4.84; open, 4.95. It is apparent that “sick” is judged to be a more negative word than the others in the list. An interesting follow-up study could involve obtaining ratings of pleasantness for the “other” responses listed in Appendix B from a new sample of subjects. Results could be analyzed using parametric statistics to determine whether or not there are differences between scenarios involving male versus female individuals and among scenarios involving mixed and consistent same-sex and opposite-sex behavior in terms of evaluative judgment.

*Subject Characteristics*

 The current study provides insight into how individuals categorize sexual behavior from a nomothetic approach. An interesting next step would be to examine individual variation based on subject characteristics such as age, gender, ethnicity, education, geographic origin, and the subject's own sexual orientation. Although post-hoc analyses for the current study yielded no significant differences in labeling based on age, gender, and ethnicity, this study was not specifically designed to test such hypotheses, and therefore, special recruitment efforts were not made to sample a diverse population outside of a quasi-community sample recruited from a community college. It would be most interesting and informative to replicate the study with a self-identified homosexual/bisexual sample and compare the results to the present study.

 With regard to individual subjects, an interesting question for research would be whether subjects are reliable with themselves. It is possible that the data averaged among a group of subjects misleadingly suggests variability among experimental conditions. However, variability may also be due to between-subjects differences rather than due to the experimental manipulation. A single subjects design in which all experimental conditions were presented to each subject would eliminate the problem of averaging data across subjects. In addition, if some subjects had similar response patterns, one could determine if the patterns were predicted by similar subject characteristics. However, presenting subjects with several scenarios increases the problem of demand characteristics.

*Qualitative Data*

 Finally, the present study necessarily limited subject's responses to one word in order to reliably code responses for an experimental design. However, the multi-word responses yielded from the pilot study suggest some interesting questions about how subjects may arrive at their decisions for categorizing sexual orientation. Specifically, responses such as "gay but hiding it" and "repressed homosexual" suggest that subjects may be assuming that the target individuals have an essential sexual orientation but that their behavior betrays their true nature such that they hide their sexual orientation either from others or from themselves. It would be interesting to gather qualitative information from interviews with subjects following the completion of a quantitative questionnaire to further develop hypotheses about the process by which subjects arrive at their decisions.

 In summary, this study is an important first step in understanding the semantics of the construct of sexual orientation among the ordinary language community. Scientists who study sexual orientation must take into account how the ordinary language community speaks because it may affect the way individuals self-identify and, therefore, affect the outcome of comparisons among groups. More research is needed in terms of determining finer distinctions among categories of sexual orientation and in exploring methods of assessment that do not rely solely on self-report.

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Appendix A

**SURVEY OF CHARACTER DESCRIPTIONS**

**FOR SCREENPLAY, *New York Detective Mystery***

INTRODUCTION

You are being asked to participate in a survey to determine the accuracy of character descriptions which will be used in the development of a screenplay entitled, *New York Detective Mystery*, for the Reno Community Theatre.

You are eligible to participate if:

(1) you are at least 18 years old and

(2) English is your first language.

All participants in this survey are **anonymous**. Please do not write your name on this questionnaire. If you are receiving class credit for participation, please complete a separate sheet available from the experimenter. When you are finished with the questionnaire, please place it in the envelope provided by the experimenter.

For the first section you will be asked to give only your age, gender, ethnicity, and primary language spoken.

For the second part of the questionnaire, you will read several character descriptions. For each description, you will be asked to give a one-word response.

**Please note:**

**(1) Use only an ink pen.**

**(2) Answer each question in order. Do not skip any questions.**

**(3) Do not go back to change any answers. Questionnaires with crossed-out answers will be discarded.**

1

**DEMOGRAPHIC INFORMATION:**

 1. Where did you hear about this survey? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 2. How old are you? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

 3. What is your gender? Male \_\_\_\_\_ Female \_\_\_\_\_

 4. What is your ethnicity? (Please check one, or write it in if it is not on this list.)

a. \_\_\_ Mexican g. \_\_\_ Eskimo m. \_\_\_ Asian Indian

b. \_\_\_ Puerto Rican h. \_\_\_ Aleutian n. \_\_\_ Vietnamese

c. \_\_\_ Cuban i. \_\_\_ Japanese o. \_\_\_ Hawaiian

d. \_\_\_ Black j. \_\_\_ Chinese p. \_\_\_ Guamanian

e. \_\_\_ White k. \_\_\_ Filipino q. \_\_\_ Samoan

f. \_\_\_ American Indian l. \_\_\_ Korean r. Other:\_\_\_\_\_\_\_\_\_\_\_

 5. What is your primary spoken language? English \_\_\_\_\_ Other \_\_\_\_\_

2

**SCREENPLAY CHARACTER DESCRIPTIONS (*New York Detective Mystery*):**

 6. Nathan and his wife, Jean, enjoy jogging through the park. Nathan participates in all types of fitness training, and usually works out at the gym three days per week. Nathan makes sure that he eats a complete breakfast every morning.

 This description indicates that Nathan is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

7. Anya and her boyfriend, Christopher, both enjoy going to parties. Anya is usually the life of the party, easily socializing with others and meeting new people. Anya is studying business, and plans a career in sales.

 This description indicates that Anya is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

[Target Scenario 1]

 8. Tom is currently dating a woman, and he is sexually intimate with her. Tom is attracted to women, sometimes feeling sexually aroused when they walk by. When Tom has sexual fantasies, he imagines himself with women.

 This description indicates that Tom is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 9. Dave makes his living as a housepainter. He has been interested in painting ever since he was in high school when he used to paint detailed portraits of his classmates. Currently, Dave spends his spare time as a tax consultant.

 This description indicates that Dave is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 10. Heather is a member of a women's group. The group is devoted to bringing a female-positive, profeminist stance to women's issues and working for total gender equality. Heather finds that when she dates men, she prefers to have the man pay for dinner.

 This description indicates that Heather is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

3

[Scenario 2]

 x. Jenny is currently dating a man, and she is sexually intimate with him. Jenny is attracted to men, sometimes feeling sexually aroused when they walk by. When Jenny has sexual fantasies, she imagines herself with men.

 This description indicates that Jenny is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

[Scenario 3]

 x. Bill is currently dating a woman, and he is sexually intimate with her. Bill is attracted to women, sometimes feeling sexually aroused when they walk by. When Bill has sexual fantasies, he imagines himself with men.

 This description indicates that Bill is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

[Scenario 4]

 x. Nicki is currently dating a man, and she is sexually intimate with him. Nicki is attracted to men, sometimes feeling sexually aroused when they walk by. When Nicki has sexual fantasies, she imagines herself with women.

 This description indicates that Nicki is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

[Scenario 5]

 x. Richard is currently dating a woman, and he is sexually intimate with her. Richard is attracted to men, sometimes feeling sexually aroused when they walk by. When Richard has sexual fantasies, he imagines himself with women.

 This description indicates that Richard is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

[Scenario 6]

 x. Alicia has been dating a man, and she is sexually intimate with him. Alicia is attracted to women, sometimes feeling sexually aroused when they walk by. When Alicia has sexual fantasies, she imagines herself with men.

 This description indicates that Alicia is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

[Scenario 7]

 x. Scott is currently dating a woman, and he is sexually intimate with her. Scott is attracted to men, sometimes feeling sexually aroused when they walk by. When Scott has sexual fantasies, he imagines himself with men.

 This description indicates that Scott is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

[Scenario 8]

 x. Susie is currently dating a man, and she is sexually intimate with him. Susie is attracted women, sometimes feeling sexually aroused when they walk by. When Susie has sexual fantasies, she imagines herself with women.

 This description indicates that Susie is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

[Scenario 9]

 x. Ben is currently dating a man, and he is sexually intimate with him. Ben is attracted to women, sometimes feeling sexually aroused when they walk by. When Ben has sexual fantasizes, he imagines himself with women.

 This description indicates that Ben is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

[Scenario 10]

 x. Lisa is currently dating a woman, and she is sexually intimate with her. Lisa is attracted to men, sometimes feeling sexually aroused when they walk by. When Lisa has sexual fantasies, she imagines herself with men.

 This description indicates that Lisa is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

[Scenario 11]

 x. Lawrence is currently dating a man, and he is sexually intimate with him. Lawrence is attracted to women, sometimes feeling sexually aroused when they walk by. When Lawrence has sexual fantasies, he imagines himself with men.

 This description indicates that Lawrence is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

[Scenario 12]

 x. Carmella is currently dating a woman, and she is sexually intimate with her. Carmella is attracted to men, sometimes feeling sexually aroused when they walk by. When Carmella has sexual fantasies, she imagines herself with women.

 This description indicates that Carmella is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

[Scenario 13]

 x. Mark is currently dating a man, and he is sexually intimate with him. Mark is attracted to men, sometimes feeling sexually aroused when they walk by. When Mark has sexual fantasies, he imagines himself with women.

 This description indicates that Mark is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

[Scenario 14]

 x. Vicky is currently dating a woman, and she is sexually intimate with her. Vicky is attracted to women, sometimes feeling sexually aroused when they walk by. When Vicky has sexual fantasies, she imagines herself with men.

 This description indicates that Vicky is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

[Scenario 15]

 x. Steve is currently dating a man, and he is sexually intimate with him. Steve is attracted to men, sometimes feeling sexually aroused when they walk by. When Steve has sexual fantasizes, he imagines himself with men.

 This statement indicates that Steve is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

[Scenario 16]

 x. Jasmine is currently dating a woman, and she is sexually intimate with her. Jasmine is attracted to women, sometimes feeling sexually aroused when they walk by. When Jasmine has sexual fantasies, she imagines herself with women.

 This description indicates that Jasmine is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 11. What do you think the experimenters are trying to investigate in this study?

4

 12. If you had to describe your sexual orientation, how would you describe yourself?

Thank you for your participation! Please place your completed questionnaire in the collection envelope provided by the investigator.

5

Appendix B

Frequencies of "Other" Responses for each of 16 Conditions

Cond# OVERTBEH ATTRACTN FANTASY GENDER Response Frequency

 1 Opposite Opposite Opposite Male horny 5

 normal 4

 sexual 2

 womanizer 1

 healthy 1

 human 1

 oversexed 1

 promiscuous 1

 sick 1

 2 Opposite Opposite Opposite Female horny 5

 normal 3

 sexual 2

 flirtacious 2

 dating 1

 freaky 1

 healthy 1

 intimate 1

 nymphomaniac 1

 promiscuous 1
 slutty 1

 3 Opposite Opposite Same Male confused 7

 normal 4

 bi-curious 1

 deviant 1

 horny 1

 mental 1

 open-minded 1

 oversexed 1

 sexual 1

Cond# OVERTBEH ATTRACTN FANTASY GENDER Response Frequency

 4 Opposite Opposite Same Female normal 4

 confused 3

 horny 2

 sexual 2

 conflicted 1

 experimental 1

 freaky 1

 fun 1

 interesting 1

 perplexed 1

 perverted 1

 uninhibited 1

 5 Opposite Same Opposite Male confused 8

 normal 1

 6 Opposite Same Opposite Female confused 6

 cool 1

 horny 1

 7 Opposite Same Same Male confused 4

 curious 1

 in denial 1

 repressed 1

 undecidable 1

 8 Opposite Same Same Female confused 2

 curious 2

 9 Same Opposite Opposite Male confused 5

 disgusting 1

 fickle 1

 10 Same Opposite Opposite Female confused 2

 horny 1

 unsatisfied 1

Cond# OVERTBEH ATTRACTN FANTASY GENDER Response Frequency

 11 Same Opposite Same Male confused 5

 indecisive 1

 normal 1

 12 Same Opposite Same Female bi-curious 1

 confused 1

 13 Same Same Opposite Male confused 2

 exploring 1

 HIV-positive 1

 insecure 1

 uncertain 1

 14 Same Same Opposite Female confused 6

 cool 1

 open 1

 15 Same Same Same Male horny 1

 immoral 1

 sexual 1

 16 Same Same Same Female beautiful 1

 horny 1

 sexual 1

1. A question may be posed as to why Kinsey et al. did not use a range from 1 to 7 for their 7-point Likert scale as is usually the case. It is interesting to note that the value applied for an individual identifying as exclusively heterosexual is zero, possibly indicating the absence of homosexuality, or "purely" heterosexual; whereas values other than zero indicate some proportion of homosexuality. The thinking behind the zero value may be similar to how Blacks and Whites have been categorized. Historically, any proportion of Black ancestry, no matter how small, was considered to "contaminate" a person's White ancestry just like a drop of ink will discolor an entire pail of water. Only those with a complete absence of Black ancestry could be considered "purely" White, and may similarly be assigned a zero value on a Likert scale of "Blackness." [↑](#footnote-ref-1)
2. However, the self-report assessments, no matter which dimensions are included, continue to rely on an individual's accurate reporting, and respondents may be just as reluctant to report same-sex fantasy as to report overt behavior. [↑](#footnote-ref-2)
3. Logistic regression does not provide a direct equivalent of *R*2 as a measure of explained variation. However, statisticians have developed pseudo-*R*2 measures. The current investigators used a popular formula described by Archdeacon (1994, p. 283). [↑](#footnote-ref-3)
4. The inference of a connection between labeling others and labeling oneself remains an empirical question as discussed in the previous section. [↑](#footnote-ref-4)