



***A Loaded Question:***  
***An Analysis of the Creation and Content of Types***

*A Thesis*

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*By*

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## **ABSTRACT**

The colloquial concept of type is ubiquitous in the public, but vastly understudied by academia. Based on previous work looking at universal and idiosyncratic partner preferences in conjunction with cognitive neuroscience theories of experience-dependent prototype creation and sexual conditioning, it is proposed that a type is synonymous with a chronically-accessible ideal partner preference template. This template then serves an evolutionarily beneficial role in partner selection. Two studies were done, the first, with 112 participants, finding a significant effect of parental similarity on parental investment for both biologically related and adopted children. This is support for an evolutionary benefit to having a partner template, since selecting similar partners would maximize possible benefit from future, non-biological partners to a child. The second study, conducted with a sample of 156 participants, compared the experiential and individual differences that affected the presence and content of types. The study found having a first love, who was also a sexual partner, during adolescence was the only significant predictor of having a type. Type content, however, was most strongly affected by sociosexuality, with unrestricted sociosexuality being positively correlated with more specificity in physical and demographic partner preference criteria. These studies give ample support to the possibility that types are truly ideal partner preference templates formed during a sensitive period in adolescence and determined by sociosexuality.

## **BIOGRAPHICAL SKETCH**

Sarah Merrill is currently working towards her Ph.D. in Developmental Psychology in the Human Development department at Cornell University. She received Bachelor of Arts degrees in both Psychology and Neuroscience from Wellesley College. Sarah engaged in a two-year dual position as the Research Coordinator for Wellesley College and as a research assistant in the Implicit Social Cognition Laboratory at Harvard University before beginning her doctoral degree at Cornell.

## **DEDICATION**

I would like to thank all the many people who made this thesis possible.

A special thank you is due, first and foremost, to Cindy Hazan, who was there for me every step of the way, and to Ritch Savin-Williams, who made this project possible.

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I dedicate this thesis to my brother, David, for being my inspiration and for supporting me every day throughout its creation.

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## TABLE OF CONTENTS

Biographical Sketch.....	i.
Dedication.....	ii.
Acknowledgements.....	iii.
Introduction.....	1.
Method.....	11
Results.....	16
Discussion.....	32
References.....	46

## *Introduction*

What is your type? It is a common question; most people have been asked it at some point. It is even possible to take a test on any number of websites, from BuzzFeed to TechCrunch to Oprah.com, to determine your “type”. For as many respondents to this question, there can be just as many answers, but are these answers truly different? Is there something specific about a person or their life experiences that would affect their answer to this question? Is the answer to this question any different than simply asking about that person’s sexual or romantic ideal?

To date, no academic papers have been published directly assessing the creation and content of the concept colloquially known as “type”, though many papers have addressed the notion of ideal partner preferences (e.g. Little et al, 2002, Eastwick & Neff, 2012; Perrett et al., 2002; Eastwick, Luchies Finkel, & Hunt, 2013; Heffernan and Fraley, 2013). However, partner preferences encompass both idiosyncratic partner preferences, which refer to preferences that are specific to the individual, and universal partner preferences, which most likely serve evolutionary purposes, such as neoteny, expressiveness, sexual dimorphism, intelligence, health, and kindness (e.g. Buss, 1999; Simpson & Gangestad, 1998; Little et al., 2002). Although universal, objective, and idiosyncratic, subjective, preferences are of about equal importance in the judgment of a potential partner’s attractiveness (Hönekopp, 2006), the partner preference research to date has been focused on universal, objective partner preferences. Though there have been attempts to measure idiosyncratic subjectivity in ratings of attractiveness (Lutz et al., 2013), most of the research has focused on the overall effect of subjectivity in assessments of attractiveness and not the actual content of the idiosyncrasies themselves (e.g. Hönekopp, 2006; Eastwick & Neff, 2012; Eastwick & Finkel, 2008; Eastwick, Luchies Finkel, & Hunt, 2013). Content of preferences has been well-studied in objective partner preferences, such as Buss’s

1989 paper on the international mate preferences of 10,000 people in 37 countries found that people universally have a preference for characteristics such as kindness, warmth, intelligence, and health, regardless of the geographical location or the sex of the respondent, and that there were sex differences in age and earning potential preferences. He also found that men were significantly more likely to state a preference for a physically attractive partner in 34 out of the 37 countries, while women in 36 out of the 37 countries preferred partners with good earning potential and ambition. He also found an age preference in all 37 countries, with men desiring a younger partner and women desiring an older partner. Though there are many issues and limitations with this study and the sexual strategies theory of mating it ignited (see Hazan and Diamond, 2000), it does illustrate that there many preferences universal to all people, though there are still some that exist with a gender bias.

In addition to sex differences, some individual difference variables have also been shown to affect ideal partner preferences. Sociosexuality, the individual perception of the extent to which sex and love are linked, was shown to affect the relative importance of personal, attractiveness, and social variables. Sociosexuality ranges from restricted, where sex and love are highly associated, to unrestricted, where sex and love are separate entities and the presence of one does not indicate or preclude the other. A significant gender difference has consistently been found; women have a more restricted sociosexual orientation than men (e.g. Simpson & Gangestad, 1991). In a series of three studies by Simpson and Gangestad (1992), using various self-report methodologies to assess individual preferences in theoretical and current partners, the authors found that people who have a more restricted sociosexuality prioritize personal qualities, such as responsibility and loyalty. People who have a more unrestricted sociosexuality prioritize qualities such as attractiveness, extraversion, and social visibility in their current and ideal

partners. Some personality differences have been shown to affect ideal partner preferences as well. Swami et al. (2008) found that self-esteem, neuroticism, and extraversion were all significantly and positively correlated with having a preference for the height of an ideal partner.

Many researchers have posited that our idiosyncratic partner preferences are derived largely from our childhood caregivers (e.g. Fraley & Marks, 2010; Aronsson et al., 2011; Little et al., 2003; Perrett et al., 2002; Berezkei, 2004; Enquist et al., 2011; Heffernan and Fraley, 2013). The acquisition of partner preferences is hypothesized to occur through sexual imprinting during a critical period of early childhood. Sexual imprinting is the process by which a young animal learns the characteristics of a desirable mate. Essentially, sometime before a person becomes sexually mature, they create an image of what they will want to look for in a potential mate after their sexual maturation. An animal model can be found in zebra finches and sheep; researchers have found that zebra finches prefer the coloring of the bird that raised them (Immelmann, 1969) and that sheep will imprint on the characteristics of their mothers (Kendrick, 1998). This relates to the possibility of human sexual imprinting in that what will be sexually desirable to a person will be what that person is exposed to during the pre-sexual maturation critical period. It is possible that something like this is happening in humans, but we are not sure if this is true. While the scientific reasoning that led to this theory is mostly sound, there are some ubiquitous, yet disputable, points in their arguments. For example, many parental arguments discount without sufficient argument the possible effects of anti-incest reverse sexual imprinting, as well as possibilities like similarity, propinquity, familiarity, assortative mating, sexual conditioning, and the methodological issues with foundational studies in the field.

The hypothesis of sexual imprinting on parental characteristics does not address the idea of anti-incest imprinting. It has been established that reverse sexual imprinting, known as the

Westermarck Effect, occurs during childhood, (Westermarck, 1894; Lieberman & Lobel, 2012). Peers in close domestic proximity, specifically in a family-like setting, during a critical period of approximately 4-7 years of age are ruled out as later sexual partners. The Westermarck effect may be acting as an anti-incest mechanism by reducing the likelihood of highly-related sibling peers from producing offspring, though this occurs regardless of genetic relatedness. As the child and parent would most likely have lived in close domestic proximity during the critical development period, the child may reverse imprint on parental figures through a similar mechanism. While sexual imprinting has been documented in some animal model systems (e.g. Immelmann, 1969; Kendrick et al., 1998; Vos, 1995), there is also evidence of negative imprinting that enhances the avoidance of caregiver characteristics (Murray & Smith, 1983; Penn & Potts, 1998). A more parsimonious explanation for similarity between paternal figures and future mates would be assortative mating, when individuals mate with others who are similar to themselves. The underlying mechanisms of assortative mating are unknown; it may be due to a conscious preference for similarity or a consequence of social homogamy and the effects of familiarity and propinquity. The high levels of demographic similarity in couples in age, education, and social class, as well as personality and several aspects of physical appearance support the presence of assortative mating in humans (e.g. Mascie-Taylor 1987, Allison et al. 1996, Courtiol et al. 2010, Spuhler, 1968). Feingold's (1988) meta-analysis of partner similarity studies found a correlation of 0.39 in partner attractiveness. A person may be more likely to have similar preference to or even have a relationship with someone who resembles their parents simply because they are also likely to resemble their parents. In addition, familiarity and social homogamy would also increase the likelihood that a person's peer group, and as such potential partners, are also similar to that person's parents.

Berezkei (2004), an oft-cited and foundational paper for those supporting a hypothesis of parental sexual imprinting, found a significant similarity determined by objective raters of photographs of adopted women's husbands and fathers despite no biological relatedness. They also found that the women themselves were significantly more similar than chance to their husbands. The researchers concluded that the similarity between husband and father was greater than that between wife and husband; however, the effect of the gender difference, and subsequent sexual dimorphism and gender role differences, between wife and husband that was absent between father and husband was unaccounted for. Importantly, there was no objective or subjective rating of the similarity between father and wife; although they were not biologically related, a woman and her adoptive father could have a similar appearance (Bartholet, 1991). Therefore, taking into account that the significant difference in similarity between the wife-husband and father-husband pairings may have been affected by gender differences, Berezkei's result may be influenced more by wife-father similarity than father-husband similarity. If true, this would support the assortative mating hypothesis more than the sexual imprinting hypothesis.

There is evidence that the ideal partner preference template may be unstable over time. When participants are asked about their ideal partner preferences at different time points, there was a relatively low mean between-session self-correlation (Kościński, 2010), which points to a lack of stability in the ideal partner preference template over time. If this template was created via sexual imprinting on a parent during early childhood, then ideal partner preferences should be consistent. Ideal partner template instability supports a sexual conditioning hypothesis, as sexual imprinting would predict a constant, stable ideal partner template through the lifespan and sexual conditioning would predict an ideal partner template capable of experience-dependent change.

Though some significant correlational studies have been conducted (e.g. Perret et al., 2002), to date, only one problematic study has explicitly investigated sexual imprinting on parents in humans (Aronsson et al., 2011). The researchers make a point in their introduction to dissociate sexual imprinting from sexual conditioning and the development of fetishes, yet they selected a highly fetishized behavior, smoking, as their variable of interest. While their findings do support the association between parental behavior and desire for the same behavior in a partner, their experimental variable undermines the strength of those findings. Importantly, the authors also found that this relationship was mediated by the participants' relationships with their parents. A strong effect of the child-parent relationship is more consistent with sexual conditioning than sexual imprinting, as conditioning should be affected by the strength of the positive or negative stimulus and imprinting should be automatic regardless of the relationship.

Heffernan and Fraley (2013) also suggested that there is a sensitive period for creating partner preferences. Though they speculated that this period was related to sexual imprinting on parents during early childhood, within a sexual conditioning framework, puberty - and by association, adolescence - would make more sense as a sensitive period. Many important developmental changes occur during adolescence that would support this as a time for creating an ideal partner template. There is an increase in the distribution of sex hormones and overall sexual dimorphism, as well as changes in physical intimacy with parents and peers. During early childhood, children are physically intimate with their parents, but as they begin to change during puberty, adolescents are touched less by their parents, and importantly, touched less intimately, such as with ventro-ventral contact. Instead, adolescents seek this intimate contact from their peers, which plays a role in the shifting of attachment behavior from parents to peers, who begin to fulfill more functions as romantic relationships begin to emerge (Furman & Buhrmester,

1992). In fact, the larger the peer group network, the more likely the adolescent is to engage in romantic relationships (Connolly, Furman, & Konarski, 2000). These early, adolescent relationships can also affect perceptions of later relationships (Furman & Flanagan, 1997). During puberty, both physiological, in terms of maturation and fertility, and social factors allow for adolescents to have the access and drive to have repeated sexual encounters with the same partner – possibly producing offspring – making it a perfect time for the creation of an ideal partner preference template.

Although most people have partner preferences, not everyone professes to have a type. If type may not come from parental figures, then from where do these preferences arise? Repeated sexual encounters with a romantic partner may create a mental representation template of an ideal partner through associative learning of affiliative memories to form a social contextual ensemble (Depue and Morrone-Strupinsky, 2012; Zayas, Merrill, & Hazan, 2013). Specifically, dopamine, oxytocin, glutamate, and  $\mu$ -opiate action activated during sex, especially in the brain's reward pathway and medial orbital 13 region, play critical roles in encoding information about the partner (e.g., partner's smell, touch, sound, and appearance) into an ensemble of cues (Luu & Malenka, 2008; Depue & Morrone-Strupinsk, 2005). The strong activation of the dopaminergic, oxytonergic, and  $\mu$ -opiate systems by sex and sexual partners suggests a neural pathway by which mental representations may become richer and more elaborate, more rapidly than if the sexual mating system were not activated. It also provides a neural mechanism for how the representation of the partner may become robust, chronically accessible (brought to mind with little effort) and contextually-independent, which can then be activated and used to guide behaviors (Zayas, Merrill, & Hazan, 2013). The creation of a social contextual ensemble through reinforcing behavior aligns with the ideal standards model of partner preferences (Fletcher &

Simpson, 2000), which hypothesizes that the purpose of having ideal partner preferences is to facilitate the acquisition of chronically accessible knowledge that can be used to make decisions such as approaching or assessing the fitness of a potential partner. This conception of ideal partner preference template creation is also supported by cognitive psychology, as experience-dependent pattern processing allows for the creation of a prototype (McClelland et al., 1986); the same mechanism that allows a person to learn what a prototypical face looks like may enable him or her to abstract a prototypical ideal partner.

### ***Study 1.***

Though some theories have been presented about the possible evolutionary benefits of sexual imprinting on parental figures focusing on the benefit of an evolutionary bottleneck (Berezkei, 2004; Aronsson, 2011), we would like to present an alternative evolutionary hypothesis. In the Pleistocene era, selecting romantic and sexual partners that are similar in personality, values and physical appearance may have offered an evolutionary benefit. If having repeated sexual encounters with one person increases your probability to have a type, perhaps this is because repeated encounters increase the probability of producing a child. It is unlikely that the parents would have remained in a relationship; in this era, there were many reasons the biological mother and father of this child would not have remained together to provide bi-parental care for a child throughout his or her entire development. If parents seeking a new mate could ensure that this new partner would interact favorably with the child, it would be, evolutionarily, in their best interest to do so. We hypothesize that by choosing partners that have similar personalities, values, and physical appearances, parents increase the likelihood that any new partner will be similar to their children. Similarity between the new partner and their children will aid in the relationship between them by increasing the amount the new partner is

willing to invest in the children - even with the knowledge that they are not biologically related. Study 1 was conducted to test this hypothesis by assessing the effect of parental similarity on paternal investment in both biologically related and non-biologically related populations.

Paternity uncertainty is an integral part of mating theories of sexual selection (Buss, 1989; Daly & Wilson, 1982), and many researchers have investigated the benefits of paternal-child similarity to paternal investment (e.g. Alvergne, Gaurie, & Raymond, 2009, 2010; Apicella & Marlowe, 2004, 2007; Burch & Gallup, 2000; Del Giudice & Belsky, 2011; Li & Chang, 2007; Moller & Birkhead, 1993; Whittingham, Taylor & Robertson, 1992). Increases in paternal investment, temporal and monetary, have been found with increased similarity between the father and child. However, all but one of these studies were conducted on biological fathers and children, many under the assumption that similarity acted as a proxy for biological relatedness. The only study to explore the effect of father-child similarity on paternal investment for biological *and* non-biological children was a study by Burch and Gallup (2000), which investigated father-children relationships in domestic violence situations. Though the researchers did not find a significant effect of similarity on paternal investment for non-biological children, the violent context of these relationships make this participant pool less than ideal to address issues of investment. While biological relatedness does increase perceived similarity, as shown in a paired-association learning task by Almstram & Knight (2005), biological relatedness is not necessary for high levels of similarity, physical or otherwise. The vast majority of studies in this area have approached this question from a narrow viewpoint, focusing only on biological relationships, the father-child relationship, and the similarity in physical resemblance. Other factors, such as values and personality, have been shown to be similar among families (Biehnjem Hadjar & Baher, 2007; Acock & Bengston, 1980), and while paternal investment may focus on

physical similarity, maternal investment is best correlated with personality similarity, not physical similarity, in biologically related mother-child relationships (Heijkoop, Dubas & van Aken, 2009), indicating the need for assessing multiple types of similarity to ascertain the effect of parental similarity on investment. While a few other studies have investigated other types of benefits of parental similarity on children (e.g. Van Tuijl et al., 2005), none directly assess the effect of parental similarity on paternal investment in biological and non-biological children.

### ***Study 2.***

The goal of Study 2 was to explore the individual differences and life experiences that facilitate participant's reporting a type, the content of the reported type, and the similarities and differences between that ideal type, the participant's sexual ideal, and the participant's romantic ideal. The research team had several hypotheses based on the preceding literature. First, we hypothesized that a participant's type will be more likely to resemble a repeated sexual partner, and participants who report a repeated sexual partner, specifically during adolescence, will have a higher probability of having a type. Second, we hypothesized that, given the amount of gender differences in previous research and the gender differences found in the effect of similarity on child investment, the content of these types will be most affected by the sex of the participant. Specifically, female participants will be more likely to focus on aspects of personality, and possibly, wealth and status, while male participants would be more likely to focus on physical attractiveness. Also, as sociosexuality often breaks down along gender lines, it should similarly affect the content of participants' types. Thirdly, we hypothesized that personality type, sexual orientation, and other individual differences should not significantly affect type content. Lastly, we hypothesized that ideal type would be a distinct ideal separate from either sexual or romantic ideal descriptions.

## Method

### **Study 1.**

Data were collected via a self-report survey distributed on Amazon's Mechanical Turk (Buhrmester, Kwang & Gosling, 2011). This method of distribution reached out to fairly equitable groups of participants who indicated being either biologically related to their parents or adopted by their parents. One hundred and thirteen participants were recruited, 53 females and 59 males, 47 of whom were adopted and 66 of whom were biological children. Seventy-seven percent of participants were adopted before 2 years of age. Seventy-seven percent of participants identified as exclusively heterosexual, and 73% of participants stated they were in a committed romantic relationship. The participants' average annual income was between \$40,000 - \$49,999, and 74.3% of participants identified as white, .9% Pacific Islander, 17.7% Asian, 6.2% Native American, 5.3% Black, and 2.7% Other.

Participants completed the Parental Attachment Questionnaire (PAQ) (Kenny & Donaldson, 1991), the Experiences in Close Relationships Scale Revised (ECR-SR) (Fraley et al., 2011), and a series of questions of our own devising to determine the participant's perception of similarity with their mother and father figures, as well as the participant's perception of their mother and father figures' investment in them. Participants were asked how similar they were to their mother figure's personality, sense of humor, values, and physical appearance, then participants were asked the same questions about their similarity to their father figure. Participants answered on a 5-point Likert scale from "Not at all similar" to "Very much similar". Participants were then asked how much their mother and father figures, separately, invested in them financially, in time spent with them, and their parental figure's overall total investment.

Participants answered these questions on a scale from 0% to 100% investment, corresponding to a scale from “None at all” to “Very much”.

## **Study 2.**

Data collected in this study were part of a larger project on sexuality, personality, and physiological arousal, in which participants watched 6 nature videos and 6 masturbatory erotic videos while having their physiological arousal assessed via pupil dilation and plethysmography, and then completed a survey. After the physiological data were collected, participants were given several minutes and a bathroom break before beginning the survey.

Our sample was made up of 156 participants, 81 of which were male and 75 of which were female. The average participant age was 25 years old, and the age range was from 19 to 53, with a median age of 22. Ninety-nine percent of participants had attended at least some college. The participants ranged in sexual orientations, with a mean of 3.17 and a median of 4 (equally attracted to same and other sex) on the Kinsey scale. Using the Kinsey scale for sexual orientation, our sample consisted of 21.2% 1s, 17.2% 2s, 10.6% 3s, 5.3% 4s, 11.9% 5s, 17.2% 6s, and 15.9% 7s. Additionally, our sample identified as 63% Caucasian, 10% Hispanic, 10% Black, 14% East Asian, and 3% Middle Eastern.

The survey assessed several factors, including sociosexuality, as measured by the Sociosexuality Orientation Inventory Revised (SOI-R) (Penke, 2011), sexual orientation, as measured by the Kinsey Scale of Sexual Orientation (Sell, 1997), and attachment style, as measured by the Experiences in Close Relationships Scale Revised (ECR-SR) (Fraley et al., 2011). The SOI-R measures the construct of sociosexuality, which is how much a person correlates the concepts of sex and love. This is quantified along one dimension from restricted,

or those who correlate sex and love closely, to unrestricted, or those for whom sex and love are separate constructs. Those who have a restricted sociosexuality are more likely to endorse statements such as “I do not want to have sex with a person until I am sure that we will have a long-term, serious relationship.” Those who have an unrestricted sociosexuality are more likely to endorse statements such as: “Sex without love is OK”. On average, women have a more restricted sociosexuality, while men have a more unrestricted sociosexuality (Schmitt, 2005). The SOI-R is a shortened version of the Simpson and Gangestad (1991) SOI that has shown good test-retest reliability, internal consistency, and validity (Penke, 2011). The Kinsey Scale of Sexual Orientation is a well-known and validated (Sell, 1997) measure of sexual orientation that allows participants to choose from 7 sexual attraction options ranging from “Exclusive heterosexual” as 1 to “Exclusively homosexual” as 7.

The ECR-SR is an attachment style questionnaire where attachment styles in specific relationships as well as global attachment style are assessed,. Participants were asked about their attachment to their primary attachment figure and their current, most recent, or ideal partners. The scale assess attachment on two dimensions: avoidance and anxiety. A person low on attachment avoidance would endorse the statement “I find it easy to depend on this person”, while a person high on attachment anxiety would endorse the statement “I often worry that this person doesn't really care for me”. A person who is low on both avoidance and anxiety would be determined to have a secure attachment style, a person who is high on anxiety and low on avoidance would have an anxious (or ambivalent) attachment style, a person who is high on avoidance and low on anxiety would have an avoidant attachment style, and a person who is high on both avoidance and anxiety would be determined to have a disorganized attachment style. The ECR-SR has been shown to have good internal consistency, test-retest reliability, and validity

(Sibley & Liu, 2004). All the measures included in this study have been used in many psychological assessments of non-clinical populations. Researcher-generated questions about the participant's idiosyncratic partner preferences were also asked. These questions were created using the theoretical basis provided by the extant literature.

Finally, participants were asked to give open-response answers to what their sexual and romantic ideals are, as well as what their ideal "type" was in general. These responses were coded for the presence or absence of certain information deemed to be the most important theoretically by a team of 12 researchers who had previously read through all of the responses. Each researcher read a group of participant's open responses and listed the categories that seemed to be the most distinct while encompassing the full meaning of the participant's ideal. Each researcher had an average of 34 categories, and while some categories overlapped, several were combined. Categories were kept separate in order to test hypotheses based on their theoretical importance or prevalence in the data. For example, several suggestions for types of personalities were combined into a single "personality" category; however, a few categories were also coded separately because of their theoretical and hypothetical importance, such as general anxiety, sociability, and openness. These specific personality characteristics, which translate to neuroticism, extroversion, and openness, may be major factors in the determination of an idiosyncratic partner preference template. Another example is the separate coding of body type, eyes, body parts, and specific physical details. The research team decided that, due to the intimate nature of eye-contact, eye preferences should be coded separately. The team also felt that there was a significant distinction, and possible gender difference, between a discussion of specific body parts like the butt or nose and an overall body type such as fit or curvy. Finally, *specific physical details* was a category used to code preferences that were visual and detailed in

their description, but were generally changeable in nature (such as having short or long hair) and held no real benefit to the participant, yet were extremely common in the data. Based on their prevalence in the data or the hypothetical implications, the research team believed that each of these included categories assessed different information. After reducing the number of categories to the smallest number that encompassed all major distinctions among the participants' ideals, we reached a consensus of 28 categories. These categories are: personality (e.g.. nice, agreeable, conscientious), creativity, ambition, sociability, anxiety (or lack thereof), sense of humor, intelligence and education, shared interests and values, physical attractiveness, eyes, body type, height, specific body parts, specific physical details (e.g. hair color, length, and texture; tattoo presence; eyewear preferences), age, gender, race, supportive nature, faithfulness/loyalty, hygiene and health, intimacy and emotional connection, knowledge and experience, sexual preferences, sexual enjoyment, money and status, mutual liking, and specificity of interest (hobbies, music, activity preferences, etc.).

The research team trained six research assistants on the coding procedure and definitions of each category; these research assistants then coded all participants' open-response partner ideal descriptions. Each response was read and coded 3 times: once each by 3 different research assistants. When there was a disparity in the coding, the researchers and coders met to discuss what the appropriate coding should be and the majority decision determined the coding used. Each response was coded for presence or absence of each category within the participant's description of their sexual ideal, romantic ideal, and overall ideal type of partner. For example, when the participant stated that her or his ideal partner is "A tall, hot, smart guy with at least one tattoo who is also super outgoing and funny", then this response would be coded as having the presence of criteria for height, physical attractiveness, intelligence, sociability, gender, and

specific physical details. Another participant described his or her ideal type as “Definitely someone who loves sex and is at least a little kinky, who is a little older than me, takes good care of themselves, and has a really fit, muscular body” would be coded as having the presence of criteria for sexual enjoyment, sexual preferences, age, hygiene and health, and body type. While a participant who said “A girl who would really be there for me when I needed her, well educated, likes to go to museums, and shares the same faith as me” would be coded as having the presence of criteria for gender, supportive nature, intelligence and education, specificity of interest, and shared interests and values. This process resulted in binary data where each open response for each participant received either a 1 (presence of criteria) or 0 (absence of criteria) for each category.

## **Results**

### **Study 1.**

We conducted a between-subjects analysis of variance (ANOVA) of perceived parental similarity for both mothers and fathers at the four measured response dimensions of similarity on the dependent variable of perceived investment by the parent on the three dimensions of financial, time, and overall investment. All necessary statistical assumptions for conducting an ANOVA were met by the data. We completed the same analysis using all four measured dimensions of similarity. All post-hoc analyses were completed using a Tukey HSD test.

The ANOVA revealed that the participants’ perceived paternal investment was significantly different depending on their reported perceived similarity to their father’s personality in terms of financial investment  $F(4,104)=6.27, p<.001$ , time investment  $F(4,104)=9.63, p<.001$ , and overall investment  $F(4,104)=9.143, p<.001$ . Those with a higher

perceived similarity to their father's personality also perceived higher paternal investment on all dimensions. The participants' perceived paternal investment was significantly different depending on their reported perceived similarity to their father's sense of humor in terms of financial investment  $F(4,104)=5.73$ ,  $p<.001$ , time investment  $F(4,104)=15.03$ ,  $p<.001$ , and overall investment  $F(4,104)=14.47$ ,  $p<.001$ . Those with a higher perceived similarity to their father's sense of humor also perceived higher paternal investment on all dimensions. The participants' perceived paternal investment was significantly different depending on their reported perceived similarity to their father's values in terms of financial investment  $F(4,104)=7.62$ ,  $p<.001$ , time investment  $F(4,104)=9.89$ ,  $p<.001$ , and overall investment  $F(4,104)=11.18$ ,  $p<.001$ ; those with a higher perceived similarity to their father's values also perceived higher paternal investment on all dimensions. The participants' perceived paternal investment was significantly different depending on their reported perceived similarity to their father's physical appearance in terms of financial investment  $F(4,104)=2.71$ ,  $p=.034$ , time investment  $F(4,104)=4.58$ ,  $p=.002$ , and overall investment  $F(4,104)=5.83$ ,  $p<.001$ . Those with a higher perceived similarity to their father's physical appearance also perceived higher paternal investment on all dimensions.

Participants' perceived maternal investment was significantly different depending on their reported perceived similarity to their mother's personality in terms of financial investment  $F(4,104)=2.76$ ,  $p=.034$ , time investment  $F(4,104)=6.85$ ,  $p<.001$ , and overall investment  $F(4,104)=8.32$ ,  $p<.001$ ; those with a higher perceived similarity to their mother's personality also perceived higher maternal investment on all dimensions. The participants' perceived maternal investment was significantly different depending on their reported perceived similarity to their mother's personality in terms of financial investment  $F(4,104)=2.76$ ,  $p=.034$ , time investment

$F(4,104)=6.85$ ,  $p<.001$ , and overall investment  $F(4,104)=8.32$ ,  $p<.001$ . Those with a higher perceived similarity to their mother's personality also perceived higher maternal investment on all dimensions. The participants' perceived maternal investment was significantly different depending on their reported perceived similarity to their mother's sense of humor in terms time investment  $F(4,104)=6.47$ ,  $p<.001$  and overall investment  $F(4,104)=5.53$ ,  $p<.001$ , but not financial investment  $F(4,104)=1.67$ ,  $p=.16$ ; participants with a higher perceived similarity to their mother's sense of humor also perceived higher maternal time and overall investment. Participants' perceived maternal investment was significantly different depending on their reported perceived similarity to their mother's values in terms of financial investment  $F(4,104)=4.54$ ,  $p=.002$ , time investment  $F(4,104)=10.25$ ,  $p<.001$ , and overall investment  $F(4,104)=11.76$ ,  $p<.001$ . Those with a higher perceived similarity to their mother's values also perceived higher maternal investment on all dimensions. Participants' perceived maternal investment was significantly different depending on their reported perceived similarity to their mother's physical appearance in terms time investment  $F(4,104)=3.45$ ,  $p=.011$  and overall investment  $F(4,104)=3.88$ ,  $p=.006$ , but not financial investment  $F(4,104)=.63$ ,  $p=.64$ ; participants with a higher perceived similarity to their mother's physical appearance also perceived higher maternal time and overall investment.

We also found cross-parental effects. Perceived similarity to the father's personality affected maternal investment in financial  $F(4,104)=3.88$   $p=.006$ , time  $F(4,104)=4.36$ ,  $p=.003$ , and overall investment  $F(4,104)=3.14$ ,  $p=.018$ . Those with a higher perceived similarity to their father's personality also perceived higher maternal investment on all dimensions. Perceived similarity to the father's sense of humor also affected maternal financial  $F(4,104)=3.72$   $p=.007$ , time  $F(4,104)=6.23$   $p<.001$ , and overall investment  $F(4,104)=5.26$   $p=.001$ , and those with a

higher perceived similarity to their father's sense of humor also perceived higher maternal investment on all dimensions. Perceived similarity to the father's values also affected maternal financial  $F(4,104)=4.54$   $p=.002$ , time  $F(4,104)=2.84$ ,  $p=.028$ , and overall investment  $F(4,104)=3.10$ ,  $p=.019$ ; those with a higher perceived similarity to their father's values also perceived higher maternal investment on all dimensions. Perceived similarity to the father's physical appearance also affected maternal financial  $F(4,104)=3.67$   $p=.008$ , time  $F(4,104)=4.82$ ,  $p=.001$ , and overall investment  $F(4,104)=5.54$ ,  $p<.001$ ; those with a higher perceived similarity to their father's values also perceived higher maternal investment on all dimensions.

Perceived similarity to the mother's personality also affected paternal overall investment  $F(4,104)=2.76$ ,  $p=.032$ , but it did not significantly affect paternal financial  $F(4,104)=1.63$ ,  $p=.173$  or time  $F(4,104)=1.96$ ,  $p=.11$ . Those with a higher perceived similarity to their mother's personality also perceived higher overall paternal. Perceived similarity to the mother's sense of humor did not affect paternal financial  $F(4,104)=.82$   $p=.51$ , time  $F(4,104)=1.25$ ,  $p=.29$ , or overall investment  $F(4,104)=1.41$ ,  $p=.24$ . However, perceived similarity to mother's values did affect paternal financial  $F(4,104)=2.80$ ,  $p=.029$ , time  $F(4,104)=5.05$ ,  $p=.001$ , and overall investment  $F(4,104)=4.82$ ,  $p=.001$ , and those with a higher perceived similarity to their mother's values also perceived higher paternal investment on all dimensions. Finally, perceived similarity to the mother's physical appearance affected perceived paternal overall investment  $F(4,104)=2.71$ ,  $p=.034$ , but not paternal financial  $F(4,104)=.70$ ,  $p=.59$  or time investment  $F(4,104)=2.14$ ,  $p=.08$ .

Due to the possibility of the effect of attachment avoidance and anxiety on perceived investment and similarity, two-way between subjects ANOVAs were executed to determine if there were any interaction effects. This ANOVA was a 5 by 3 between-subjects analysis, with perceived parental similarity having 5 categories (not at all similar, somewhat similar,

moderately similar, quite a bit similar, and very much similar) and both relationship anxiety and avoidance having 3 categories (low, medium, and high attachment anxiety based on equal cutpoints from the participant's ECR scores). The dependent variable is perceived parental investment based on percentages from 0 to 100.

The main effect of paternal attachment anxiety was statistically significant for financial  $F(2,109)=2.61$ ,  $p<.001$ , time  $F(2,109)=5.34$ ,  $p<.001$ , and overall investment  $F(2,109)=8.86$ ,  $p<.001$ . The main effect of paternal attachment avoidance was not statistically significant for financial  $F(2,109)=1.11$ ,  $p>.05$  or time investment  $F(2,109)=2.30$ ,  $p>.05$ , but there was a significant difference in overall investment  $F(2,109)=4.87$ ,  $p=.01$ .

While there were main effects for parental attachment anxiety and avoidance, there were no interaction effects between avoidance and any dimension of similarity, indicating that the effect of perceived parental similarity on perceived parental investment does not change depending on the level of parental attachment anxiety. This was true for paternal attachment avoidance and father's personality for financial  $F(8, 109)=.31$ ,  $p>.05$ , time  $F(8,109)=1.16$ ,  $p>.05$ , and overall investment  $F(8,109)=.734$ ,  $p>.05$ ; father's sense of humor for financial  $F(7, 109)=1.37$ ,  $p>.05$ , time  $F(7,109)=1.39$ ,  $p>.05$ , and overall investment  $F(7,109)=1.45$ ,  $p>.05$ ; father's values for financial  $F(8,190)=1.23$ ,  $P>.05$ , time  $F(8,109)=1.29$ ,  $p>.05$ , and overall investment  $F(8,109)=1.60$ ,  $p>.05$ ; and father's physical appearance for financial  $F(8, 109)=.94$ ,  $p>.05$ , time  $F(8,109)=1.06$ ,  $p>.05$ , and overall investment  $F(8,109)=1.05$ ,  $p>.05$ . This was also true for maternal attachment avoidance and mother's personality for financial  $F(8, 109)=.75$ ,  $p>.05$ , time  $F(8,109)=1.05$ ,  $p>.05$ , and overall investment  $F(8,109)=.61$ ,  $p>.05$ ; mother's sense of humor for financial  $F(8, 109)=.53$ ,  $p>.05$ , time  $F(8,109)=1.6$ ,  $p>.05$ , and overall investment  $F(8,109)=1.32$ ,  $p>.05$ ; mother's values for financial  $F(8,190)=1.12$ ,  $P>.05$ , time  $F(8,109)=.65$ ,

$p > .05$ , and overall investment  $F(8,109) = .69$ ,  $p > .05$ ; and mother's physical appearance for financial  $F(8, 109) = .91$ ,  $p > .05$ , time  $F(8,109) = .84$ ,  $p > .05$ , and overall investment  $F(8,109) = 1.03$ ,  $p > .05$ .

Additionally, while there were several main effects of anxiety on perceived parental investments, there were no interaction effects with perceived parental investment. This means that the effect of perceived parental similarity on perceived parental investment does not change depending on the level of parental attachment anxiety. This was true for attachment anxiety and father's personality for financial  $F(8, 109) = 1.99$ ,  $p > .05$ , time  $F(8,109) = 1.90$ ,  $p > .05$ , and overall investment  $F(8,109) = 1.13$ ,  $p > .05$ ; father's sense of humor for financial  $F(8, 109) = .68$ ,  $p > .05$ , time  $F(8,109) = .96$ ,  $p > .05$ , and overall investment  $F(8,109) = .94$ ,  $p > .05$ ; father's values for financial  $F(8,190) = .74$ ,  $P > .05$ , time  $F(8,109) = 1.295$ ,  $p > .05$ , and overall investment  $F(8,109) = .955$ ,  $p > .05$ ; and father's physical appearance for financial  $F(8, 109) = 1.99$ ,  $p > .05$ , time  $F(8,109) = 1.67$ ,  $p > .05$ , and overall investment  $F(8,109) = 1.62$ ,  $p > .05$ . This was also true for maternal attachment anxiety and mother's personality for financial  $F(8, 109) = 1.13$ ,  $p > .05$ , time  $F(8,109) = .63$ ,  $p > .05$ , and overall investment  $F(8,109) = .73$ ,  $p > .05$ ; mother's sense of humor for financial  $F(8, 109) = .85$ ,  $p > .05$ , time  $F(8,109) = 1.10$ ,  $p > .05$ , and overall investment  $F(8,109) = .77$ ,  $p > .05$ ; mother's values for financial  $F(8,190) = 1.35$ ,  $P > .05$ , time  $F(8,109) = 1.02$ ,  $p > .05$ , and overall investment  $F(8,109) = 1.33$ ,  $p > .05$ ; and mother's physical appearance for financial  $F(8, 109) = .25$ ,  $p > .05$ , time  $F(8,109) = .45$ ,  $p > .05$ , and overall investment  $F(8,109) = .44$ ,  $p > .05$ .

An independent samples t-test was executed to determine if there were any significant differences between the adopted and biological child-parent relationship populations. There were no significant difference between adopted and biological children on any dimension of investment or similarity. Both adopted and biological populations had no significant differences

in father personality  $t(107) = .55, p > .05$ , father sense of humor  $t(107) = -.91, p > .05$ , father values  $t(107) = .22, p > .05$ , father physical appearance  $t(107) = -1.33, p > .05$ , mother personality  $t(107) = .26, p > .05$ , mother sense of humor  $t(107) = -.74, p > .05$ , mother values  $t(107) = -.73, p > .05$ , mother physical appearance  $t(107) = -.93, p > .05$ , paternal financial investment  $t(107) = 1.09, p > .05$ , paternal time investment  $t(107) = .31, p > .05$ , paternal overall investment  $t(107) = .23, p > .05$ , maternal financial investment  $t(107) = -.23, p > .05$ , maternal time investment  $t(107) = -.59, p > .05$ , maternal overall investment  $t(107) = -1.22, p > .05$ . Additionally, there were no interaction effects between adoption and parental similarity on perceived paternal investment, as determined by a 2-way between subjects ANOVA using father personality  $F(4, 109) = .45, p > .05$ , father sense of humor  $F(4, 109) = .43, p > .05$ , father values  $F(4, 109) = .57, p > .05$ , father physical appearance  $F(4, 109) = .47, p > .05$ , mother personality  $F(4, 109) = 1.18, p > .05$ , mother sense of humor  $F(4, 109) = .30, p > .05$ , mother values  $F(4, 109) = .44, p > .05$ , and mother physical appearance  $F(4, 109) = .71, p > .05$ .

An independent samples t-test revealed that there was no significant difference for gender for father personality similarity  $t(106) = 1.85, p > .05$ , sense of humor similarity  $t(106) = 1.05, p > .05$ , values similarity  $t(106) = 1.02, p > .05$ , or physical appearance similarity  $t(106) = 1.44, p > .05$ . Similarly, there was no gender difference for mother personality similarity  $t(106) = 1.41, p > .05$ , sense of humor similarity  $t(106) = 1.28, p > .05$ , values similarity  $t(106) = 0.55, p > .05$ , or physical appearance similarity  $t(106) = 0.84, p > .05$ . There was also no gender difference in father financial investment  $t(106) = 0.95, p > .05$ , time investment  $t(106) = 1.66, p > .05$ , or overall investment  $t(106) = 1.92, p > .05$ . There was also no gender difference in mother time investment  $t(106) = 1.85, p > .05$  or overall investment  $t(106) = 1.85, p > .05$ ; however, there was a significant gender difference in mother's financial investment  $t(106) = 1.85, p = .04$  with men

perceiving a higher financial investment from their mother's than women. When a two-way ANOVA was conducted with perceived similarity with the mother by gender on the dependent variable mother's perceived financial investment, the two way interaction effect was not statistically significant  $F(4,108) = 0.53, p = .712$ , indicating that, though women perceived less financial investment from their mothers than men, the effect of maternal similarity on perceived maternal financial investment does not differ depending on whether the participant is male or female.

A one-way between subjects ANOVA was also conducted to examine possible effects of the age of adoption on participant's perceived investment. There was no significant difference for father personality similarity  $t(106) = 1.85, p > .05$ , sense of humor similarity  $t(106) = 1.05, p > .05$ , values similarity  $t(106) = 1.02, p > .05$ , or physical appearance similarity  $t(106) = 1.44, p > .05$ . Similarly, there was no significant difference based on age of adoption for mother personality similarity  $t(106) = 1.41, p > .05$ , sense of humor similarity  $t(106) = 1.28, p > .05$ , values similarity  $t(106) = 0.55, p > .05$ , or physical appearance similarity  $t(106) = 0.84, p > .05$ . There was also no significant difference in father financial investment  $t(106) = 0.95, p > .05$ , time investment  $t(106) = 1.66, p > .05$ , or overall investment  $t(106) = 1.92, p > .05$ . There was also no significant difference in mother financial investment  $t(106) = 0.84, p < .05$ , mother time investment  $t(106) = 1.85, p > .05$  or overall investment  $t(106) = 1.85, p > .05$ .

## **Study 2.**

### ***Type Presence.***

A series of chi-square tests were conducted to ascertain which variables determine the presence of an idiosyncratic partner ideal, or type. All necessary assumptions were met by the data to conduct this test. We found that there was no significant gender difference in type presence  $X^2(2, 152)=5.19, p=.07$ . People with and without a stated type did not differ on attachment anxiety  $t(148)=-.04, p>.05$ , attachment avoidance  $t(148)=.06, p>.05$ , sociosexuality  $t(148)=-.46, p>.05$ , openness  $t(148)=.65, p>.05$ , agreeableness  $t(148)=-1.44, p>.05$ , emotional stability  $t(148)=.034, p>.05$ , conscientiousness  $t(148)=.67, p>.05$ , extraversion  $t(148)=-1.00, p>.05$ , or age  $t(148)=-.20, p>.05$ . There is also no effect of relationship status  $X^2(4, 151)=1.14, p>.05$  or sexual orientation  $X^2(7, 150)=5.65, p>.05$  on type presence. There is a single predictor for type presence: people who had their first love during adolescence, and this partner was also a sexual partner, were significantly more likely than people who reported falling in love later in life to report having a type  $X^2(2, 84)=6.25, p=.04$ . Though people with a type are no more likely than people without a type to report that their type resembles their first love  $X^2(2, 84)=3.20, p>.05$ .

### ***Type Resemblance.***

Sociosexuality had no effect on whether a participant's first sexual partner  $X^2(5, 69)=6.54, p>.05$ , first love  $X^2(6, 63)=5.29, p>.05$ , or current partner  $X^2(6, 70)=3.66, p>.05$  was their type. Sex had no effect on whether the participant's first love was similar to their type  $X^2(1, 135)=2.69, p>.05$ . However, men were more likely than women to say that the first person they had sex with is similar to their type  $X^2(1, 135)=4.66, p=.03$ . There is no sex difference in the participant's current or more recent partner being their type  $X^2(4, 151)=1.14, p>.05$ .

### ***Type Content.***

The content of the types provided by participants were also analyzed with variables of interest. Firstly, several significant differences were found using linear regression with the participant's score on the sociosexuality orientation inventory as the independent predictor and composite variables of factors mentioned in participant's open-ended response as dependent variables. The relationship between sociosexuality score and how many personality characteristic criteria were mentioned  $R^2=.002$ ,  $F(1, 138) =.241$ ,  $p=.62$ , how many sexual preference criteria were mentioned  $R^2=.010$ ,  $F(1,138)=1.36$ ,  $p=.24$ , or how many compatibility criteria was mentioned  $R^2=.010$   $F(1,138)=.84$ ,  $p=.36$  were insignificant. However, there were significant positive relationships between sociosexuality score and the number of physical criteria mentioned  $R^2=.11$ ,  $F(1,138)= 17.01$ ,  $p<.001$ , and the number of criteria mentioned overall  $R^2=.032$ ,  $F(1,138)=4.53$ ,  $p=.03$ . These results indicate that the higher the participant's sociosexuality score, the more physical criteria they will report for their ideal type and the more criteria they will have overall for an ideal type. Because a higher score on the SOI relates to having a more unrestricted sociosexuality, participants with a more unrestricted sociosexuality are more likely to have reported a greater number of physical and total criteria for their ideal type. To explore this difference, binomial logistic regression using minimum chi-squared estimator for grouped data were conducted using participant's sociosexuality score as a predictor and the presence or non-presence of factors mentioned in participants' open response answers as the dependent. There was a significant positive relationship between sociosexuality score and the presence of specific physical detail criteria  $R^2_N=.104$ ,  $X^2(1, N=139)=11.17$ ,  $p=.002$ , with those having a more unrestricted sociosexuality being significantly more likely to mention specific physical details in the description of their ideal type. There was also a significantly positive relationship between sociosexuality and the mention of specific body parts  $R^2_N=.123$ ,  $X^2(1,$

$N=139$ )= $10.71$ ,  $p=.003$ , mention specifically of preferences for eyes (which were coded separately)  $R^2_N=.065$ ,  $X^2(1, N=139)=4.27$ ,  $p=.039$ , mention of age  $R^2_N=.119$ ,  $X^2(1, N=139)=6.02$ ,  $p=.014$ , mention of gender and/or gender affectation  $R^2_N=.045$ ,  $X^2(1, N=139)=4.73$ ,  $p=.030$ , and mention of race  $R^2_N=.117$ ,  $X^2(1, N=139)=11.19$ ,  $p=.001$ . There were no significant correlations found between sociosexuality score and any factor of personality, compatibility, sexual preference, or general attractiveness. No relationship was found between sociosexuality score and ideal preferences for participant's sexual or romantic ideals.

There were no significant differences between men and women in the composite variables (personality, physical, compatibility, sexual preference, and overall criteria). Only one individual factor showed a significant difference between men and women: the presence of a mention of race  $X^2(1, 140)= 5.83$ ,  $p=.026$ . Women were more likely to mention race than men. Because this finding was an unusual, given that more unrestricted sociosexuality scores were associated with mentioning race and women were more likely to have more restricted sociosexuality scores, another regression was done. Selecting for women only, a binomial logistic regression found a positive relationship between sociosexuality score and mention of race  $R^2_N=.15$ ,  $X^2(1, N=70)=8.15$ ,  $p=.004$ . This means that women with a higher sociosexuality are significantly more likely to mention race as a factor in their type. However, there is no significant relationship between sociosexuality score and mention of race as a factor in type for men  $R^2_N=.034$ ,  $X^2(1, N=69)=1.33$ ,  $p=.25$ ; meaning, men with an unrestricted sociosexuality are not significantly more likely than men with a restricted sociosexual to mention race as a part of their type.

There were also no significant differences found among the ideal preferences of the age groups when participant's had their first loves, even when those loves were indicated as a sexual

partner. There was similarly no significant correlation between global attachment anxiety or avoidance and the presence of any ideal criteria presence. Aside from one notable exception, there were no significant differences in factor presence among sexual orientations. There was a significant difference among the sexual orientations in the presence of a general attractiveness factor  $X^2(7, 139) = 14.28, p = .046$ . The difference, however, was in the exclusivity of orientation, not the sex/gender preference, with more exclusive orientations more likely than less exclusive orientations to report a desire for a generally, non-specific attractiveness factor. In fact, participants that indicated they were equally attracted to both sexes never reported a general attractiveness factor as part of their type.

#### *Romantic, Sexual, and Ideal Partner Types.*

A further analysis of the participants' descriptions of their ideals, as well as comparisons between type and sexual and romantic ideal partners was completed using a Generalized Estimate Equation (GEE). GEE is a type of Generalized Linear Model (GLM) when using repeated measures on the same participant, as is the case with these data, and using an exchangeable correlation, which assumes that every person is equally correlated to themselves in order for the data to pass the necessary assumption checks. Because the presence/non-presence nature of the response data are binary GEE was used to determine logit, which was then inversely transformed to obtain probabilities. The Tukey method was used to adjust for multiple comparisons for a family of 42 means.

A chi-square analysis of the Wald statistic table produced by the model revealed a main effect for factor, or the details being mentioned,  $X^2(13, 143) = 721, p < .001$ , a main effect for which kind of ideal the participant was describing  $X^2(2, 143) = 8, p = .019$ , and an interaction effect between factor and kind of ideal  $X^2(26, 143) = 278, p < .001$ . These results show that there

is a significant difference the effect of factor across different kinds of ideals. As such, the factors of each kind of ideal were examined separately.

Specifically for ideal type, agreeableness and conscientiousness was the most likely to be mentioned with 42% of participants listing it (Table 1). However, there is no statistically significant difference in the frequency agreeableness and conscientiousness, specific physical details, body type, gender, and humor and intelligence are mentioned. Agreeableness and conscientiousness is mentioned significantly more often than attractiveness and all following factors, however ( $p=.008$ ). Preference for a specific body part was mentioned significantly less often than preferences for body type ( $p<.001$ ) and specific physical details ( $p<.001$ ) were mentioned significantly more often than a preference for a specific body part, as well as every factor mentioned less often. Race is mentioned significantly more often than the least listed preference, emotional stability ( $p=.02$ ), which only has a probability of being mentioned of 2.9%.

**Table 1.** Probabilities and Standard Errors of Mentioning a Specific Factor when Describing the Participant’s Ideal Type.

<b>Factor</b>	<b>Probability</b>	<b>SE</b>	<b>Rank</b>
Agreeableness/Conscientiousness	0.4226	0.04177	1
Specific Physical Details	0.4011	0.04142	2
Body Type	0.394	0.04126	3
Gender	0.3869	0.04118	4
Humor & Intelligence	0.3869	0.04111	5
Height	0.2725	0.03754	6
Race	0.2296	0.03551	7

Attractiveness	0.1866	0.03287	8
Body Parts	0.1723	0.03184	9
Openness	0.1365	0.02896	10
Extraversion	0.115	0.02691	11
Sexual Preferences	0.1007	0.02536	12
Age	0.0577	0.0196	13
Emotional Stability	0.029	0.01409	14

When participant's described their ideal romantic partner, the factor of paramount importance was agreeableness and conscientiousness with a 73% probability of being mentioned (Table 2). While this is not significantly different from the probability of mentioning humor and intelligence, both agreeableness and conscientiousness, as well as humor and intelligence, are significantly different from mentioning attractiveness and every other subsequent factor ( $p=.008$ ). There are no significant differences in the probability of being mentioned among attractiveness, gender, extraversion, emotional stability, openness, body type, height, specific physical details, race, and sexual preferences. However, age and body parts had a significantly smaller probability of being mentioned than attractiveness ( $p=.008$ ), gender ( $p=.005$ ), or extraversion ( $p=.02$ ), with both being the least likely to be mentioned at about 2.1% probability.

**Table 2.** Probabilities and Standard Errors of Mentioning a Specific Factor when Describing the Participant's Romantic Ideal.

Factor	Probability	SE	Rank
Agreeableness/Conscientiousness	0.7271	0.03725	1

Humor & Intelligence	0.5453	0.04167	2
Attractiveness	0.2376	0.03563	3
Gender	0.2306	0.03523	4
Extraversion	0.2166	0.03448	5
Emotional Stability	0.1327	0.02839	6
Openness	0.1118	0.02637	7
Body Type	0.0978	0.02486	8
Height	0.0768	0.02227	9
Specific Physical Details	0.0768	0.02228	10
Race	0.0628	0.02031	11
Sexual Preferences	0.0628	0.02032	12
Age	0.0209	0.01199	13
Body Parts	0.0209	0.01199	14

The most probable factor to be mentioned in the participants' sexual ideals was also agreeableness and conscientiousness at a probability of 46% (Table 3). This factor did not have a significantly different probability of being mentioned than sexual preferences, body type, or gender, but is significantly higher than the probability of mentioning attractiveness and all subsequent factors ( $p=.04$ ). Sexual preferences, body type, gender, attractiveness, specific physical details, openness, body parts, and height did not have a significantly different probability of being mentioned. However, Sexual preferences had a significantly higher probability of being mentioned than humor and intelligence or any subsequent factors ( $p=.001$ ). The probability of mentioning age is significantly less than the probability of mentioning body

type, gender, and attractiveness ( $p=.01$ ). Emotional stability, the least likely to be mentioned factor at 1.4% was significantly less likely to be mentioned than agreeableness and conscientiousness, sexual preferences, body type, gender, attractiveness, and specific physical details ( $p=.02$ ).

**Table 3.** Probabilities and Standard Errors of Mentioning a Specific Factor when Describing the Participant’s Sexual Ideal.

Factor	Probability	SE	Rank
Agreeableness/Conscientiousness	0.4655	0.04157	1
Sexual Preferences	0.3544	0.03985	2
Body Type	0.3335	0.0393	3
Gender	0.2849	0.03764	4
Attractiveness	0.2432	0.03576	5
Specific Physical Details	0.2432	0.03577	6
Openness	0.2224	0.03466	7
Body Parts	0.1877	0.03255	8
Height	0.1738	0.03158	9
Humor & Intelligence	0.1043	0.02547	10
Extraversion	0.0973	0.02471	11
Race	0.0765	0.02215	12
Age	0.0348	0.01526	13
Emotional Stability	0.0139	0.00976	14

Making comparisons among the three types, the factor most likely to be mentioned in all three kinds of ideals is conscientiousness and agreeableness, but this factor is still the most likely to have been reported in romantic ideal than ideal type ( $p=.001$ ) or sexual ideal ( $p=.003$ ). There are, though, significant differences among the three kinds of ideals. Specific physical details were significantly more likely to be mentioned when participants are describing their ideal type than their romantic ideal ( $p<.001$ ), However there was no significant difference between sexual ideal and ideal type or sexual ideal and romantic ideal for the probability of mentioning specific physical details. Body type is also more likely to be mentioned in ideal type than romantic ideal ( $p<.001$ ), as well, as more likely to be mentioned in sexual ideal than romantic ideal ( $p=.003$ ), though there was no significant difference between sexual ideal and ideal type. Finally, there was a significant difference among the kinds of ideals in the probability of mentioning sexual preferences. Sexual preferences were more likely to be mentioned when describing a sexual ideal than a romantic ideal ( $p<.001$ ) or ideal type ( $p=.0014$ ).

### **Discussion**

#### **Study 1.**

The results of Study 1 support the possible validity of the evolutionary benefits of having a type. Increased scores on all types of similarity measured – personality, sense of humor, values, and physical appearance – were predictive of increased scores in investment for both mothers and fathers, with differences between the sexes. Every type of similarity measured for fathers was positively predictive with every type of paternal investment measured – financial, time, and overall investment. But for mothers, there was no significant difference between the amount of similarity in sense of humor or physical appearance and financial investment. These exceptions in maternal investment may have more to do with gender roles in our society, such as women

earning less money and father's being seen as the providers for the family, than any inherent trait. It would be interesting to see if an investment variable such as nurturance, which has a high feminine-gender role connotation, has the opposite effect. Gender roles may also be responsible for the only gender difference found in the sample, with females perceiving less financial investment from their mother's than their male counterparts. The difference in financial investment for sense of humor may also be related to gender roles, with fathers often taking on more of the role of a playmate, while mothers are more of a caretaker.

Paternity uncertainty may explain the relationship between perceived paternal resemblance in physical appearance and financial investment and the absence of such a relationship with maternal financial investment. An integral part of the sexual strategies theory of mating (Buss & Schmitt, 1993) is that there is always maternal certainty, but paternity can never truly be certain (outside of the modern invention of a DNA test). As paternity is questionable from an evolutionary perspective, it is common for people, especially the maternal family, to emphasize how much the child looks like the father, regardless of the truth of such statements (Alvergne, Faeriet, & Raymond, 2007; Bressan & Grass, 2004). The difference in perceived financial investment despite the insignificant difference between perceived physical similarity to mother and father, indicates cultural bias. Reassuring the father of his paternity may have led to an increase in the relationship between paternal physical similarity and financial investment.

The influence of paternity uncertainty is even more evident when examining the cross-parental investment relationships. While similarity to the father is predictive on all maternal investment variables, the inverse is not true. Similarity to the mother is much less predictive of paternal investment, especially mother-child similarity in sense of humor, on which no types of paternal investment were significantly predicted. Only overall paternal investment, though not

financial or time investment, was predicted by similarity to the mother in both personality and physical appearance. Values were the only maternal similarity variable that was predictive of all types of paternal investment – the most socially constructed variable and the one most likely to be highly discussed between and similar for both parents (Boehnkey, Hadjar & Baher, 2007). Clearly, when looking at cross-parental relationships, similarity to the father affects investment from *both* the mother and the father significantly; however, similarity to the mother mostly affects only the investment of the mother.

Importantly, though this sample had approximately equal groups of biologically related and non-biologically related children, the effect of paternal similarity on investment was still extremely strong. In fact, adopted and biological children did not differ significantly in how much investment from their parents or similarity with their parents they perceived. Nor did the age at which children were adopted matter; participants perceived similar amounts of parental investment and similarity regardless of the when they were adopted. Most importantly, there was no interaction effect between biological relatedness and the effect of similarity on investment. These results conflict with the work of Burch and Gallup (2000), who found a significant difference between biological and non-biological children in domestic violence settings, though this may have been influenced by trauma.

Our results emphasize the importance of attachment anxiety and avoidance within the parental relationships and their influence on the perceived amount of parental similarity and investment, though attachment style did not affect the relationship between parental similarity and investment. While there was a significant negative relationship between attachment anxiety and perceived parental similarity and investment, there was no significant interaction between attachment anxiety and the effect of similarity *on* investment. Similarly, the

significant negative relationship between attachment avoidance and overall, though not time or financial, parental investment and parental similarity did not affect the relationship between similarity and investment itself. While those who had high levels of attachment anxiety and/or avoidance did perceive themselves as receiving less parental investment than those with lower levels, they also perceived themselves as less similar. Therefore, though the overall scores of similarity and investment were lower for people with higher attachment anxiety and avoidance, the effect of perceived parental similarity on perceived parental investment remained the same, with those who perceived higher levels of parental similarity also perceiving higher levels of parental investment.

Perceived parental similarity was highly predictive of perceived parental investment, regardless of the biological relatedness or of the attachment anxiety or avoidance in that relationship. This is robust support for an evolutionary theory of the benefits of having a type. Engaging in a sexual relationship with someone, especially one with repeated sexual encounters, increases the possibility of the union leading to pregnancy. In light of the relationship between parental similarity and investment regardless of biological relatedness, if the union does not remain intact for the entirety of the child's early development, it would be advantageous for the parent to find a new partner who is similar to the original partner in an attempt to increase similarity with the offspring. A type could function as an ideal partner template to match potential partners against in order to maximize the similarity between the new partner and the child. Additionally, if these repeated sexual encounters with the same person, which are more likely to produce offspring, happen earlier in life, then having this template would be even more advantageous, as this would increase the chance that the investment of another partner may be necessary.

## **Study 2.**

### ***Type Presence.***

Among all the variables tested, only one was predictive of a participant positively reporting a type: having a first love during adolescence with whom they had sex. No other variable - not age, sociosexuality, personality, sexual orientation, or sex- was predictive of having a type. The very specific combination of adolescence and having a strong emotional relationship with someone that also included sex, supports the sexual conditioning hypothesis of type origin during a sensitive period of sexual maturation. Whether the type and the ideal partner preferences put forth in studies supporting the hypothesis of sexual imprinting on parental characteristics are the same phenomena as those investigated here remains unresolved. However, the fact that this very specific experience of repeated sexual encounters during early sexual maturation was the only variable to effect the presence of a type is significant evidence for sexual conditioning during adolescence. This finding gives credence to the possibility that through repeated sexual encounters and strong emotional connections, adolescence may be creating an ideal partner preference template through the conditioning of social contextual ensembles. Those who profess not to have a type still have partner preferences – almost everyone has partner preferences, yet only half the people in the sample reported having a type – but it is possible that these people do not have a specific ideal partner template. The fact that this first love, repeated sexual partner was also not reported to be significantly similar to the participant's type further supports sexual conditioning of a chronically accessible template, as opposed to sexual imprinting, as the underlying mechanisms of type formation. After sexual conditioning, the template itself, once created, can be changed over time, whereas sexual imprinting would create a static template. It is also telling that the participants group that fell in love for the first

time in adulthood were the least likely to report a type – with less than half of this group doing so. This finding also indicates the probability of a sensitive period for template creation.

### ***Type Resemblance.***

Men's first sexual partner had a significant similarity to their type. However, there was no significant similarity between first sexual partner and type in women. There was also no significant resemblance between men or women's first love and their type. First sex may play such a significant role for men and not women because first sexual experiences, especially during youth, have a significant impact on men and boys in defining their sexual preferences (see review in Ogas, 2011). In fact, it is hypothesized that sexual interests and preferences formed in adolescence through first experiences may be responsible for the popularity of "vintage" porn from the 70's and 80's on the internet, as videos like these were integral in the first sexual experiences of many adolescents at that time.

It is also interesting to note that there was no significant resemblance between participant's current partner, or previous partner, for participants that were currently single, and the participant's type. A partner not fulfilling the ideal template of the participant should be surprising, but, based on previous research, it is not. Many studies have shown that we as people do not know what we want; partner preferences are not good predictors of who we will be attracted to, or even with whom we will initiate and maintain relationships (e.g. Eastwick & Neff, 2012; Eastwick, Finkel, & Eagly, 2011; Belot & Francesconi, 2006).

### ***Type Content.***

An analysis of the ideal partner characteristics mentioned by participants in the categories of type, sexual ideal, and romantic ideal brought to light that while type, romantic ideal, and sexual ideal had much in common, each was slightly different from the others. Type shared

slightly more in common with the participants' sexual ideal than the participants' romantic ideal, and romantic ideal and sexual ideal, as one would expect, had significant differences in the order of ideal partner characteristics frequencies. In all three ideal partner categories, *agreeableness* and *conscientiousness* was listed first and foremost. Having a partner who is nice, kind, responsible, and thoughtful is universally the most important, regardless of whether that partner is their sexual or romantic ideal – a finding supported by cross-cultural research in partner preferences (Buss, 1989). Though *agreeableness* and *conscientiousness* is the most frequently mentioned characteristic in every kind of ideal, it is mentioned far more frequently in the romantic ideal than in the sexual ideal or type. In fact, *agreeableness* and *conscientiousness* in the romantic type was mentioned more often than any other single characteristic, with about ¾ of the participants listing it. Preferred partner *gender* was not paramount, but highly likely to be mentioned in all three kinds of ideals, with about the same frequency in each. *Emotional stability* was the least likely characteristic to be mentioned in type and sexual ideal; in fact, not a single male participant listed an *emotional stability* characteristic in his description of an ideal sexual partner. *Emotional stability* was more likely to be mentioned in a romantic ideal, with approximately 14% of participants reporting it.

Interestingly, ideal type was, not a combination of romantic and sexual ideal, but a different kind of ideal; ideal type focused much more on specific physical details (such as hair color and length, eye color, clothing style, and piercings), overall body type, and race than either sexual or romantic ideals, and less on generic attractiveness. Ideal sexual type had a much higher frequency of sexual preferences and physical features than other characteristics, whereas ideal romantic type focuses much more on personality and *humor and intelligence* (the second most frequent characteristic listed overall) than on physical features other than general attractiveness.

Ideal type, though similar in some ways to both the romantic and sexual ideals, is clearly an entirely separate ideal template.

Type is an ideal separate from romantic and sexual, therefore it is important to know that there are three variables, and only three variables, that can significantly affect the content of a person's type: gender, sexual orientation, and sociosexuality. However, gender and sexual orientation each only affect one variable; it is sociosexuality that leads to major differences in the content of a person's type. For gender, women are significantly more likely than men to mention race in their type. Going back to original responses reveals that the majority of the situations where race is mentioned, the race is different than that of the participant. For sexual orientation, the difference was not found between same- and other-sex attraction, but in exclusivity and non-exclusivity of attraction; participants who indicated equal or somewhat equal attractions to both sexes (Kinsey scores of 3, 4, and 5) were significantly less likely to mention a general characteristic of attractiveness, such as "hot" or "beautiful", than those who identified as more exclusively attracted to one sex (Kinsey scores of 1, 2, 6, and 7). In fact, not a single person who identified as equally attracted to both sexes mentioned a generic attractiveness term in the description of their ideal type. This finding points to bisexuality being characterized as having specific physical characteristics involved in attraction instead of generic or universal beauty. Whether this is because these different and specific characteristics make the equality of attraction so salient (such as being attracted to curvy, brunette women with long hair and buff men with blue eyes and buzz cuts) or because the characteristics they are attracted to are so specific that gender is relatively unimportant, is an interesting question worthy of future study.

Among all the variables in this study, sociosexual orientation predicted the largest differences in type content. As predicted, a person with a more unrestricted sociosexuality is

more likely to list physical characteristics, and list more of them, than people with more restricted sociosexuality. People with a more unrestricted sociosexuality also listed more characteristics for their type overall than those with a more restricted sociosexuality. However, unrestricted and restricted people listed about the same amount of personality characteristics. Therefore, people with a more unrestricted sociosexuality have more criteria for their ideal type, and they care more about the physical characteristic of this ideal type than those with a more restricted sociosexuality. This begs the question of what, exactly, these physical characteristics are. First and foremost are specific physical details, which were also the second most frequently listed category of characteristics for type ideal. Those with a more unrestricted sociosexuality are significantly more likely to have listed specific physical characteristics, gender, race, age, and specific body parts, (such as legs, breasts, and shoulders). Overall, it seems that those with a more unrestricted sociosexual orientation are far more likely to be concerned with demographics that affect physical appearance, such as age, gender, and race, as well as specificity in both body parts and cosmetic and changeable physical details. We can therefore conclude that unrestricted sociosexuality is associated with an increased specificity of physical appearance in a person's type.

One interesting finding, though, did indicate an interaction between sociosexuality and gender. Those with a more unrestricted sociosexuality were more likely to list race as a characteristic of their type, and women were more likely than men to list race as a characteristic of their type. However, women generally have a more restricted sociosexuality than men, which is also true in our data. Though this seems counter-intuitive, when the sexes were analyzed separately the explanation is evident. Though sociosexuality has no effect on the frequency of listing race as a characteristic of type for men, there is a significant increase in the likelihood of

listing race for women of a more unrestricted sociosexuality. These data, then, bring us the finding that women of a more unrestricted sociosexuality are more likely than women of a more restricted sociosexuality to list race as an important characteristic of their type.

### ***Conclusions and Future Directions.***

The studies presented above have addressed unasked questions about the ubiquitous, colloquial concept of the type. The results of this work demonstrate that a type ideal is a separate entity from a romantic or sexual ideal, that there are possible evolutionary benefits to having a type, that knowing a person's sociosexual orientation is the best predictor of type content, knowing whether a person had an emotional relationship that included sex during adolescence is the only predictor of having a type, and that the older you are when you first fall in love then the less likely you are to report having a type.

These studies support a hypothesis that type ideal is a chronically accessible ideal partner preference template that is created through sexual conditioning during a sensitive period, and perhaps serves an evolutionary function. While adolescence was the predicted sensitive period for the creation of a mental template, it is important to note that this was only significant when the relationship was deeply emotional, and the partner was a repeated sexual partner – falling in love during adolescence did not affect having a type unless the relationship was sexual. Similarly, having sex with a person during adolescence who was presumably not a repeated sexual partner did also did not predict the presence of a type. The only predictor of type was to have fallen in love during adolescence with a repeated sexual partner. This experience only predicted the presence of a type; it did not predict any significant difference in the content of the type, further supporting a sexual conditioning viewpoint because type can conceivably change

over time; however, change in type over time is a question that should be assessed in future studies.

Our findings have revealed important directions for future work. We suggest that the difference between people who do and do not report types is access to a chronically accessible ideal partner template, as is suggested by the importance of a repeated sexual partner in adolescence. This is a testable assumption. Theoretically, a person who reports a type should be able to make quicker judgments about the appropriateness and idiosyncratic attractiveness of a potential partner than those who do not report a type, which could be measured via reaction time. Those who report a type should be accessing their ideal partner template to make snap-judgments, while those not reporting a type should have to assess partners on a more individual basis, and as such, need more time to determine the appropriateness of the potential partner.

Another avenue for further research is type accuracy. If participants are presented with partners who represent their professed type, would they be able to assess that accurately? Would they actually be more likely to engage in a romantic relationships or even a conversation with this potential partner? Two possible studies that could assess some of the real-world consequences of having a type - one in a laboratory setting and one that is less controlled, but with more ecological validity. The first is a study that takes an online-dating format where participants choose whether they are interested in the participant with no pictures, but details listed about the possible partner's physical and personal attributes. We could test reaction time to assess whether a person who has a type is faster at making such decisions, even without a physical representation of the person, as well as using eye tracking with looking time to determine which attributes participants felt were the most important to their decision making process. Participants would indicate how attracted they were to this person, as well as the degree

to which each person resembles their type. This information could then be correlated with the ideal type of the participant to assess the correlation between what the participant reports as important and what is measured to be important implicitly. A more ecologically valid study would be a twist on speed-dating studies (such as Belot & Francesconi, 2006) where participants are in a mixer-like situation where they choose to approach a person or not, though some control will need to be introduced to the paradigm to allow for multiple people to approach and be approached. Researchers will have already obtained a description of a person's type, and if they have one, before the paradigm begins. Afterward, this type will be compared with people whom the participant approached, or if the participant wanted to approach anyone at all as a potential partner. This study would be very similar to a social gathering situation, such as a party or a bar, where we would conceivably see type having the greatest influence on behavior.

There are even more questions that, though not answered by this study, would be interesting, testable research questions. Would having a type work any differently than simply partner preferences? Is type truly different from just overall ideal partner preferences? Is there any difference in the predictive properties or relationship satisfaction of those with and without a type on their current relationship? A possible research paradigm to answer such questions would be to simply ask participants about both their ideal partner preferences in general (as opposed to their specific sexual or romantic ideals) *and* a description of their type, if they have one. The order of the questions should be counter-balanced as well, to prevent any possible order effects. These open-ended responses could be coded for content in a similar fashion to how participant responses were coded in this study. Then these responses could be compared for similarity and differences to determine whether *type* itself is a distinct concept from ideal partner preferences in general. In this same study, researchers could ask participants the degree to which their current

relationship partners fulfill their ideal partner preferences or their type. This information could then be compared to their relationship satisfaction and longevity to ascertain any correlation between this ideal and actual relationship consequences, such as if those who report having a type have significantly different relationship outcomes than those who simply have partner preferences, or if type and partner preferences similarly are not predictive of overall relationship outcomes (e.g. Eastwick & Neff, 2012; Eastwick & Finkel, 2008).

A significant drawback of this study is that we were unable to assess a comparison of a person's type to their parents, either objectively or subjectively. This question should be answered in future research in a study comparing perceived and objective similarity among the participant, and his or her parents, the participant's type, the first repeated-sexual-encounter partner, and the participant's latest repeated sexual partner. For example, a study that could assess multiple hypotheses at the same time would be to compare the self-reported similarity between a participant and their parents, latest repeated sexual partner, and first repeated sexual partner. Then, using photographs and descriptions of these people provided by the participant, have objective raters assess similarity as well, and compare these ratings to determine which is a better predictor of type presence and content – perceived similarity or objective similarity. This study could also assess which pairs are more similar to the participant's type – participant, parents, latest repeated sexual partner, or first repeated sexual partner – as well as if they have any more or less effect on how attractive the participant finds a potential partner. For this last question, it may be ideal to use a face-morphing paradigm similar to Günaydin and colleagues (2012) using parents and repeated sexual partners. It may be important, as well, to determine the quality and attachment anxiety and avoidance in these relationships, as well as the length and timing of the relationship, and the amount of sexual encounters. Another interesting research

question that could be answered in this format is if the presence of the first repeated sexual partner during adolescence is important for type development or not, and if so, do these types require an attachment relationship with this adolescent partner.

Hopefully, these many questions about an oft discussed, but understudied, phenomenon will be answered by future research. By integrating cognitive, neuro, and evolutionary psychology with relationship science, it is possible to answer a question many in the public were asking, but few in academia desired to answer. Assessing not only the content of these ideals, but also the individual differences that led to their creation and substantive disparities, allows for a more comprehensive knowledge and theoretical framework for what, exactly, a type is. This information can then be disseminated to the public at large, from which the notion originally came. Then, when a person asks, “What’s your type?” everyone can and will know not only what questions is being asked, but what the answer actually means.

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