

Infant Preferences for Attractiveness and Babyfacedness¹

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Considerable evidence indicates that young infants are finely attuned to the rich information which faces provide about the social environment, including people's age, gender, identity, and emotional state. (e.g., Brooks & Lewis, 1976; Bushnell, Sai, & Mullin, 1989; Field, Cohen, Garcia, & Greenberg, 1985; Gewirtz, Weber, & Nogueras, 1990; Lasky, Klein, & Martinez, 1974; McCall & Kennedy, 1980; Nelson, 1987; Schwartz, Izard, & Ansul, 1985; Walton, Bower, & Bower, 1992). Whereas these attunements can be understood in terms of their adaptive value for a young infant, a more surprising sensitivity is that shown to facial attractiveness. Infants prefer to look at faces that adults have rated as attractive rather than those rated as unattractive (e.g., Langlois, Roggman, Casey, Ritter, Rieser-Danner, & Jenkins, 1987; Langlois, Ritter, Roggman, & Vaughn, 1991). One possible explanation for this discrimination is that it actually reflects a preference for babyfaces, since there is a moderate correlation between the attractiveness and babyfaceness of adult faces (e.g. Zebrowitz, Olson, & Hoffman, 1993). Thus, just as infants are sensitive to facial differences between children and adults, preferring immature faces, so may they be sensitive to facial differences between babyfaced and maturefaced adults, preferring the former over the latter. The present study tested the hypothesis that variations in babyfaceness account for infants' preference for attractive faces documented in past research.

Method

Subjects. The sample consisted of 10 male and 10 female babies ranging in age from 18 to 23.57 weeks ($M = 20.53$ weeks, $SD = 1.28$).

Facial Stimuli. Sixteen facial photographs of 18 year old men and women were selected on the basis of previously obtained ratings on 7-point scales of the attractiveness and babyfaceness of a normative sample of 110 men and 120 women who participated in the Oakland Growth Study (See Zebrowitz, Olson, & Hoffman, 1993, for a further description of this sample and the rating procedures). Four attractive and four unattractive faces of each sex were selected from the top

and bottom deciles in attractiveness ratings for that sex with the constraint that the attractive and unattractive faces be matched in babyfacedness. Four babyish and four mature faces of each sex were selected from the top and bottom deciles in babyface ratings with the constraint that the babyfaces and maturefaces be matched in attractiveness (See Table 1). There was no correlation between the attractiveness and babyfacedness of the selected faces, $r(14) = .01$. These faces were grouped into eight pairs, varying either in attractiveness or babyfacedness while matched on the other quality as well as on contrast and brightness. The photographs were digitized for presentation on a computer monitor. The digitized images, displayed on a 14 inch VGA monitor, were 17.55 cm in length and ranged from 11.55 cm to 16.10 cm in width ($M = 13.53$ cm, $SD = 1.13$), and the visual angle ranged from 8.39×12.72 to 11.67×12.72 ($M = 9.82$, $SD = .82$).

Procedure. Two microcomputers were used to generate and display pairs of faces on two 14 inch VGA monitors placed side by side with a distance of 39.60 cm from the center of one display to the center of the other. The monitors were positioned such that they could be viewed by the infant sitting on his/her parent's lap, but not by the parent. The experimenter, seated behind a curtain, also could not see the facial stimuli. The room lights were dimmed to increase the infant's tendency to focus on the monitors. The order of presentation of the eight pairs of faces was randomly determined by the computer. Each pair was shown for two sequential 15 s trials, with the left-right position of the more attractive or more babyish face randomly determined by the computer on the first trial and reversed on the second trial. The experimenter observed the infant on a closed circuit television monitor and recorded the amount of time the infant looked at each of the two targets by pressing the appropriate key on the computer to automatically tabulate the viewing times. If the infant became fussy or tired at any point, a short break was taken. The trials of half of the subjects were recorded on videotape so that a second experimenter could record the direction of the infant's gaze to assess reliability. The inter-rater reliability was very high with a mean correlation between looking times on each trial of .96 and a mean absolute difference of 2.36 s.

Results and Discussion

Analyses. Separate analyses of variance were performed on the looking preferences for face pairs varying in attractiveness and those varying in babyfaceness. In each case, the design was a 2(Infant Sex) x 2 (Face Appearance) x 2(Trial) x 2(Face Pair) nested within 2(Face Sex) analysis of variance with Face Appearance, Trial, and Face Pair nested with Face Sex as the within subjects factors and Infant Sex as the between subjects factor.

Main Effects. Consistent with past research, infants looked more at attractive adult faces ($M = 5.51$) than unattractive ones ($M = 4.75$), $F(1, 18) = 3.89$, $p = .06$. Since these two sets of faces were matched on babyfaceness, the present findings do not support the contention that infant preferences for attractive faces reflect a preference for babyfaces. However, infants also tended to look more at babyfaced adults ($M = 5.49$) than maturefaced ones of equivalent attractiveness ($M = 4.70$), $F(1, 18) = 3.09$, $p = .10$. Thus, infants have a preference for both attractive faces and for babyfaces. It should be noted that the marginal significance levels for these effects can be attributed to the small sample size, which yielded lower power than earlier research. The possibility that the preference for attractive faces reflects a preference for symmetry rather than a preference for babyfaceness was also examined in a subset of faces for which ratings of both attributes were available. Although independent ratings of the attractiveness and symmetry of the facial stimuli showed a small positive correlation, it was not significant in this small sample, $r(9) = .30$; moreover, facial symmetry was unrelated to looking time, $r(9) = .04$.

Interaction Effects. The main effects were qualified by several interaction effects. As seen in Figure 1, an Infant Sex X Attractiveness interaction, $F(1, 18) = 3.60$, $p = .07$, revealed that girls showed a preference for attractive faces ($M = 6.08$) over unattractive ones ($M = 4.59$), $t(39) = 2.74$, $p < .01$, whereas boys did not ($M_s = 4.94$ and 4.91 for attractive and unattractive faces, respectively, $t < 1$). Although not predicted, this effect is consistent with other evidence that female infants are more responsive to variations in facial qualities than males are (e.g., Kagan, Henker, Hen-Tov, Levine, & Lewis, 1966).

The foregoing second order interaction was further qualified by a triple order Infant Sex X Face Sex X Face Attractiveness effect, $F(1,18) = 11.03$, $p < .01$. As shown in Figure 2, the tendency for girls to prefer attractive faces was significant for women's faces ($M_s = 7.03$ and 3.98 for attractive and unattractive women, respectively, $t(19) = 4.39$, $p < .001$), but not for men's faces ($M_s = 5.13$ and 5.21 for attractive and unattractive men, respectively, $t < 1$, and boys did not show a preference for attractive women or men, both $p_s > .10$).

The greater sensitivity to variations in the facial appearance of women also showed up in the preferences for babyfaces. Although the Face Sex X Babyfacedness interaction was not significant, $F(1, 18) = 2.29$, $p = .15$, infants showed a significant preference for babyfaced women ($M = 5.85$) over maturefaced women ($M = 4.32$), $t(39) = 2.20$, $p < .05$, but no preference for babyfaced men ($M = 5.85$) over maturefaced men ($M = 5.08$), $t < 1$. (See Figure 3.) Thus, the effects of babyfacedness, like attractiveness, were observed only for female faces.

Although past research examining infant preferences for attractive faces has not reported stronger effects for female faces, it is noteworthy that several of the previous studies have employed only women as facial stimuli. Thus, it may be that whatever stimulus information elicits infants' preference for attractive and babyfaced adults is more prominent in women's than in men's faces. Alternatively, insofar as infants have more perceptual experience with women's faces, they may have developed a greater attunement to the stimulus information for attractiveness and babyfacedness in these faces.

References

- Brooks, J., & Lewis, M. (1976). Infants' responses to strangers: Midget, adult, and child. Child Development, 47, 323-332.
- Bushnell, I.W.R., Sai, F., & Mullin, J.T. (1989). Neonatal recognition of the mother's face. British Journal of Developmental Psychology, 7, 3-15.
- Field, T. M., Cohen, D., Garcia, R., & Greenberg, R. (1985). Mother-stranger face discrimination by the newborn. Infant Behavior and Development, 7, 19-25.
- Gewirtz, J.L., Weber, R.A., & Noguera, M. (1990). The role of facial characteristics in neonatal-gender discrimination from photographs. Paper presented at the International Conference on Infant Studies. Montreal, Canada, April 22, 1990.
- Kagan, J., Henker, B., Hen-Tov, A., Levine, J., & Lewis, M. (1966). Infants' differential reactions to familiar and distorted faces. Child Development, 37, 519-532.
- Langlois, J.H., Ritter, J.M., Roggman, L.A., & Vaughn, L.S. (1991). Facial diversity and infant preferences for attractive faces. Developmental Psychology, 27, 79-84.
- Langlois, J.H., Roggman, L.A., Casey, R.J., Ritter, J.M., Rieser-Danner, L. A., & Jenkins, V.Y. (1987). Infant preferences for attractive faces: Rudiments of a stereotype? Developmental Psychology, 23, 363-369.
- Lasky, R.E., Klein, R.E., & Martinez, S. (1974). Age and sex discrimination in five- and six-month old infants. Journal of Psychology, 88, 317-324.
- McCall, R.B., & Kennedy, C.B. (1980). Attention of 4-month infants to discrepancy and babyishness. Journal of Experimental Child Psychology, 29, 189-201.
- Nelson, C.A. (1987). The recognition of facial expression in the first two years of life: Mechanisms of development. Child Development, 58, 889-909.
- Schwartz, G.M., Izard, C.E., & Ansel, S.E. (1985). The 5-month-old's ability to discriminate facial expressions of emotion. Infant Behavior and Development, 8, 65-77.

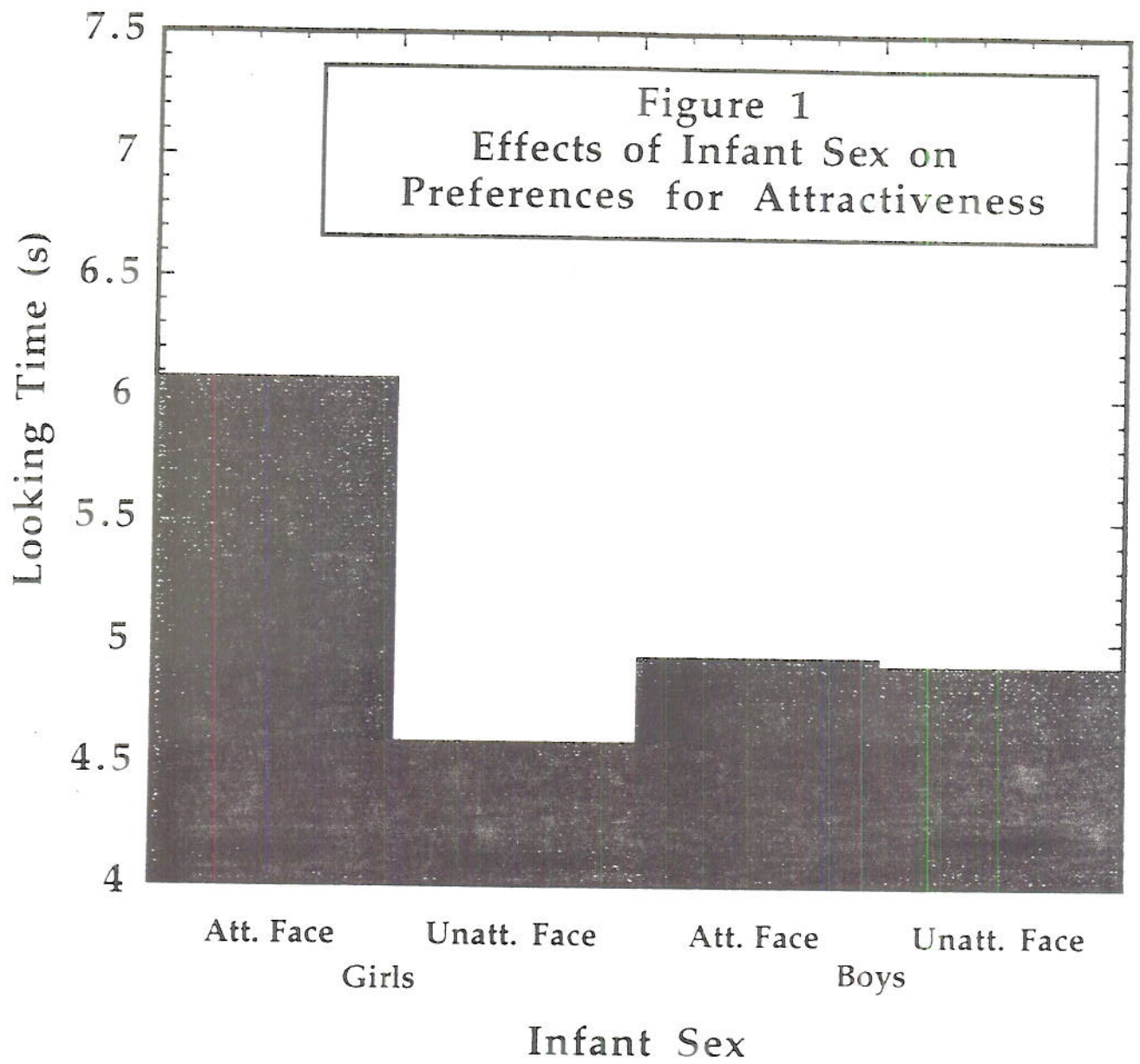
Walton, G.E., Bower, N.J.A., & Bower, T.G.R. (1992). Recognition of familiar faces by newborns. Infant Behavior and Development, 15, 265-269.

Zebrowitz, L.A., Olson, K., & Hoffman, K. (1993). Stability of babyfacedness and attractiveness across the life span. Journal of Personality and Social Psychology, 64, 454-466.

TABLE I

Mean Attractiveness and Babyfacedness of the Facial Stimuli

	Attractive		Unattractive		Babyfaced		Maturefaced	
	M	F	M	F	M	F	M	F
Attractiveness	4.56	4.25	1.84	1.82	3.12	3.25	3.16	3.25
Babyfacedness	3.74	4.00	3.68	3.88	5.54	6.03	2.18	2.53



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Mean Attractiveness and Babyfacedness of the Faces

TABLE I

Category	Mean Attractiveness	Mean Babyfacedness	Gender
Babyfacedness	3.74	4.00	F
Attractiveness	4.20	4.32	M
			F
			M
			F

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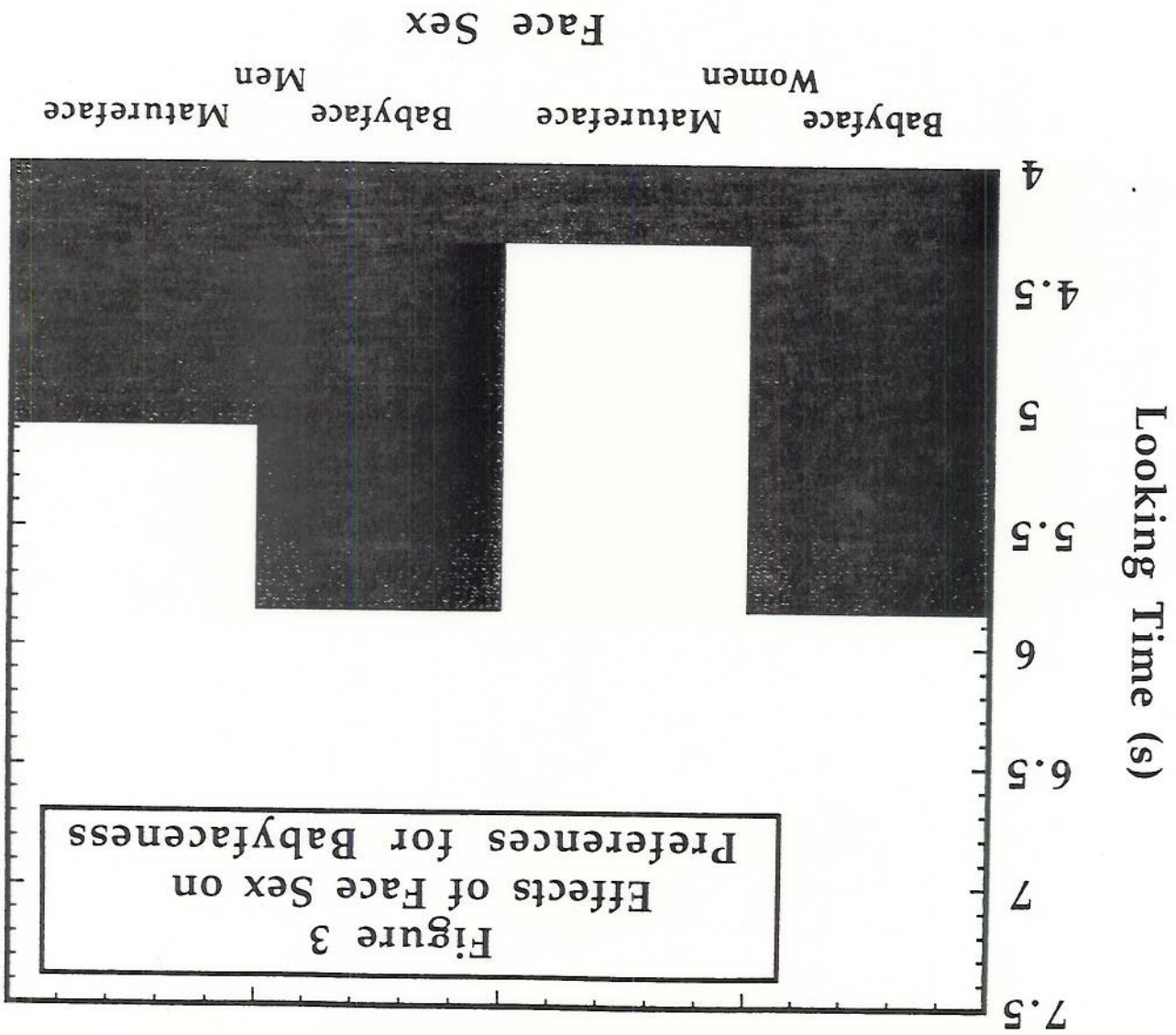
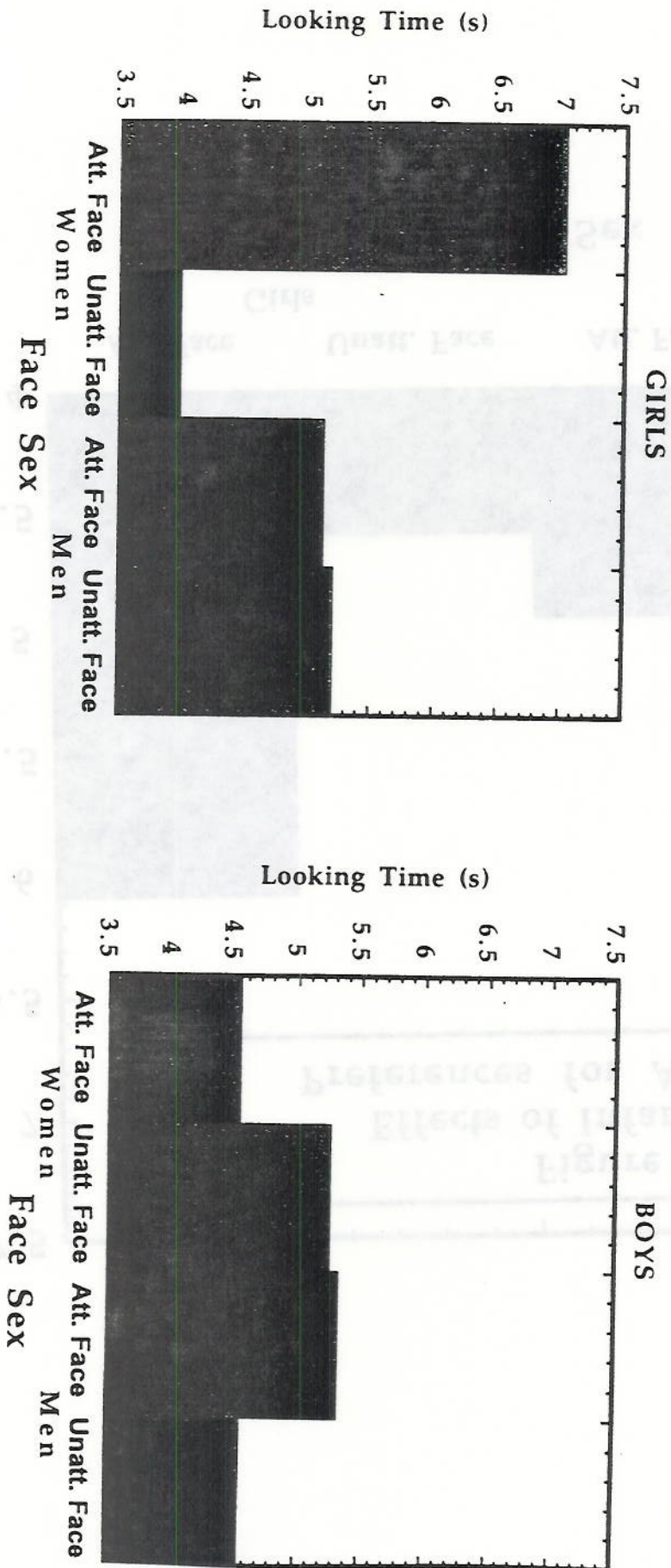




Figure 2: Effects of Infant Sex and Face Sex on Preferences for Attractiveness



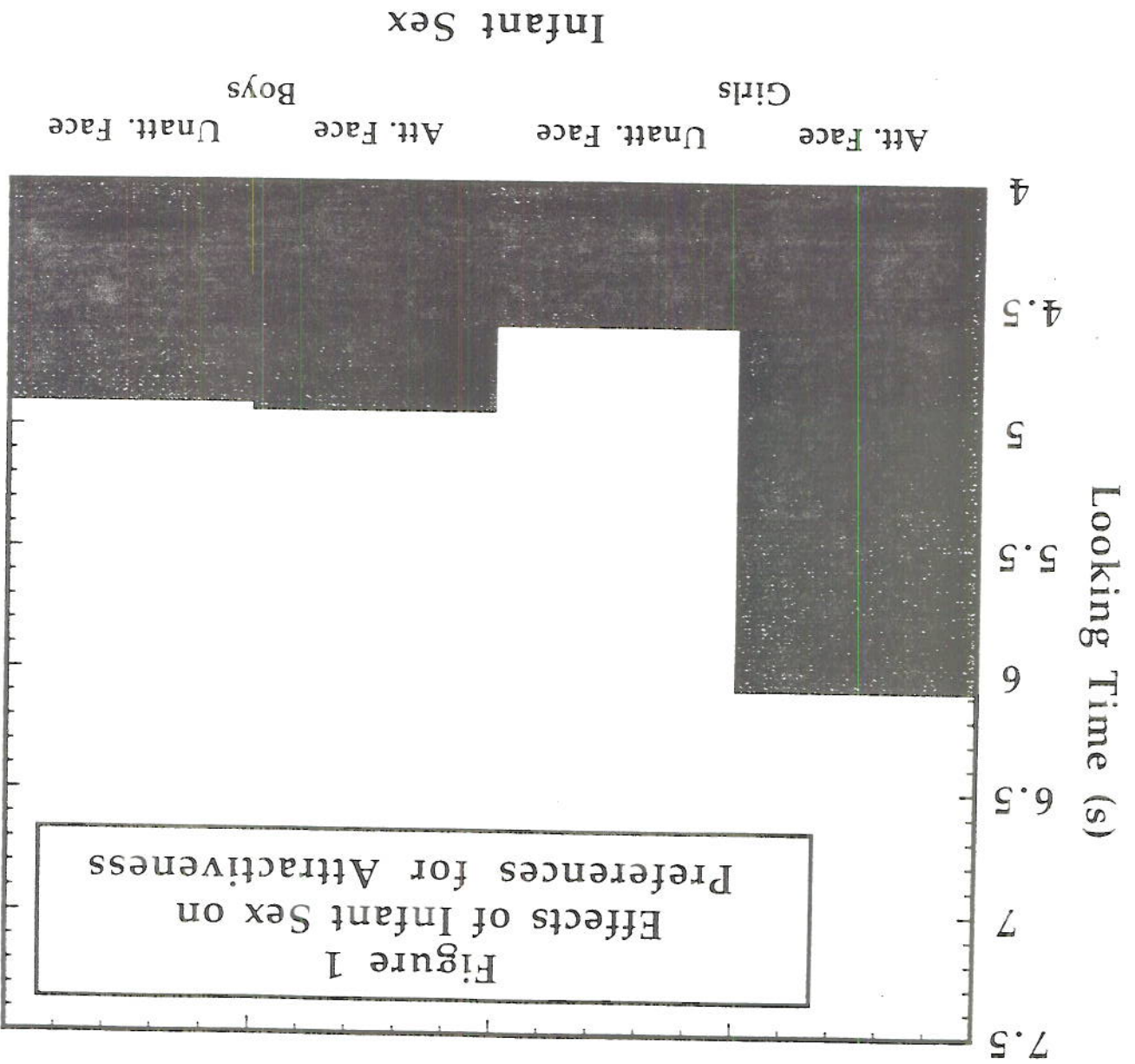


Figure 1
Effects of Infant Sex on
Preferences for Attractiveness