



# The influence of position and context on facial attractiveness



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## ABSTRACT

It has been shown that a person's position in a group influences how that person is evaluated, with people in the middle perceived as more important than people on the fringe of a group. Four experiments examined whether the position of a face, in a line of five faces, influenced facial attractiveness. The middle position influenced the perceived attractiveness of the target face but the direction of this effect depended on the attractiveness of the target and the surrounding faces. Attractive faces were perceived as less attractive when in the middle of unattractive faces, or faces of average attractiveness. Conversely, unattractive faces were perceived as more attractive when in the middle of other unattractive faces. These results have wide implications, suggesting that the more central a stimulus is in a context then the greater the influence of the context on the judgment of that stimulus.

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## 1. Introduction

Attractiveness plays an important role in society, conveying a wide range of benefits (Byrne, London, & Reeves, 1968; Dion, Berscheid, & Walster, 1972; Langlois et al., 2000) and considerable progress has been made in understanding how the attributes of a face contribute to facial attractiveness (Grammer & Thornhill, 1994; Penton-Voak et al., 2001; Perrett et al., 1999). In everyday life facial attractiveness is routinely assessed in a social context (see de Gelder et al., 2006; Hill & Buss, 2008) and this also influences the perceived attractiveness of a face (Geiselman, Haight, & Kimata, 1984; Melemed & Moss, 1975). One factor that may influence facial attractiveness in a social context, which has not been explored before and is the focus of these experiments, is a person's position in a group.

A person's relative position is potentially important to facial attractiveness because it can affect how a person is evaluated (Taylor & Fiske, 1975), with people in the middle of a group viewed as more important and preferable than people in other positions (Raghubir & Valenzuela, 2006; Valenzuela & Raghubir, 2009; see also Taylor & Fiske, 1975). For example, Raghubir and Valenzuela (2006) found that when participants were presented with a photo of five job candidates arranged in a line, and told that they were of similar abilities, the participants were more likely to select job candidates from the middle. This advantage from being in the middle has also been found to extend to

contestants on a quiz show and to consumer products and pictures, suggesting that it influences decisions in a wide range of circumstances (Christenfeld, 1995; Raghubir & Valenzuela, 2006; Rodway, Schepman, & Lambert, 2012; see Bar-Hillel, 2011 for a review).

One explanation of the middle advantage is that the middle location has a special status, carrying implicit assumptions about the importance of the person (or object) in the middle of a group (McArthur, 1981; McArthur & Post, 1977; Raghubir & Valenzuela, 2006; Valenzuela & Raghubir, 2009). As described by McArthur (1981), in Western society there is a cultural norm to view people in central positions as most important so that the person of highest status is located in the centre of a group in a wide range of social situations and when people are asked to place people in a horizontal line they will place the most important person in the middle of the line. This explanation is supported by Raghubir and Valenzuela's results where they found that participants who agreed with the statement "Important people sit in the middle of the table" were more likely to select the job candidate in the middle of the photograph.

An implication of the middle advantage is that if people in the middle are viewed as more important, then they may also be perceived as more attractive, as research has found that higher status can increase perceived attractiveness (Chu, Hardaker, & Lycett, 2007; Dunn & Searle, 2010; Kowner, 1996; see also Kalick, 1988). Evidence in support of a direct link between physical location, status, and facial attractiveness, was provided by Meier and Dionne (2009) who investigated the relationship between facial attractiveness and the position of a face in vertical space. Having a higher position in vertical space is typically associated with greater power and status (Meier & Dionne, 2009; Meier

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& Robinson, 2004; see also Casasanto, 2009) and Meier and Dionne found that male faces were perceived by females to be more attractive when positioned higher on a computer screen compared to when they were positioned lower.

Meier and Dionne's study examined the effect of position on facial attractiveness but not the effect of context and it has been found that facial attractiveness partly depends on the attractiveness of other faces in a context (Geiselman, Haight, & Kimata, 1984; Melemed & Moss, 1975). It has also been argued that the judgement of a stimulus cannot be entirely context-free because a stimulus is always compared with other items (either in that immediate context or from memory) which provide a reference point against which to judge the stimulus. Research has demonstrated that the effect of context on the evaluation of a stimulus can either be assimilative or contrasting (Mussweiler, 2001). Assimilative judgements are said to occur when the judgment of a target stimulus moves closer to the evaluation of the surrounding context, such as when an average looking face among a set of attractive faces is judged to be more attractive (e.g. Geiselman et al., 1984). Conversely, contrastive judgements are said to occur when the judgment of a target stimulus moves further away from the evaluation of the context, such as when an average looking face among a set of attractive faces is judged to be less attractive (e.g. Melemed & Moss, 1975).

Several theories have been proposed to explain why the evaluation of a stimulus becomes contrastive or assimilative with its context (e.g. Bless & Schwarz, 2010; Mussweiler, 2001). For example, Mussweiler (2001) suggests that the influence of the context depends on whether a perceiver focuses on differences or similarities between a stimulus and the context, with a focus on similarities causing assimilative judgements and a focus on differences causing contrastive judgements (see also Bless and Schwarz's influential inclusion/exclusion model). In addition to a perceiver's focus, other variables that influence the emergence of assimilation and contrast effects include the number, layout, and presentation order of items (Wänke, Bless, & Schwarz, 1999; Abele & Petzold, 1998), the similarity between a target and context (Ruys, Spears, Gordijn, & Vries, 2006), and whether they are perceived to belong to the same category (Meyers-Levy & Sternthal, 1993; Wänke et al., 1999). Unfortunately, because of the complex interplay between a context and a stimulus and the various ways that a perceiver can interpret a stimulus and its context (Bless & Schwarz, 2010) it can be extremely difficult to predict how a context will influence the evaluation of a stimulus in a novel situation. One difficulty in this area is that the flexibility of the available theories makes them difficult to falsify but able to explain the effect of context on an ad-hoc basis in a wide range of situations. However, the focus of this research was not to examine theories of context effects but was to test whether the middle location increased the extent that a face's attractiveness was influenced by the surrounding context.

Previous research has demonstrated that the perception of facial attractiveness in the context of other faces can be subject to both contrastive and assimilative judgements. Melemed and Moss (see also Kernis & Wheeler, 1981) obtained contrast effects, with neutral faces becoming less attractive when preceded by more attractive faces. They also found evidence for assimilation effects and suggested that this depended on the faces being viewed as friends rather than as unrelated. Conversely, Geiselman et al. (1984) obtained assimilation effects rather than contrast effects irrespective of whether the faces were presented as friends or not. They presented participants with three faces in a row, and asked them to rate the attractiveness of a face in the middle (the target face). The faces had been pre-rated for attractiveness and the target face (of average attractiveness) became more attractive when surrounded by attractive faces and less attractive when surrounded by unattractive faces. This finding was in agreement with work by Anderson, Lindner and Lopes (1973) which used written descriptions of

attractiveness, and which also found that an individual's attractiveness when in a group moved towards the average attractiveness of the group. Geiselman et al. suggested that a contrast effect may have been obtained by Melemed and Moss (1975) because the faces were presented sequentially but that when faces are presented simultaneously an assimilative judgement determined an individual's attractiveness in a group. In support, Wedell, Parducci, and Geiselman (1987) found assimilation effects when two faces were presented simultaneously and contrast effects when the faces were presented sequentially. This result fits with the finding that when a target and the context are seen to be part of the same group or category an assimilation effect is more likely (Meyers-Levy & Sternthal, 1993).

In Geiselman et al.'s study, when three faces were presented the face that was rated for attractiveness was always presented in the middle, rather than at the start or end of the row. Moreover, in studies that have examined context effects on emotion perception and have obtained assimilation effects (e.g. Masuda et al., 2008) the target face has been placed in the centre of a circle of surrounding faces (the emotion context). In addition to the middle position conveying higher status (McArthur, 1981; Raghurir & Valenzuela, 2006) it has been found that perceivers have a strong tendency to look first, and more often, at the centre of a scene (Bindemann, 2010; Tatler, 2007) and the middle item of a line of similar items (Chandon, Hutchinson, Bradlow & Young, 2009) and this can bias preferences (Armell, Beaumel, & Rangel, 2008). Each of these consequences of being in the middle might increase the extent that the context influences the evaluation of a face when it is the middle of other faces. For example, implicitly having higher status may cause a middle face to be more strongly associated with the group and cause it to assimilate the group's attractiveness more completely (in the same way that designated 'leaders' did in Anderson et al.'s study), or it may cause participants to examine more fully the attractiveness of this 'higher status' face. Moreover an increase in looking at an item in the middle may also influence assimilation or contrast processes by causing the middle item to be compared more extensively with the surrounding context relative to when the item is not in the middle.

To examine these questions we conducted four experiments which presented either attractive or unattractive target faces in a row of four other faces (see Fig. 1). The attractiveness of the faces forming the context was manipulated across experiments to contrast with or to match the target face. A final control experiment omitted the surrounding faces to examine the effect of position in the absence of a face context (see Table 1).

## 2. Experiment 1

Our first experiment tested whether position influenced perceived facial attractiveness by presenting participants with a row of five faces and asking them to rate the attractiveness of one of the faces (the target face). Two classes of target face were used: attractive faces and unattractive faces (pre-rated for attractiveness in the Radboud Faces Database (RaFD) Langner et al., 2010). The attractive faces were always surrounded by faces that were less attractive and the unattractive faces were always surrounded by faces that were more attractive. The location of the target face was counterbalanced across participants so that it was equally often presented in each location.

It was predicted that when a target face was in the middle, judgements of its attractiveness would be influenced to a greater extent by the surrounding context than when the target face was not in the middle. Based on work showing that an assimilation effect predominates when faces are presented simultaneously (e.g. Wedell, Parducci, & Geiselman, 1987), it was expected that the attractiveness of a target face would move towards the attractiveness of the surrounding context. Therefore, attractive faces were expected to become less attractive and unattractive faces more attractive, when in the middle of a line of faces

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