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How Do We Recognize Faces?

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How do we recognize a face? Do we pick out "local" features— an eye or a mouth— and extrapolate from there? Or do we take in the "global" configuration—facial structure, distance between the features—at once?

Now, a group of psychologists— Sébastien Miellet and Philippe G. Schyns at the University of Glasgow, Scotland, and Roberto Caldara at the University of Fribourg in Switzerland—have settled the longstanding debate between scientists who hold to the "local" strategy and those who favor the "global" one.

"Face processing does not rely on a rigid system or a unique and mandatory information sampling strategy," said Miellet. In fact, we use both the local and the global strategies to identify faces.

The findings will be published in an upcoming issue of Psychological Science, a journal of the Association for Psychological Science.

To collect their data, the researchers developed a method, called iHybrid, that pinpoints what information is used to identify a face. The technological aspects of the experiment were complex. In essence—and necessarily simplified—the researchers created hybrid images of pairs of famous men and manipulated them to create a face that looked, for instance, "like the natural child of Brad Pitt and William Macy," as Miellet put it.

While an "eye-tracker" located the position of the subject's gaze, iHybrid smoothly embedded the two faces in order to display one face around

that gaze location and the other face in the surrounding area. The participants were asked what they saw. Because the image was a hybrid, they might name one or the other of the men, or neither.

The researchers gleaned a great deal of data, Miellet said. For one, the identity strategy followed from the initial "fixation point." When people fixated first on the eye or mouth, they identified the face with a local strategy, even if their gaze subsequently moved. If the first fixation was in the center of the face, they were adopting global processing. But the same participant might use a global strategy in one trial and a local one in the next.

What did these data tell the researchers? Said Miellet: "Depending on viewing conditions — the first fixation location, the ambient light, the viewing angle or distance from the face — the system will adapt and do the most with the available information." Like so much of the ways we see, learn, remember, and express ourselves, the process by which we recognize the people we know "is flexible."

Provided by Association for Psychological Science

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