to the left (LVF) or right visual field (RVF) and asked participants to perform certain tasks that may tap into various levels of emotion processing. If a certain affective expression is preferentially processed by a certain hemisphere, presenting the facial expression in the contralateral visual field should produce more efficient processing than presenting the expression in the ipsilateral visual field. The experimental tasks could require participants to compare or rate facial expressions in brief presentation [19,20,26] or in morphed faces with faint emotion expressions under free-viewing conditions [10,18,27] , or to make speeded sample-matching of emotional expressions [4,6,7,28] .

Contradictory results regarding the laterality of happy expression, however, were also obtained in this divided visual field paradigm. For example, Reuter-Lorenz and Davidson [19] asked participants to identify which side of a bilaterally presented pair of faces (one neutral and one affective) contained the affective face. Responses to happy faces presented in the RVF were faster than responses to happy faces presented in the LVF. A reversed pattern was observed for sad faces, consistent with the valence hypothesis. Jansari et al [18] . presented participants with a pair of faces from the same man, one with neutral expression and one with subtle emotion expressions gained through morphing the neutral face with a positive or negative expression. Participants' task was to choose the face in the pair that best corresponded to the stated emotion. It was found that the discrimination accuracy was higher when faces with positive expressions were presented on the right-hand side than when they were presented on the left-hand side, even though participants had sufficient time to inspect the faces freely. Conversely, the discrimination accuracy was higher when faces with negative expressions were presented on the left-hand side than when they were presented on the right-hand side. These findings suggest that positive expressions are processed in the left hemisphere while negative expressions are processed in the right hemisphere, and this dissociation can be obtained under free-viewing conditions. Other studies using emotional rating [26] , speeded emotion matching[28] , or the same design as Jansari et al [17,18] . obtained data that partially support the valence hypothesis, with only women, but not men, showing the predicted laterality effect. Still others obtained contradictory evidence to the valence hypothesis. For example, Strauss and Moscovitch [6] presented briefly a pair of faces to the LVF or RVF and asked participants to decide whether the two faces depicted the same emotion. The authors found a LVF advantage for all emotion in women participants.

A crucial difference between these studies may lie in whether a detailed or subjective evaluation of facial expressions is required by the experimental task [26,27,29,30] . Subjective or prolonged evaluation may be carried out by the left hemisphere since this evaluative process may require rational reasoning, while initial or coarse identification may be carried out by the right hemisphere which is also predominantly responsible for face recognition. The purpose of this study was to provide further evidence, from a Chinese sample, that speeded identification of facial expressions, which presumably taps into the initial stage of processing, is carried out mainly by the right hemisphere.

We continued to employ the divided visual field paradigm in which affective and neutral faces were presented either to the left or right visual field. But rather than requiring participants to match or compare emotions of facial expressions, we asked them simply to make speeded emotion categorization (i.e., whether the expression on the face was happy or neutral) to facial expressions that were presented singularly (i.e., one emotion in one trial) . Moreover, we made a number of changes to the typical experimental design. Firstly, we added a condition in which identical faces were presented bilaterally to both visual fields. This condition served as a baseline with which the laterality effect for the left or right visual field could be compared. If happy expression is identified pre-

dominantly by one hemisphere, then reaction times (RTs) to faces presented to this hemisphere should be similar to RTs to faces presented to both hemispheres (in bilateral presentation), and both of them should be shorter than RTs to faces presented to the other hemisphere. If, however, both hemispheres are important to the processing of happy expression, then RTs for bilateral presentation should be shorter than RTs for either of the single hemisphere presentation. In contrast to what Schweinberger, Baird, Blümler, Kaufmann, and Mohr [31] claimed, our previous unpublished work showed that there is a bilateral gain in processing both negative and positive facial expressions. RTs in bilateral presentation were shorter than RTs in unilateral LVF or RVF presentation, and the latter did not differ from each other. These findings were taken as evidence for interhemispheric cooperation in processing affective facial expressions. This cooperation, however, could be strategically induced by the requirement of using both hands to respond simultaneously.

Therefore, the second modification in the present study was that two groups of right-handed participants were tested, one group using their left hand and another group using their right hand to make speeded emotion categorization. Because hand responses are controlled by the contralateral motor and supplementary motor cortices and within the same hemisphere there could be direct links between regions responsible for emotion processing and regions responsible for motor movements, the interaction between the visual field of stimulus presentation and hand response could provide important information concerning whether happy expression is identified by the left or right hemisphere. Suppose that happy expression is processed predominantly in the right hemisphere (Figure 1), as assumed by the right hemisphere hypothesis, happy expressions presented in the left visual field will project directly to this hemisphere (A and C) and happy expressions presented in the right visual field will have to be redirected from the left to the right hemisphere before it can be identified (B and D). Then when the left hand is used to make responses (A and B), interhemispheric redirection for the RVF presentation would take time to accomplish, resulting in an RVF disadvantage in RTs; when the right hand is used to make responses (C and D), the left motor cortex has to be linked, possibly through the right motor cortex, to the right hemisphere processing emotion. Compared with LVF presentation, RVF presentation still has a disadvantage because of the interhemispheric redirection. A secondar

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