

# The Neural Basis of Shared Preference

## Learning – Supplementary Materials

### S1. Supplementary Methods

#### S1.1. Materials

The picture stimuli used in this study comprised of 40 pairs of abstract paintings and 40 pairs of landscape paintings that were matched as closely as possible in terms of their visual and aesthetic properties. This was done to ensure that different pairs of paintings would not differ wildly in their characteristics so that the choices of the different confederate would not suggest an abnormal set of preferences. To construct these sets 120 abstract and 120 landscape images were downloaded from the internet and resized to 390x390 JPEG images with any remaining space on either dimension filled in with black. These images were then rated in a pre-study by a group of 20 participants on their complexity, concreteness, attractiveness, valence, affectivity and interest using a 7-point scale. In addition each images' luminance and contrast were calculated using MATLAB (Mathworks 2015).

The mean ratings and luminance and contrast measures for each image were standardised across all images. Similarity scores were created for each measure by subtracting each images score from the score of every other image of its group (abstract or landscape). The similarity scores for all measures were then combined into one value using the following algorithm:

$$\begin{aligned} & (Attractiveness * 2) + (Interest * 2) + Complexity + Valance + Affectivity \\ & + \left(\frac{Concreteness}{2}\right) + \left(\frac{Luminance}{2}\right) + \left(\frac{Contast}{2}\right) \end{aligned}$$

Each of the images was then paired with its closest neighbour and each pair was then removed from the array. The 40 closest pairs in each group were used in the fMRI experiment and the next 5 closest pairs were used in the training block.

## **S2. Details of dmPFC literature comparison**

**Table S2.** Details of studies used in the comparison of dmPFC activation across impression formation studies (see Figure 8). Coordinates are reported in MNI space and coordinates from studies using Talairach space were converted using the WFU PickAtlas version 2.4 (Maldjian, Laurienti, and Burdette 2004; Maldjian et al. 2003).

<b>Study</b>	<b>Information presented</b>	<b>Impression studied</b>	<b>X</b>	<b>Y</b>	<b>Z</b>
<b>Current Study (Red)</b>	Choice of preferred painting	Similarity to Self	8	5	34
<b>Diagnostic &gt; Non Diagnostic (Green)</b>					
Gilron & Gutchess, 2012	Moral and Neutral Behaviours	Moral Impression vs Location of Behaviour	0	57	15
	Moral and Neutral Behaviours	Moral Impression vs Location of Behaviour	3	48	48
	Moral and Neutral Behaviours	Moral Impression vs Location of Behaviour	9	72	9
Ma, Vandekerckhove, Van Overwalle, Seurinck, & Fias, 2010	Moral and Neutral Behaviours	Personality Traits	4	54	28
	Moral and Neutral Behaviours	Personality Traits	14	48	16
<b>Inconsistent &gt; Consistent (Pink)</b>					
Cloutier, Gabrieli, Young, & Ambady, 2011	Political Views	Political Affiliation	2	54	30
Cloutier et al., 2011	Political Views	Political Affiliation	6	52	44
Ma et al., 2012	Moral vs Neutral Behaviours	Moral Traits	4	42	32
	Moral vs Neutral Behaviours	Moral Traits	4	38	34
	Moral vs Neutral Behaviours	Moral Traits	4	35	28
Mende-Siedlecki, Cai, & Todorov, 2013	Moral Behaviours	Moral Impession	2	31	40

Mende-Siedlecki & Todorov, 2016	Moral and Neutral Behaviours	Trustworthiness and Surprise	-5	59	36
	Moral and Neutral Behaviours	Trustworthiness and Surprise	-2	-5	72
<b>Other Impression Formation (Blue)</b>					
Ames & Fiske, 2013	Assessment of Teaching Ability	Expertise	-4	45	45
Baron, Gobbini, Engell, & Todorov, 2011	Moral Behaviours	Trustworthiness	-4	41	36
Freeman, Schiller, Rule, & Ambady, 2010	Individuated vs Superficial for Racial In-group vs Out-group	Personality Traits	-13	43	4
Fouragnan et al., 2013	Choices in Trust Games and Prior information about Trustworthiness	Trustworthiness	-2	64	10
	Choices in Trust Games and Prior information about Trustworthiness	Trustworthiness	0	62	31
Gilron & Gutchess, 2012	Moral Behaviours vs Neutral Behaviours	Moral Impression vs Location of Behaviour	3	30	42
Mende-Siedlecki, Baron, & Todorov, 2013	Moral and Ability Behaviours	Competence and Trusworthiness	-5	66	13
	Moral and Ability Behaviours	Competence and Trusworthiness	32	60	-1
Mende-Siedlecki, Cai, et al., 2013	Moral Behaviours	Moral Impression	5	52	51
Schiller, Freeman, Mitchell, Uleman, & Phelps, 2009	Moral Behaviours	Moral Impression	-9	24	61
Schiller et al., 2009	Moral Behaviours	Moral Impression	-7	52	43
<b>Self (Yellow)</b>					
Martinelli et al. 2013	Memory Meta-Analysis	Semantic Autobiographic Memory	-10	45	18
	Memory Meta-Analysis	Episodic Autobiographic Memory	-6	51	9
	Memory Meta-Analysis	Conceptual Self	6	55	5
Moran, J.M. et al., 2006	Personality Traits	Self-Relevance	-6	53	6

Phan, K.L. et al., 2004	Emotional Pictures	Self-Relatedness	0	42	33
Schneider et al. 2008	Emotional or Neutral Pictures	Self-Relatedness	-3	24	66

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## **Supplementary References**

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