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# Extensive childhood experience with Pokémon suggests eccentricity drives organization of visual cortex

**Jesse Gomez[1,2*], Michael Barnett[3] and Kalanit Grill-Spector[1,4,5]**

[1]Neurosciences Program, Stanford University School of Medicine, Stanford, CA, USA. [2]Psychology Department, University of California Berkeley, Berkeley, CA, USA. [3]Psychology Department, University of Pennsylvania, Philadelphia, PA, USA. [4]Psychology Department, Stanford University, Stanford, CA, USA. [5]Wu Tsai Neurosciences Institute, Stanford University, Stanford, CA, USA. *e-mail: jessegomez@berkeley.edu

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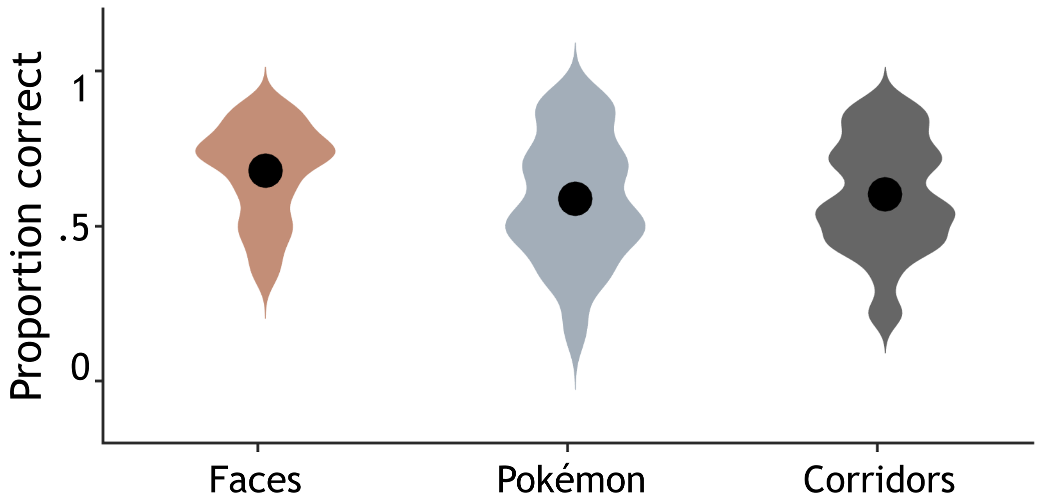
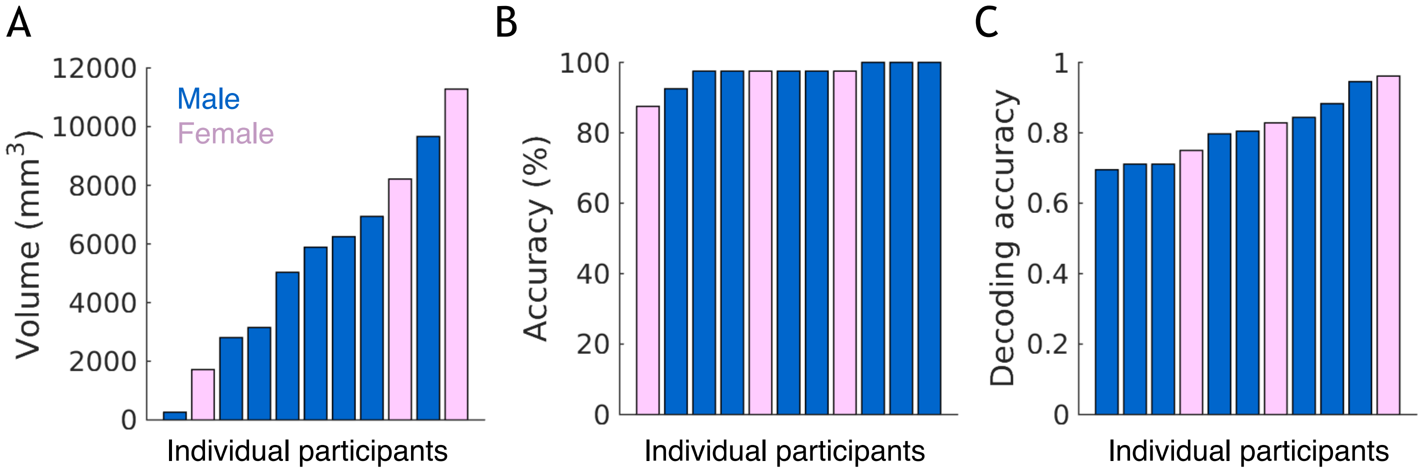
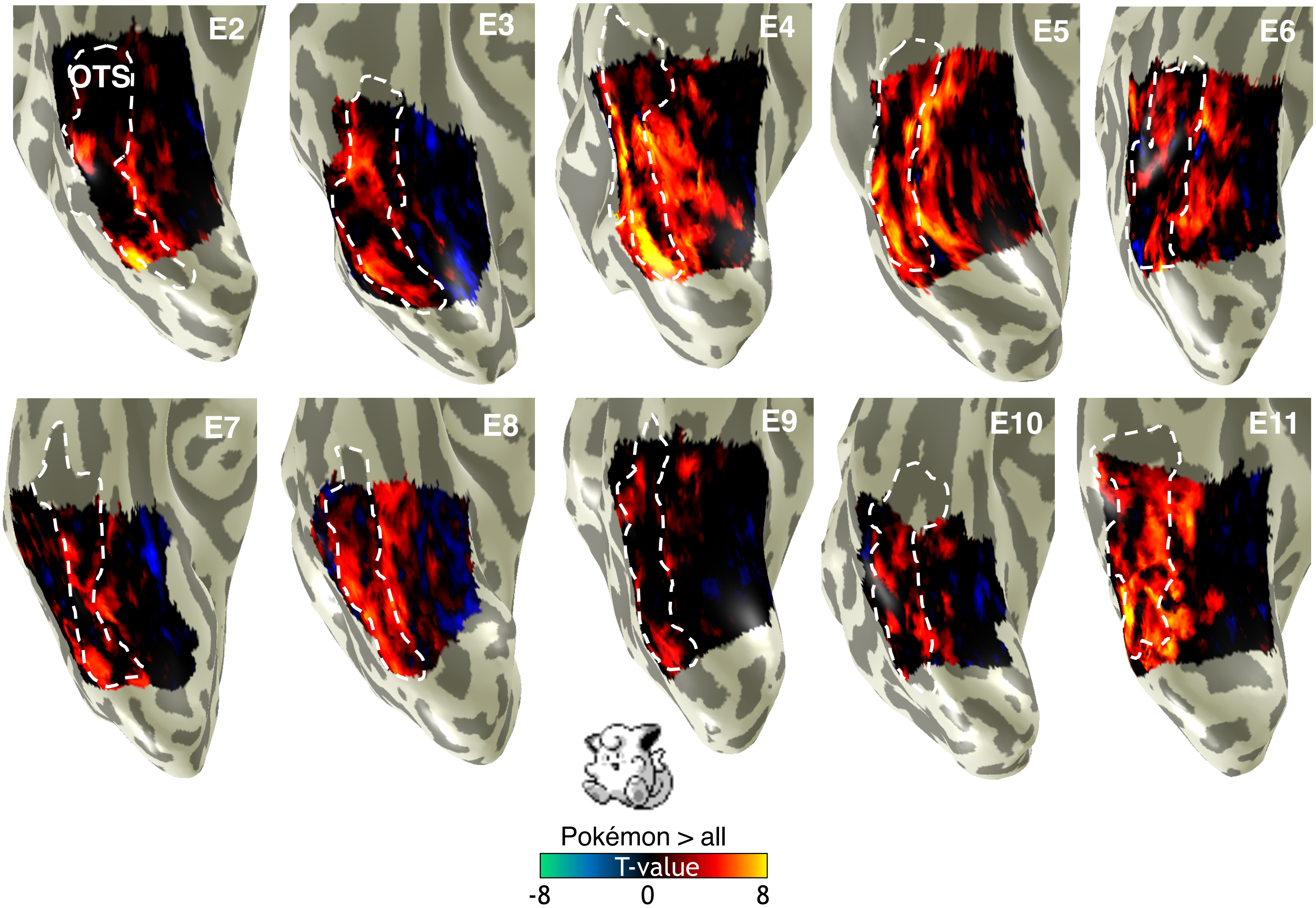


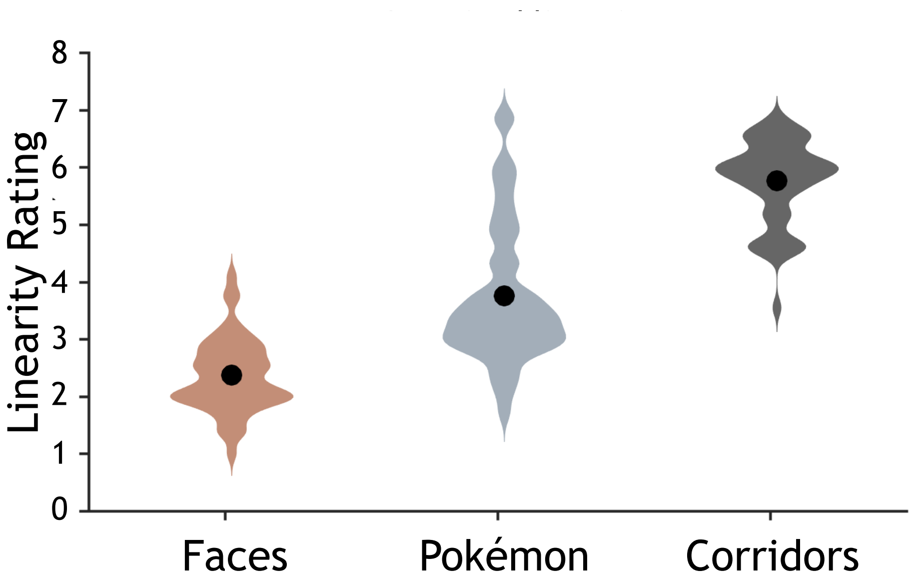

**Supplementary Figure 1: Detection accuracies for the 2-back task by stimulus category.** Participants' accuracies for detecting a 2-back repeat during the 2 Hz presentation experiment. Violin plots depict the distribution of n=36 individuals in their accuracy scores for detecting repeats of faces (orange), Pokémon (blue), and corridors (gray). Large black circles illustrate the mean rating across all participants. Novice participants were similarly accurate on the 2-back task on Pokémon as on corridors ($t(34)=0.5$, $p=0.62$, cohen's $d = 0.07$), but lower than faces ($t(34) = 3.3$, $p=0.002$, cohen's $d = 0.49$).



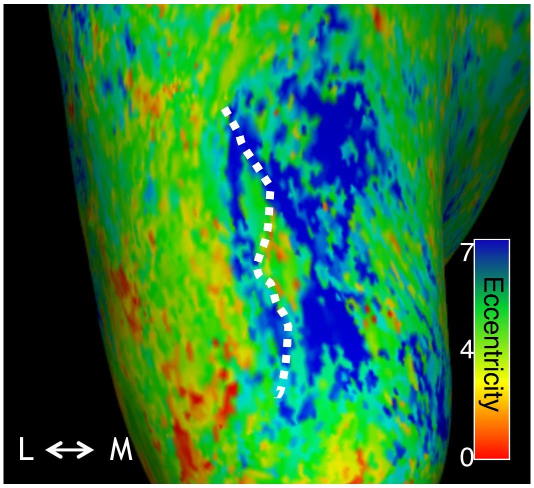

**Supplementary Figure 2: Participants experienced with Pokémon who differ in sex do not differ in effect sizes. (A)** Bar plots depicting the volume of above threshold (t > 3) voxels for the contrast of Pokémon versus all other stimuli in VTC for all experienced participants. Females, shown in pink, are distributed evenly among males and are not biased towards one extreme. **(B)** Bar plots depicting the %-correct accuracy on the Pokémon-naming behavioral experiment in experienced participants. Females (pink) are evenly distributed. **(C)** Bar plots of the decoding accuracy in experienced participants of the winner-take-all classifier show in Figure 2 by individual participant. Again, females are evenly distributed amongst all participants.



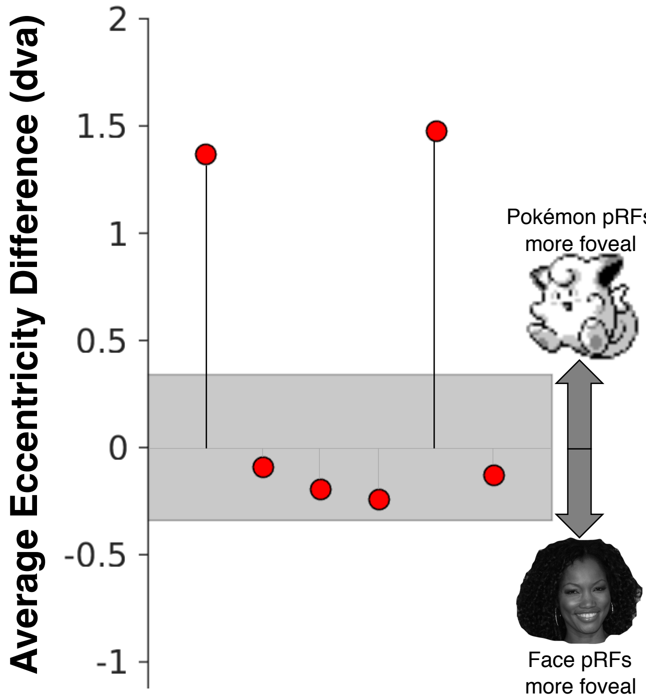

**Supplementary Figure 3: Distinct cortical representation for Pokémon in experienced participants.** Unthresholded parameter maps for the contrast of Pokémon versus all other stimuli in each of the experienced participants. Each panel shows the inflated ventral right cortical surface zoomed on VTC. *White dotted line*: occipito-temporal suclus (OTS). All experienced participants demonstrate Pokémon-selectivity within the posterior and middle OTS.



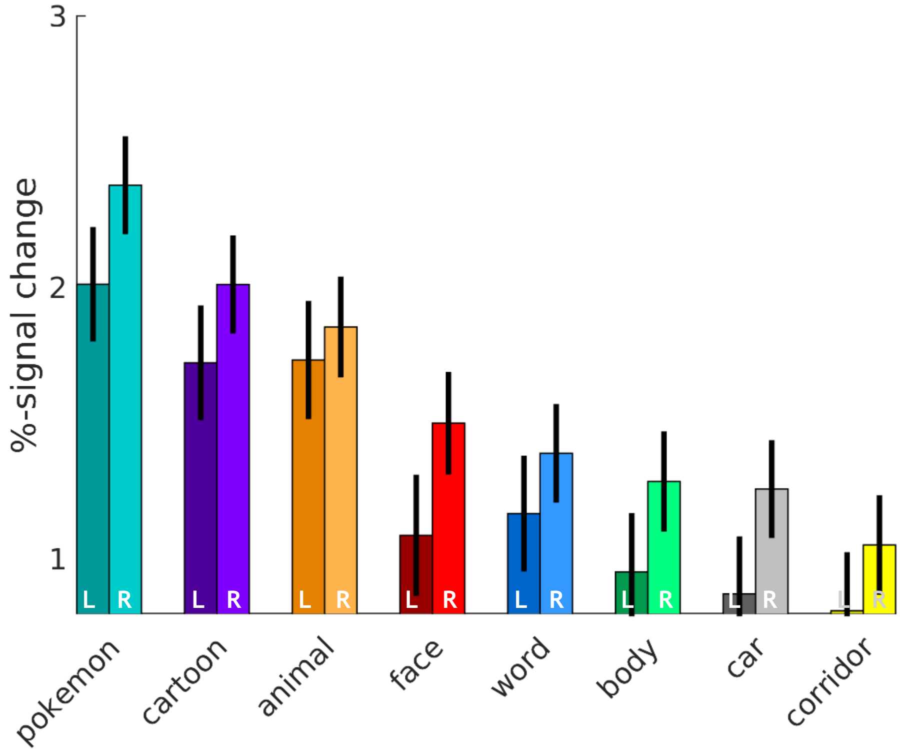

**Supplementary Figure 4: Ratings of perceived linearity for faces, Pokémon, and corridors.** N=50 participants completed a behavioral rating experiment in which they were asked to rate how curvy/round (score of 0) to linear/boxy (score of 7) a given stimulus appeared to be. For each participant, an average value was calculated for faces, Pokémon, and corridors. Violin plots depict density across the 50 participants in their mean ratings for a given stimulus category. Large black circles illustrate the mean rating across all participants. A paired t-test comparing the linearity scores given by participants to faces versus Pokémon is significant: $t(49) = 6.9$, $p<0.001$, cohen's $d = 1.44$, e.g. Pokémon are rated a significantly more linear than faces.



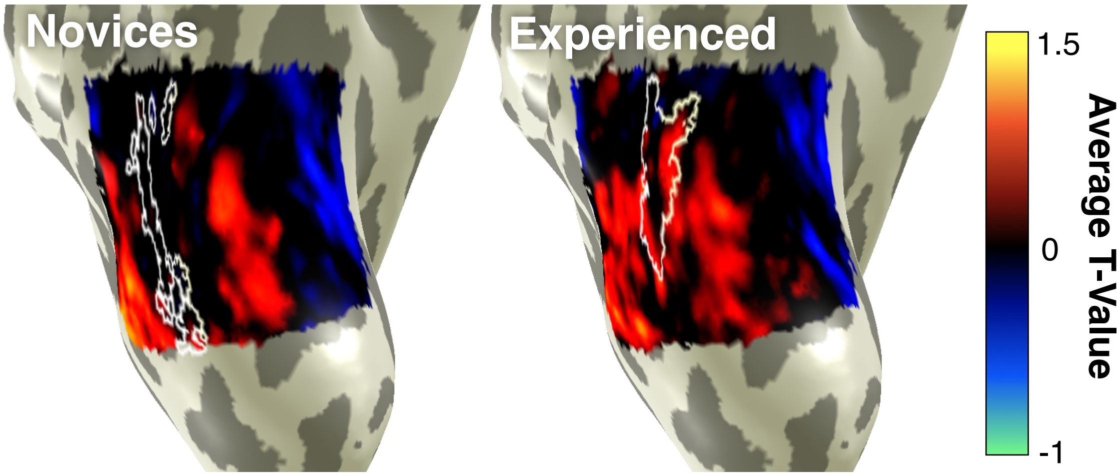

**Supplementary Figure 5: Experienced participants show typical eccentricity gradient in VTC.** Group-average eccentricity map from six experienced participants who underwent pRF mapping. Map units are in degrees of visual angle. Experienced participants demonstrate the typical eccentricity gradient in VTC, with more foveal representations lateral to the MFS (dotted-white outline) and more peripheral representations medial to it. Colorbar shows average pRF eccentricity in degrees of visual angle. *L:* lateral. *M:* medial.




**Supplementary Figure 6: Relative foveality bias between face-selective and Pokémon selective voxels in the VTC of six experienced participants.** For each of 6 participants, the average eccentricity of voxels that were either face-selective (faces vs. all other stimuli, t > 3) or Pokémon-selective (Pokémon vs. all other stimuli, t > 3) was calculated. Then a difference score in each participant was derived, such that positive values indicate (in degrees of visual angle, dva) how much closer to the center of the visual field Pokémon-selective pRFs were relative to face-selective pRFs. Each red circle represents the difference score of an individual participant. Gray region depicts standard error across participants.




**Supplementary Figure 7: Responses from each experienced participant's Pokémon-selective ROI in the OTS.** This is non-independent data and is only meant to illustrate the responses from each participant's ROI that contribute to category selectivity. *Dark bars:* left hemisphere, 'L'; *Light bars:* right hemisphere, 'R'. Despite being in the occipito-temporal suclus where the visual word form area can be found, Pokémon-selective voxels' response to words is low, on par with other inanimate categories such as cars and corridors.




**Supplementary Figure 8: Group-average contrast for animals versus all other stimuli in novice and experienced participants.** Average contrast maps for animals vs. all other stimuli were calculated in each individual participant and then averaged using cortex-based alignment in FreeSurfer. Selectivity maps are not thresholded, but truncated between the range -1 < t-value < 1.5 (values above 1.5 are shown in yellow). Average face-selective cortex in each group is outlined in white. In both groups, animal-selectivity is observed in regions both medial and lateral to face-selective cortex. Data are shown on an example inflated right hemisphere zoomed on VTC. Same participant surface as Figure 5.

**Supplementary Figure 9: Example Pokémon characters.** Pokémon were designed, in most cases, to resemble animals, and for the most part have readily identifiable faces and body features such as feet, arms, legs, and hands. Image sprites were taken from the Pokémon Red and Blue versions developed by Game Freak and published by Nintendo. For more examples of Pokémon stimuli, please see [https://www.pokemon.com/us/pokedex/](https://www.pokemon.com/us/pokedex/). Please note that the images on this site are not pixelated like the original GameBoy version of Pokémon, which are illustrated above.