**Figure S1.**



Bilinguals’ and monolinguals’ within-group brain activation for all conditions relative to resting baseline: (A) errors on Later-acquired morpho-syntactic features, (B) errors on Early-acquired morpho-syntactic features, and (C) Correct sentences.

**Figure S2.**



Bilinguals’ brain activation for Spanish conditions in Study 2, relative to resting baseline: (A) errors on Later-acquired morpho-syntactic features, (B) errors on Early-acquired morpho-syntactic features, and (C) Correct sentences.

**Table S1**

Deoxygenated hemoglobin values (HbR; in beta values) for bilingual and monolingual participants for the English Grammaticality Judgment task comparison (\*p < 0.05). Positive values represent decrease in HbR signal.

|  |  |  |
| --- | --- | --- |
| HbR | Left | Right |
|  |  | Monolinguals |
| Beta-values | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Later | 5.13\* | 3.90\* | 7.92\* | 1.81 | 3.76\* | 1.01 | -0.30 | 1.86 | 6.75\* | 1.70 | 2.51 | 2.21 | 6.21\* | 0.50 | -0.99 | 1.41 |
| Early | 2.54 | -2.53 | -2.08 | -1.97 | -0.07 | -0.49\* | -2.21 | 0.48 | -3.64\* | -0.59 | 0.89 | 0.68 | 1.76 | 0.03 | -0.22 | 1.68 |
| Correct | 4.48\* | 1.36 | 2.35 | -0.37 | 4.49\* | 1.06 | -0.55 | 2.16 | 9.57\* | 5.14\* | 8.03\* | 1.59 | 6.90\* | 1.83 | -1.47 | 1.87 |
|  |  | Bilinguals |
| Beta-values | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Later | 8.70\* | 11.3\* | 11.9\* | 2.30 | 2.40 | 0.45 | 3.32\* | 1.73 | 5.52\* | 3.64\* | -3.67 | -2.70 | 2.31 | 4.53\* | -6.49\* | 1.38 |
| Early | 23.6\* | 1.25 | -7.71\* | -0.50 | -0.19 | 3.51\* | 0.60 | 4.20\* | -8.49\* | -4.31\* | -8.98\* | -5.31\* | 1.31 | -3.28\* | -6.46\* | -0.59 |
| Correct | 0.14 | 3.67\* | 0.88 | 1.66 | -2.24 | 3.43\* | 3.82\* | 3.34\* | 3.66\* | -2.33 | -3.52 | 1.80 | 2.84 | 0.47 | -3.71 | -0.92 |

**Table S2**

Deoxygenated hemoglobin values (HbR; in beta values) for bilingual participants for the Spanish Grammaticality Judgment task comparison (\*p < 0.05). Positive values represent decrease in HbR signal.

|  |  |  |
| --- | --- | --- |
| HbR | Left | Right |
|  |  | Monolinguals |
| Beta-values | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Later  | -13.67\* | 1.68 | -3.94 | -11.73 | -12.62 | -17.13 | -30.33 | -1.91 | 4.50 | 25.24 | 20.39 | 0.86 | -18.32 | -12.63 | -15.96 | -16.87\* |
| Early | -20.69 | -7.49 | -2.87 | 13.21 | -6.10 | -8.79 | 21.57 | -12.92 | -23.29 | 41.25\* | 69.29\* | 13.07 | 6.02 | 13.99 | 29.73 | 3.13 |
| Correct | 12.68 | 12.11 | 37.34\* | 3.36 | -10.24 | 15.70 | 19.67 | -6.75 | 19.57 | 7.05 | 8.30 | 19.01 | 13.86 | 12.95 | 13.55 | 3.74 |