# Introduction

For maximal transparency, we report the full model outputs and their random effects specifications here, following Meteyard and Davies (2020). Each table is referenced in the main article text. Statistically significant effects are highlighted in blue.

# Forced-choice task, main tests

Table S. Binomial logistic regression, subject focus

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | **Odds Ratio**  | **95% CI of Odds Ratio** | ***F*** | ***p*** |
| Group | -0.091 | 0.319 | -0.727 – 0.546 | 0.913 | 0.483 – 1.726 | 0.081 | .777 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 1.200 |  | 0.332 |
| By-Item Intercept | 0.294 |  | 0.172 |

Table S. Multinomial logistic regression, object/PP focus

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | ***F*** | ***p*** |  |  |  |  |
| Group | 1.633 | .201 |  |  |  |  |
| Type | 23.383 | .000 |  |  |  |  |
| Group\*Type | 0.680 | .509 |  |  |  |  |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept (VOPP vs. VPPO) | 0.591 | 0.293 |
| By-Participant Slope over Type (VOPP vs. VPPO) | 0.315 | 0.273 |
| By-Item Intercept (VOPP vs. VPPO) | 0.130 | 0.101 |
| By-Participant Intercept (VOPP vs. FF) | 0.815 | 0.425 |
| By-Participant Slope over Type (VOPP vs. FF) | 0.807 | 0.390 |
| By-Item Intercept (VOPP vs. FF) | 0.018 | 0.074 |

Table S. Binomial logistic regression, object focus, VOPP vs. VPPO/FF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | **Odds Ratio**  | **95% CI of Odds Ratio** | ***F*** | ***p*** |
| Group | 0.184 | 0.291 | -0.391 – 0.765 | 1.202 | 0.672 – 2.148 | 0.397 | .530 |
| Type | 0.383 | 0.212 | -0.038 – 0.805 | 1.467 | 0.963 – 2.237 | 3.274 | .074 |
| Group\*Type | 0.550 | 0.424 | -0.294 – 1.394 | 1.734 | 0.745 – 4.032 | 1.683 | .198 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.750 | 0.296 |
| By-Participant Slope over Type | 0.696 | 0.255 |
| By-Item Intercept | 0.061 | 0.056 |

Table S. Binomial logistic regression, object focus, VPPO vs. VOPP/FF

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | **Odds Ratio**  | **95% CI of Odds Ratio** | ***F*** | ***p*** |
| Group | -0.679 | 0.354 | -1.383 – 0.025 | 0.507 | 0.251 – 1.025 | 3.668 | .059 |
| Type | 1.128 | 0.291 | 0.550 – 1.705 | 3.088 | 1.733 – 5.503 | 14.989 | .000 |
| Group\*Type | 0.399 | 0.583 | -0.757 – 1.554 | 1.490 | 0.469 – 4.732 | 0.469 | .495 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.725 |  | 0.408 |
| By-Participant Slope over Type | 0.795 |  | 0.386 |
| By-Item Intercept | 0.017 |  | 0.073 |

Table S. Binomial logistic regression, object focus, FF vs. VOPP/VPPO

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | **Odds Ratio**  | **95% CI of Odds Ratio** | ***F*** | ***p*** |
| Group | 0.123 | 0.296 | -0.465 – 0.710 | 1.130 | 0.628 – 2.034 | 0.171 | .680 |
| Type | -1.571 | 0.313 | -2.218 – -0.925 | 0.208 | 0.109 – 0.397 | 25.226 | .000 |
| Group\*Type | -0.489 | 0.499 | -1.477 – 0.499 | 0.613 | 0.228 – 1.646 | 0.961 | .329 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.466 | 0.282 |
| By-Participant Slope over Type | 0.349 | 0.277 |
| By-Item Intercept | 0.018 | 0.148 |
| By-Item Slope over Type | 0.268 | 0.215 |

Table S. Binomial logistic regression, object focus, VOPP vs. VPPO (FF removed)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | **Odds Ratio**  | **95% CI of Odds Ratio** | ***F*** | ***p*** |
| Group | -0.650 | 0.376 | -1.396 – 0.097 | 0.522 | 0.248 – 1.102 | 2.989 | .087 |
| Type | 0.965 | 0.298 | 0.374 – 1.556 | 2.626 | 1.454 – 4.742 | 10.497 | .002 |
| Group\*Type | 0.321 | 0.596 | -0.862 – 1.503 | 1.378 | 0.423 – 4.493 | 0.289 | .592 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.939 | 0.454 |
| By-Participant Slope over Type | 0.837 | 0.406 |
| By-Item Intercept | 0.003 | 0.074 |

# Forced-choice task, tests by proficiency, dominance, and exposure

Table S. Binomial logistic regression, subject focus by Spanish proficiency, baseline speakers

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | **Odds Ratio**  | **95% CI of Odds Ratio** | ***F*** | ***p*** |
| Proficiency(Centered LexTALE\_Esp score) | 0.039 | 0.025 | -0.012 – 0.091 | 1.040 | 0.988 – 1.095 | 2.447 | .129 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.588 |  | 0.337 |
| By-Item Intercept | 0.233 |  | 0.224 |

Table S. Binomial logistic regression, subject focus by Spanish proficiency, heritage speakers

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | **Odds Ratio**  | **95% CI of Odds Ratio** | ***F*** | ***p*** |
| Proficiency(Centered LexTALE\_Esp score) | 0.031 | 0.016 | -0.003 – 0.064 | 1.031 | 0.997 – 1.006 | 3.462 | .070 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 1.384 |  | 0.483 |
| By-Item Intercept | 0.213 |  | 0.175 |

Table S. Binomial logistic regression, subject focus by relative language dominance, baseline speakers

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | **Odds Ratio**  | **95% CI of Odds Ratio** | ***F*** | ***p*** |
| BLP Score | 0.007 | 0.005 | -0.002 – 0.016 | 1.007 | 0.998 – 1.017 | 2.630 | .115 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.580 |  | 0.335 |
| By-Item Intercept | 0.220 |  | 0.217 |

Table S. Binomial logistic regression, subject focus by relative language dominance, heritage speakers

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | **Odds Ratio**  | **95% CI of Odds Ratio** | ***F*** | ***p*** |
| BLP Score | -0.006 | 0.006 | -0.018 – 0.006 | 0.994 | 0.982 – 1.006 | 1.132 | .293 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 1.505 |  | 0.510 |
| By-Item Intercept | 0.211 |  | 0.174 |

Table S. Multinomial logistic regression, object/PP focus by Spanish proficiency, baseline speakers

|  |  |  |
| --- | --- | --- |
| **Fixed Effect** | ***F*** | ***p*** |
| Proficiency (Centered LexTALE\_Esp score) | 2.269 | 0.118 |
| Type | 1.150 | 0.317 |
| Proficiency\*Type | 5.957 | 0.003 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept (VOPP vs. VPPO) | 1.756 | 0.699 |
| By-Participant Intercept (VOPP vs. FF) | 0.605 | 0.354 |

Table S. Multinomial logistic regression, object/PP focus by Spanish proficiency, heritage speakers

|  |  |  |
| --- | --- | --- |
| **Fixed Effect** | ***F*** | ***p*** |
| Proficiency (Centered LexTALE\_Esp score) | 1.098 | .339 |
| Type | 12.504 | .000 |
| Proficiency\*Type | 0.032 | .968 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept (VOPP vs. VPPO) | 1.220 | 0.528 |
| By-Participant Slope over Type (VOPP vs. VPPO) | 0.002 | 0.390 |
| By-Item Intercept (VOPP vs. VPPO) | 0.015 | 0.138 |
| By-Participant Intercept (VOPP vs. FF) | 0.736 | 0.399 |
| By-Participant Slope over Type (VOPP vs. FF) | 0.294 | 0.346 |
| By-Item Intercept (VOPP vs. FF) | 0.224 | 0.172 |

Table S. Multinomial logistic regression, object/PP focus by relative language dominance, baseline speakers

|  |  |  |
| --- | --- | --- |
| **Fixed Effect** | ***F*** | ***p*** |
| Dominance (BLP score) | 2.977 | 0.063 |
| Type | 1.872 | 0.155 |
| Dominance\*Type | 0.875 | 0.418 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept (VOPP vs. VPPO) | 1.304 | 0.552 |
| By-Participant Intercept (VOPP vs. FF) | 0.597 | 0.351 |

Table S. Multinomial logistic regression, object/PP focus by relative language dominance, heritage speakers

|  |  |  |
| --- | --- | --- |
| **Fixed Effect** | ***F*** | ***p*** |
| Dominance (BLP Score) | 3.011 | 0.053 |
| Type | 14.651 | 0.000 |
| Dominance\*Type | 2.367 | 0.106 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept (VOPP vs. VPPO) | 1.230 | 0.552 |
| By-Participant Slope over Type (VOPP vs. VPPO) | 0.028 | 0.430 |
| By-Item Intercept (VOPP vs. VPPO) | 0.022 | 0.143 |
| By-Participant Intercept (VOPP vs. FF) | 0.718 | 0.398 |
| By-Participant Slope over Type (VOPP vs. FF) | 0.284 | 0.343 |
| By-Item Intercept (VOPP vs. FF) | 0.212 | 0.143 |

Table S. Binomial logistic regression, subject focus by age of exposure (AoE) to English, heritage speakers

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | **Odds Ratio**  | **95% CI of Odds Ratio** | ***F*** | ***p*** |
| AoE English (Self-report) | 0.065 | 0.090 | -0.118 – 0.247 | 1.067 | 0.889 – 1.281 | 0.516 | .477 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 1.539 |  | 0.519 |
| By-Item Intercept | 0.213 |  | 0.175 |

Table S. Multinomial logistic regression, object/PP focus by age of exposure (AoE) to English, heritage speakers

|  |  |  |
| --- | --- | --- |
| **Fixed Effect** | ***F*** | ***p*** |
| AoE English (Self-report) | 0.306 | .738 |
| Type | 8.255 | <.001 |
| AoE\*Type | 0.307 | .736 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept (VOPP vs. VPPO) | 1.215 | 0.463 |
| By-Item Intercept (VOPP vs. VPPO) | 0.027 | 0.144 |
| By-Participant Intercept (VOPP vs. FF) | 0.914 | 0.338 |
| By-Item Intercept (VOPP vs. FF) | 0.217 | 0.168 |

# Self-paced reading task, main tests

Table S. Linear mixed-effects model, subject/object focus, critical region

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | ***F*** | ***p*** |
| Focus | 0.076 | 0.052 | -0.029 – 0.182 | 2.126 | .153 |
| Order | -0.033 | 0.054 | -0.143 – 0.077 | 0.375 | .545 |
| Focus\*Order | -0.244 | 0.102 | -0.458 – -0.031 | 5.791 | .027 |
| Group | -0.004 | 0.104 | -0.213 – 0.205 | 0.001 | .971 |
| Focus\*Group | 0.051 | 0.105 | -0.161 – 0.263 | 0.233 | .632 |
| Order\*Group | -0.072 | 0.099 | -0.266 – 0.122 | 0.532 | .466 |
| Focus\*Order\*Group | -0.002 | 0.203 | -0.413 – 0.408 | 0.000 | .991 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.093 | 0.026 |
| By-Participant Slope over Focus | 0.013 | 0.028 |
| By-Participant Slope over Focus\*Order | 0.020 | 0.103 |
| By-Item Intercept | 0.017 | 0.009 |
| By-Item Slope over Order | 0.014 | 0.024 |
| By-Item Slope over Focus\*Order  | 0.004 | 0.083 |

Table S. Linear mixed-effects model, subject/object focus, post-critical region

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | ***F*** | ***p*** |
| Focus | 0.043 | 0.024 | -0.007 – 0.092 | 3.130 | .087 |
| Order | -0.027 | 0.022 | -0.072 – 0.018 | 1.462 | .233 |
| Focus\*Order | -0.121 | 0.051 | -0.226 – -0.016 | 5.671 | .026 |
| Group | -0.083 | 0.039 | -0.161 – -0.005 | 4.624 | .037 |
| Focus\*Group | 0.027 | 0.043 | -0.057 – 0.111 | 0.395 | .530 |
| Order\*Group | -0.032 | 0.045 | -0.123 – 0.058 | 0.526 | .472 |
| Focus\*Order\*Group | 0.039 | 0.090 | -0.143 – 0.22 | 0.184 | .670 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.011 | 0.004 |
| By-Participant Slope over Order | 0.002 | 0.005 |
| By-Participant Slope over Focus\*Order | 0.008 | 0.020 |
| By-Item Intercept | 0.001 | 0.001 |
| By-Item Slope over Focus | 0.004 | 0.005 |
| By-Item Slope over Focus\*Order  | 0.018 | 0.021 |

Table S. Linear mixed-effects model, object/PP focus, critical region

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient**  | **SE** | **95% CI** | ***F*** | ***p*** |
| Focus | -0.054 | 0.051 | -0.159 – 0.051 | 1.108 | .302 |
| Order | -0.202 | 0.046 | -0.294 – -0.109 | 19.385 | .000 |
| Focus\*Order | -0.068 | 0.092 | -0.254 – 0.118 | 0.547 | .464 |
| Group | 0.259 | 0.107 | 0.044 – 0.473 | 5.886 | .020 |
| Focus\*Group | 0.074 | 0.087 | -0.097 – 0.245 | 0.723 | .395 |
| Order\*Group | -0.040 | 0.091 | -0.225 – 0.144 | 0.192 | .663 |
| Focus\*Order\*Group | -0.016 | 0.185 | -0.389 – 0.357 | 0.008 | .930 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.106 | 0.028 |
| By-Participant Slope over Order | 0.009 | 0.021 |
| By-Participant Slope over Focus\*Order | 0.043 | 0.084 |
| By-Item Intercept | 0.018 | 0.008 |
| By-Item Slope over Focus  | 0.025 | 0.023 |

Table S. Linear mixed-effects model, subject/object focus, post-critical region

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient**  | **SE** | **95% CI** | ***F*** | ***p*** |
| Focus | -0.012 | 0.021 | -0.055 – 0.03 | 0.350 | .558 |
| Order | -0.040 | 0.023 | -0.087 – 0.008 | 2.942 | .098 |
| Focus\*Order | 0.002 | 0.040 | -0.08 – 0.085 | 0.003 | .955 |
| Group | -0.054 | 0.031 | -0.117 – 0.009 | 2.984 | .091 |
| Focus\*Group | 0.024 | 0.035 | -0.044 – 0.093 | 0.486 | .486 |
| Order\*Group | 0.005 | 0.040 | -0.076 – 0.086 | 0.016 | .901 |
| Focus\*Order\*Group | -0.001 | 0.071 | -0.145 – 0.143 | 0.000 | .987 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.007 | 0.002 |
| By-Participant Slope over Order | 0.004 | 0.004 |
| By-Participant Slope over Focus\*Order | 0.002 | 0.013 |
| By-Item Intercept | 0.001 | 0.001 |
| By-Item Slope over Focus | 0.004 | 0.004 |
| By-Item Slope over Order | 0.004 | 0.004 |
| By-Item Slope over Focus\*Order  | 0.010 | 0.013 |

# Self-paced reading task, tests by proficiency, dominance, and exposure

Table S. Linear mixed-effects model, subject/object focus by Spanish proficiency, baseline speakers

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | ***F*** | ***p*** |
| Focus | 0.152 | 0.188 | -0.217 – 0.521 | 0.653 | .419 |
| Order | 0.485 | 0.191 | 0.111 – 0.860 | 6.485 | .011 |
| Focus\*Order | 0.266 | 0.377 | -0.475 – 1.006 | 0.497 | .481 |
| Proficiency (Centered LexTALE\_Esp score) | 0.013 | 0.010 | -0.008 – 0.034 | 1.619 | .218 |
| Focus\*Proficiency | -0.007 | 0.011 | -0.029 – 0.015 | 0.405 | .525 |
| Order\*Proficiency | -0.031 | 0.011 | -0.053 – -0.010 | 8.009 | .005 |
| Focus\*Order\*Proficiency | -0.033 | 0.022 | -0.076 – 0.011 | 2.163 | .142 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.077 | 0.035 |
| By-Item Intercept | 0.005 | 0.013 |
| By-Item Slope over Order | 0.046 | 0.061 |
| By-Item Slope over Focus\*Order | 0.026 | 0.215 |

Table S. Linear mixed-effects model, subject/object focus by Spanish proficiency, heritage speakers

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | ***F*** | ***p*** |
| Focus | 0.160 | 0.100 | -0.048 – 0.367 | 2.523 | .126 |
| Order | -0.113 | 0.078 | -0.267 – 0.041 | 2.060 | .152 |
| Focus\*Order | -0.246 | 0.182 | -0.624 – 0.132 | 1.816 | .191 |
| Proficiency (Centered LexTALE\_Esp score) | 0.011 | 0.006 | -0.002 – 0.024 | 3.127 | .091 |
| Focus\*Proficiency | 0.008 | 0.007 | -0.006 – 0.021 | 1.307 | .266 |
| Order\*Proficiency | -0.005 | 0.006 | -0.016 – 0.007 | 0.638 | .425 |
| Focus\*Order\*Proficiency | 0.000 | 0.013 | -0.027 – 0.028 | 0.001 | .971 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.097 | 0.037 |
| By-Participant Slope over Focus | 0.040 | 0.040 |
| By-Participant Slope over Focus\*Order | 0.143 | 0.153 |
| By-Item Intercept | 0.041 | 0.018 |
| By-Item Slope over Focus  | 0.060 | 0.047 |

Table S. Linear mixed-effects model, object/PP focus by Spanish proficiency, baseline speakers

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | ***F*** | ***p*** |
| Focus | -0.13 | 0.17 | -0.457 – 0.195 | 0.623 | .430 |
| Order | -0.04 | 0.16 | -0.36 – 0.287 | 0.049 | .825 |
| Focus\*Order | -0.22 | 0.37 | -1.002 – 0.556 | 0.360 | .556 |
| Proficiency (Centered LexTALE\_Esp score) | 0.00 | 0.01 | -0.021 – 0.031 | 0.145 | .707 |
| Focus\*Proficiency | 0.00 | 0.01 | -0.016 – 0.022 | 0.083 | .773 |
| Order\*Proficiency | -0.01 | 0.01 | -0.028 – 0.01 | 0.869 | .352 |
| Focus\*Order\*Proficiency | 0.01 | 0.02 | -0.035 – 0.057 | 0.237 | .632 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.140 | 0.052 |
| By-Participant Slope over Focus\*Order | 0.103 | 0.166 |
| By-Item Intercept | 0.016 | 0.014 |

Table S. Linear mixed-effects model, object/PP focus by Spanish proficiency, heritage speakers

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | **F** | **p** |
| Focus | 0.051 | 0.074 | -0.104 – 0.206 | 0.472 | .500 |
| Order | -0.165 | 0.081 | -0.336 – 0.005 | 4.113 | .057 |
| Focus\*Order | -0.069 | 0.139 | -0.356 – 0.218 | 0.247 | .624 |
| Proficiency (Centered LexTALE\_Esp score) | 0.000 | 0.006 | -0.012 – 0.013 | 0.001 | .981 |
| Focus\*Proficiency | 0.008 | 0.005 | -0.003 – 0.018 | 2.408 | .136 |
| Order\*Proficiency | 0.007 | 0.006 | -0.005 – 0.019 | 1.649 | .213 |
| Focus\*Order\*Proficiency | 0.000 | 0.010 | -0.021 – 0.021 | 0.000 | .983 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.088 | 0.032 |
| By-Participant Slope over Focus | 0.000 | 0.022 |
| By-Participant Slope over Order | 0.021 | 0.030 |
| By-Participant Slope over Focus\*Order | 0.005 | 0.088 |
| By-Item Intercept | 0.033 | 0.015 |
| By-Item Slope over Focus | 0.029 | 0.035 |
| By-Item Slope over Order  | 0.011 | 0.029 |

Table S. Linear mixed-effects model, subject/object focus by relative language dominance, baseline speakers

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | ***F*** | ***p*** |
| Focus | 0.118 | 0.163 | -0.202 – 0.439 | 0.525 | .469 |
| Order | -0.168 | 0.167 | -0.497 – 0.162 | 1.003 | .317 |
| Focus\*Order | -0.573 | 0.330 | -1.222 – 0.076 | 3.014 | .084 |
| Dominance (BLP Score) | -0.001 | 0.002 | -0.004 – 0.003 | 0.151 | .702 |
| Focus\*Dominance | 0.001 | 0.002 | -0.003 – 0.005 | 0.284 | .594 |
| Order\*Dominance | -0.002 | 0.002 | -0.006 – 0.001 | 1.423 | .233 |
| Focus\*Order\*Dominance | -0.004 | 0.004 | -0.012 – 0.003 | 1.350 | .246 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.082 | 0.037 |
| By-Item Intercept | 0.004 | 0.013 |
| By-Item Slope over Order | 0.045 | 0.061 |
| By-Item Slope over Focus\*Order  | 0.087 | 0.242 |

Table S. Linear mixed-effects model, subject/object focus by relative language dominance, heritage speakers

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | ***F*** | ***p*** |
| Focus | 0.106 | 0.114 | -0.13 – 0.342 | 0.862 | .363 |
| Order | -0.145 | 0.088 | -0.319 – 0.028 | 2.695 | .101 |
| Focus\*Order | -0.363 | 0.203 | -0.785 – 0.059 | 3.190 | .088 |
| Dominance (BLP Score) | -0.002 | 0.002 | -0.007 – 0.003 | 0.858 | .365 |
| Focus\*Dominance | 0.000 | 0.002 | -0.005 – 0.005 | 0.009 | .927 |
| Order\*Dominance | 0.002 | 0.002 | -0.002 – 0.006 | 1.262 | .262 |
| Focus\*Order\*Dominance | 0.004 | 0.005 | -0.006 – 0.013 | 0.619 | .440 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.109 | 0.040 |
| By-Participant Slope over Focus | 0.045 | 0.043 |
| By-Participant Slope over Focus\*Order | 0.127 | 0.149 |
| By-Item Intercept | 0.042 | 0.019 |
| By-Item Slope over Focus  | 0.061 | 0.047 |

Table S. Linear mixed-effects model, object/PP focus by relative language dominance, baseline speakers

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | ***F*** | ***p*** |
| Focus | -0.125 | 0.143 | -0.406 – 0.156 | 0.758 | .384 |
| Order | 0.064 | 0.144 | -0.219 – 0.347 | 0.197 | .657 |
| Focus\*Order | 0.252 | 0.313 | -0.401 – 0.904 | 0.649 | .430 |
| Dominance (BLP Score) | 0.002 | 0.002 | -0.003 – 0.006 | 0.655 | .428 |
| Focus\*Dominance | 0.000 | 0.002 | -0.004 – 0.003 | 0.085 | .771 |
| Order\*Dominance | 0.003 | 0.002 | 0.000 – 0.006 | 3.583 | .059 |
| Focus\*Order\*Dominance | 0.004 | 0.004 | -0.003 – 0.012 | 1.290 | .270 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.082 | 0.051 |
| By-Participant Slope over Focus\*Order | 0.004 | 0.156 |
| By-Item Intercept | 0.087 | 0.014 |

Table S. Linear mixed-effects model, object/PP focus by relative language dominance, heritage speakers

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | ***F*** | ***p*** |
| Focus | 0.012 | 0.086 | -0.167 – 0.191 | 0.020 | .888 |
| Order | -0.159 | 0.093 | -0.352 – 0.035 | 2.929 | .103 |
| Focus\*Order | -0.119 | 0.155 | -0.423 – 0.186 | 0.586 | .444 |
| Dominance (BLP Score) | 0.000 | 0.002 | -0.005 – 0.004 | 0.019 | .892 |
| Focus\*Dominance | -0.001 | 0.002 | -0.005 – 0.003 | 0.170 | .685 |
| Order\*Dominance | -0.002 | 0.002 | -0.006 – 0.002 | 1.105 | .305 |
| Focus\*Order\*Dominance | 0.002 | 0.003 | -0.005 – 0.008 | 0.222 | .638 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.088 | 0.032 |
| By-Participant Slope over Focus | 0.009 | 0.025 |
| By-Participant Slope over Order | 0.025 | 0.030 |
| By-Item Intercept | 0.032 | 0.014 |
| By-Item Slope over Focus | 0.024 | 0.033 |
| By-Item Slope over Order  | 0.007 | 0.028 |

Table S. Linear mixed-effects model, subject/object focus by age of exposure (AoE) to English, heritage speakers

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | ***F*** | ***p*** |
| Focus | 0.169 | 0.134 | -0.108 – 0.447 | 1.603 | .219 |
| Order | -0.023 | 0.105 | -0.228 – 0.182 | 0.449 | .825 |
| Focus\*Order | -0.066 | 0.245 | -0.576 – 0.444 | 0.072 | .791 |
| AoE English (Self-report) | 0.047 | 0.030 | -0.016 – 0.110 | 2.394 | .137 |
| Focus\*AoE | -0.022 | 0.031 | -0.087 – 0.044 | 0.476 | .498 |
| Order\*AoE | -0.016 | 0.026 | -0.067 – 0.036 | 0.371 | .543 |
| Focus\*Order\* AoE | -0.056 | 0.061 | -0.182 – 0.070 | 0.849 | .367 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.100 | 0.038 |
| By-Participant Slope over Focus | 0.039 | 0.041 |
| By-Participant Slope over Focus\*Order | 0.125 | 0.149 |
| By-Item Intercept | 0.043 | 0.019 |
| By-Item Slope over Focus  | 0.060 | 0.047 |

Table S. Linear mixed-effects model, object/PP focus by age of exposure (AoE) to English, heritage speakers

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effect** | **Coefficient** | **SE** | **95% CI** | ***F*** | ***p*** |
| Focus | 0.037 | 0.104 | -0.178 – 0.252 | 0.0129 | .723 |
| Order | -0.233 | 0.113 | -0.468 – 0.003 | 4.263 | .052 |
| Focus\*Order | 0.071 | 0.188 | -0.299 – 0.441 | 0.141 | .708 |
| AoE English (Self-report) | 0.009 | 0.028 | -0.049 – 0.068 | 0.113 | .740 |
| Focus\*AoE | 0.015 | 0.025 | -0.066 – 0.037 | 0.360 | .555 |
| Order\*AoE | 0.002 | 0.027 | -0.056 – 0.059 | 0.004 | .951 |
| Focus\*Order\* AoE | 0.042 | 0.047 | -0.134 – 0.050 | 0.803 | .371 |
| **Random Effects** | **Variance** | **SE** |
| By-Participant Intercept | 0.087 | 0.032 |
| By-Participant Slope over Focus | 0.009 | 0.025 |
| By-Participant Slope over Order | 0.030 | 0.032 |
| By-Item Intercept | 0.031 | 0.014 |
| By-Item Slope over Focus | 0.023 | 0.032 |
| By-Item Slope over Order  | 0.007 | 0.028 |

# Visualizations of proficiency and dominance effects on SPR performance

In the main article, we examined the effects of proficiency and dominance on the self-paced reading task and found only one significant effect: an interaction of word order and proficiency for the baseline group only, suggesting that the effect of word order on RTs changes as proficiency increases for that group. We visualized that effect in Figure 10.

To provide a full exploration of the data, we also visualized all the proficiency and dominance effects but, since no other effects were significant, we removed those visualizations from the article and provide them here.

To visualize all the proficiency results together, we calculated a *difference score* for each context, calculating the difference between the word order predicted to be felicitous for that context (e.g., VOS for subject focus) and the infelicitous word order for that context. This score shows the magnitude of the distinction between word orders for a given context, with a larger distinction indicating a larger context effect. We plotted difference scores against proficiency to visualize how the ability to distinguish felicity changes as proficiency increases. In Figure S1, the four panels on the left show the subject/object condition, and the four on the right the object/PP focus condition. The top row displays the results for heritage speakers and the bottom for the baseline group.

**Figure S1**

*Difference scores (felicitous - infelicitous) by proficiency*



To visualize the effects of dominance, we plotted the difference score described above against the dominance score produced by the BLP, where lower numbers indicate Spanish-dominant and higher numbers English-dominant. We present these results in Figure S2, which has the same format as Figure S1.

**Figure S2**

*Difference scores (felicitous - infelicitous) by dominance*

