APPENDIX B.

Analysis of Overextensions in Study 1

The analysis of overextensions examined participants’ behavioural choices of taxonomically or thematically related distractors. Participants were given a score of one for each choice of taxonomically related (Tax1 and Tax2) or thematically related distractors (Them1 and Them2). A repeated measures ANOVA was performed on the data, with category type, width, and overextension type as within-subjects variables and language and label group as between-subjects variables. The pattern of overextensions of each language group in study 1 is shown in table 1.

The analysis revealed main effects of category type, *F*(3,171)=25.163, *p<.*001, of width, *F*(1, 57)=7.167, p<.05, and of label, *F(*1,57)=10.786, p<.005. There were significantly more overextensions in relation to homonyms (0.398) than in relation to radial thematic(0.317), radial taxonomic (0.275) and classical (0.250) categories (all *ps* <.001, Bonferroni correction for multiple comparisons). The number of overextensions in relation to radial thematic categories was significantly higher than in relation to classical categories (p<.005), but not than in relation to radial taxonomic categories. The number of overextensions did not differ significantly between classical and radial taxonomic categories.

In regards to width, participants made more overextensions in relation to narrow (0.324) than wide (0.294) categories, and more overextensions without a label (0.379) than with a label (0.240).

 Besides main effects, there were interactions of Width x Language Group, *F*(1.57)=17.257, *p*<.05, Category Type x Overextension Type, *F(*3,171)=39.584, *p<*.001, Width x Overextension Type x *F*(1,57)=5.285, *p*<.05, Width x Language Group x Label, *F*(1,57)=5.326, p<.05, and Category Type x Width x Language Group, *F*(3,171)=24.171, *p*<.001.

In particular, bilinguals made significantly more overextensions in connection with narrow (0.362) than wide (0.285) categories, and there were overall more overextensions in narrow than wide classical categories (0.294 vs 0.201) and homonyms (0.495 vs 0.3), but more overextensions in wide than narrow radial thematic categories (narrow =0.187, wide =0.448). Additionally, in wide categories, there were more taxonomic (0.324) than thematic (0.264) overextensions.

Post-hoc analyses examining each category type separately revealed that for classical categories, there was an effect of overextension type, *F*(1,57)=7.691, *p<.*005, with participants choosing significantly more taxonomically related (0.293) than thematically related distractors (0.201), and an effect of label, *F*(1,57)=4.424, *p<.*05, with more overextensions in the non-label group (0.286) than in the label group (0.208), *p<.*01 (Bonferroni).

In homonyms, there was an effect of overextension type, *F*(1,57)=34.243, *p<.*001, with significantly more taxonomic (0.551) than thematic (0.257) extensions, *p<.*05 (Bonferroni).

For radial taxonomic categories, there were effects of overextension type, *F*(1,57)=5.482, p<.05, width, *F*(1,57)=4.347, p<.05, and label, *F*(1,32)=11.681, p<.005. Participants made more taxonomic (0.314) than thematic (0.236) overextensions, more overextensions in narrow (0.303) than wide (0.247) categories and more overextensions without a label (0.333) than with a label (0.2), all *p*s*<.*05 (Bonferroni).

Finally, for radial thematic categories, there was an effect of overextension type, *F*(1,57)=61.411, p<.001, and label, *F*(1,32)=9.034, p<.01, with more thematic overextensions (0.448) than taxonomic overextensions (0.187), and more overextensions in the non-label group (0.396) than the label group (0.239), *ps<.*05 (Bonferroni).

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| ***MONOLINGUALS*** |  |  |  |  |  |  |  |  |
|   |   | CLASSICAL | HOMONYMS | RADIAL TAX. | RADIAL THEM |
| Group |   | Narrow | Wide | Narrow | Wide | Narrow | Wide | Narrow | Wide |
| NO LABEL | TAX OVXT | 0.178 | 0.489 | 0.733 | 0.489 | 0.178 | 0.444 | 0.200 | 0.311 |
|   | THEM OVXT | 0.200 | 0.133 | 0.333 | 0.178 | 0.378 | 0.222 | 0.311 | 0.578 |
| LABEL | TAX OVXT | 0.067 | 0.400 | 0.644 | 0.289 | 0.333 | 0.311 | 0.044 | 0.133 |
|   | THEM OVXT | 0.267 | 0.200 | 0.267 | 0.178 | 0.111 | 0.089 | 0.356 | 0.422 |
| ***BILINGUALS*** |  |  |  |  |  |  |  |  |
|   |   | CLASSICAL | HOMONYMS | RADIAL TAX. | RADIAL THEM |
| Group |   | Narrow | Wide | Narrow | Wide | Narrow | Wide | Narrow | Wide |
| NO LABEL | TAX OVXT | 0.542 | 0.229 | 0.521 | 0.688 | 0.542 | 0.354 | 0.271 | 0.250 |
|   | THEM OVXT | 0.292 | 0.229 | 0.458 | 0.479 | 0.375 | 0.313 | 0.813 | 0.438 |
| LABEL | TAX OVXT | 0.244 | 0.200 | 0.244 | 0.356 | 0.267 | 0.089 | 0.133 | 0.156 |
|   | THEM OVXT | 0.111 | 0.178 | 0.244 | 0.267 | 0.244 | 0.156 | 0.489 | 0.178 |

***Table 2. Overextensions by language group in the first study.***

***Analysis of Overextensions in Study 2***

The analyses revealed effects of category type, *F*(3,61)=13.720, *p<.*01, with the highest number of overextensions in radial thematic categories (0.565), followed by radial taxonomic categories (0.520) and finally, classical categories, (0.489), and the lowest number of overextensions in homonyms (0.480), Bonferroni-corrected pairwise comparisons, all *p*s<.05. There was also an effect of label group, *F*(1,63)=5.431, *p<.*05, with more overextensions in the non-label group (0.544) than in the label group (0.48), and an effect of language group, *F*(1,63)=14.875, *p<.*01 with bilinguals making overall more overextensions (1.694) than monolinguals (1.387).

Besides main effects, there were interaction effects of Category Type x Label Group, *F*(3,61)=11.699, *p<.*01, Category Type x Overextension Type, *F*(3,61)=10.007, *p<.*01, and a three-way interaction effect of Category Type x Label Group x Language Group, *F*(3,61)=4.096, *p<.*05. These effects were explored by examining each category type separately. The pattern of overextensions of each language group by category type in the second study is shown in table 2.

*Classical Categories:* With classical categories, there were effects of overextension type, *F*(1,66)=6.262, *p<.*05, with more taxonomic (0.434) than thematic (0.552) overextensions, *p<.*05 (Bonferroni), and an effect of language group, *F*(1,65)=11.491, *p<.*01, with bilinguals making more overextensions (0.53) than monolinguals (0.448), *p<.*01 (Bonferroni).

*Homonyms:* With homonyms, there were effects of overextension type, *F*(1,63)=4.388, *p<.*05, with significantly more thematic (0.490) than taxonomic (0.417) overextensions; of language group, *F*(1.63)=10.950, *p<.*01, with bilinguals producing more overextensions (0.53) than monolinguals (0.429); and of label group, *F*(1,63)=27.955, *p<.*01, with more overextensions in the non-label group (0.56) than in the label (0.339) group.

*Radial Taxonomic Categories:* With radial taxonomic categories, there were effects of overextension type, *F*(1,63)=59.051, *p<.*01, with significantly more thematic (0.527) than taxonomic (0.512) categories, *p<.*01; and of language group, *F*(1,63)=10.569, *p<.*05, with bilinguals making significantly more overextensions (0.573) than monolinguals (0.467), *p<.*05.

*Radial Thematic Categories*: For radial thematic categories, analyses revealed effects of overextension type, *F*(1,63)=8.467, *p<.*01, with more taxonomic (0.594) than thematic (0.535) overextensions, and of language group, *F*(1,63)=17.436, *p<.*01, with bilinguals producing more overextensions (0.625) than monolinguals (0.504).

Additionally, there were interaction effects of Language Group x Label Group, *F*(1,63)=3.711, *p<.*05. In this case, bilinguals produced more overextensions in the non-label group (0.690) than in the label group (0.560), *p<.*05.

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| *MONOLINGUALS* |  |  |  |  |  |  |  |  |
|   |   | CLASSICAL | HOMONYMS | RADIAL TAX. | RADIAL THEM |
| Group |   | Narrow | Wide | Narrow | Wide | Narrow | Wide | Narrow | Wide |
| NO LABEL | TAX OVXT | 0.556 | 0.296 | 0.556 | 0.370 | 0.407 | 0.500 | 0.741 | 0.463 |
|   | THEM OVXT | 0.444 | 0.370 | 0.500 | 0.463 | 0.537 | 0.370 | 0.500 | 0.352 |
| LABEL | TAX OVXT | 0.569 | 0.275 | 0.373 | 0.333 | 0.412 | 0.529 | 0.726 | 0.353 |
|   | THEM OVXT | 0.627 | 0.451 | 0.529 | 0.314 | 0.627 | 0.353 | 0.490 | 0.412 |
| *BILINGUALS* |  |  |  |  |  |  |  |  |
|   |   | CLASSICAL | HOMONYMS | RADIAL TAX. | RADIAL THEM |
| Group |   | Narrow | Wide | Narrow | Wide | Narrow | Wide | Narrow | Wide |
| NO LABEL | TAX OVXT | 0.262 | 0.548 | 0.429 | 0.905 | 0.714 | 0.429 | 0.500 | 0.881 |
|   | THEM OVXT | 0.786 | 0.571 | 0.714 | 0.548 | 0.476 | 0.857 | 0.667 | 0.714 |
| LABEL | TAX OVXT | 0.352 | 0.667 | 0.389 | 0.407 | 0.648 | 0.463 | 0.352 | 0.741 |
|   | THEM OVXT | 0.352 | 0.704 | 0.352 | 0.500 | 0.370 | 0.630 | 0.519 | 0.630 |

***Table 2. Overextensions by language group in the second study.***