**Appendix A**

The six stimuli lists used in the first-in-first-out ordering condition. Experimental frequency and the order of target sequences were varied from list to list. For example, /ʃp/ was the first target and had an experimental frequency of 3 in the first list, but then appeared in positions 5, 6, 3, 2, and 8 in the other lists. It was experimental frequency 1 in lists 2, 4, and 6. The six lists for the four other ordering conditions contained the same words and counterbalancing of experimental frequency and target order, where appropriate.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | List 1 | | List 2 | | List 3 | | List 4 | | List 5 | | List 6 | |
| Familiarization | ʃp | fʌʃpət | pk | saʊpkəs | mk | sæmkəʃ | sp | fʌspət | kt | bɑktəs | fp | ʃeɪfpək |
| daʃpək | paɪpkəm | st | taʊstən | dɑspək | ʃp | zaʃpək | kt | saʊktəs |
| kɛʃpəs | zeɪpkəs | mɪstəm | kɛspəs | faʊʃpət | paɪktəm |
| sp | fɑspət | kt | bɑktəs | ʃeɪstək | pk | bɑpkəs | keɪʃpəf | zeɪktəs |
| st | mɛstəm | mp | kaʊmpən | kt | zeɪktəs | ʃp | foʊʃpəm | pk | saʊpkəs | mp | gumpən |
| kt | saʊktəs | sp | fʌspət | paɪktəm | fp | mɛfpəm | paɪpkəm | ʃɑmpən |
| paɪktəm | dɑspək | saʊktəs | gʌfpək | zeɪpkəs | nʌmpət |
| zeɪktəs | kɛspəs | mp | kaʊmpən | taʊfpən | mk | sæmkəʃ | st | baɪstəm |
| pk | bɑpkəs | ʃp | foʊʃpəm | fp | baɪfpəm | mp | kaʊmpən | st | gɪstək | mk | sɛmkəʃ |
| mk | sæmkəʃ | fp | ʃeɪfpək | nɑfpək | kt | bɑktəs | baɪstəm | kaʊmkən |
| fp | baɪfpəm | mk | gumkən | gɪfpək | st | gɪstək | nastək | nʌmkəf |
| gɪfpək | ʃɑmkən | ʃp | fʌʃpət | baɪstəm | sp | fʌspət | pk | bupkəs |
| nɑfpək | nʌmkət | kɛʃpəs | nɑstək | dɑspək | tɪpkəf |
| mp | gumpən | st | baɪstəm | dɑʃpək | mk | gumkən | kɛspəs | zeɪpkən |
| ʃampən | gɪstək | pk | bɑpkəs | ʃɑmkən | mp | kaʊmpən | sp | fɑspət |
| nʌmpət | nɑstək | sp | fɑspət | nʌmkət | fp | ʃeɪfpək | ʃp | foʊʃpəm |
| Test | ʃp | zɑʃpəm | pk | lɛpkəf | mk | dɪmkəs | sp | zaspəm | kt | biktəm | fp | mæfpəm |
| nʌʃpək | tupkən | beɪmkəf | nʌspək | foʊktəs | pɔɪfpən |
| sp | tuspən | kt | biktəm | st | neɪstən | pk | bipkəm | ʃp | zɑʃpəm | kt | biktəm |
| lɪspət | foktəs | kustəs | foʊpkəs | nʌʃpək | foʊktəs |
| st | neɪstən | mp | kɔɪmpət | kt | biktəm | ʃp | tuʃpən | pk | lɛpkəf | mp | kɔɪmpət |
| kustəs | sæmpəf | foʊktəs | lɪʃpət | tupkən | sæmpəf |
| kt | biktəm | sp | tuspən | mp | kɔɪmpət | fp | neɪfpən | mk | dɪmkəs | st | neɪstən |
| foʊktəs | lɪspət | sæmpəf | kufpəs | beɪmkəf | kustəs |
| pk | lɛpkəf | ʃp | zaʃpəm | fp | mæfpəm | mp | dɪmpəs | st | neɪstən | mk | dɪmkəs |
| tupkən | nʌʃpək | pɔɪfpən | beɪmpəf | kustəs | beɪmkəf |
| mk | dɪmkəs | fp | mæfpəm | ʃp | zaʃpəm | kt | lɛktəf | sp | tuspən | pk | lɛpkəf |
| beɪmkəf | pɔɪfpən | nʌʃpək | tuktən | lɪspət | tupkən |
| fp | mæfpəm | mk | dɪmkəs | pk | lɛpkəf | st | mæstəm | mp | kɔɪmpət | sp | tuspən |
| pɔɪfpən | beɪmkəf | tupkən | pɔɪstən | sæmpəf | lɪspət |
| mp | koɪmpət | st | neɪstən | sp | tuspən | mk | kɔɪmkət | fp | mæfpəm | ʃp | zɑʃpəm |
| sæmpəf | kustəs | lɪspət | sæmkəf | pɔɪfpən | nʌʃpək |

**Appendix B**

Phone and biphone probabilities for the familiarization items. Phone and biphone sums specific to the target word-medial consonant sequences appear in bold text.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Target | Klattese | IPA | Phone 1 | Phone 2 | **Phone 3** | **Phone 4** | Phone 5 | Phone 6 | Biphone 1 | Biphone 2 | **Biphone 3** | Biphone 4 | Biphone 5 | Phone Sum | Biphone Sum |
| fp | bYfpxm | baɪfpəm | 0.0512 | 0.0343 | **0.0197** | **0.0362** | 0.0816 | 0.0355 | 0.0023 | 0.0012 | **0.0000** | 0.0042 | 0.0117 | 1.2585 | 1.0194 |
| fp | g^fpxk | gʌfpək | 0.0260 | 0.0392 | **0.0197** | **0.0362** | 0.0816 | 0.044 | 0.0016 | 0.0016 | **0.0000** | 0.0042 | 0.0029 | 1.2467 | 1.0103 |
| fp | gIfpxk | gɪfpək | 0.0260 | 0.0962 | **0.0197** | **0.0362** | 0.0816 | 0.044 | 0.0012 | 0.0035 | **0.0000** | 0.0042 | 0.0029 | 1.3037 | 1.0118 |
| fp | mEfpxm | mɛfpəm | 0.0572 | 0.0729 | **0.0197** | **0.0362** | 0.0816 | 0.0355 | 0.0059 | 0.0015 | **0.0000** | 0.0042 | 0.0117 | 1.3031 | 1.0233 |
| fp | nafpxk | nafpək | 0.0238 | 0.0605 | **0.0197** | **0.0362** | 0.0816 | 0.0440 | 0.0035 | 0.0002 | **0.0000** | 0.0042 | 0.0029 | 1.2658 | 1.0108 |
| fp | Sefpxk | ʃeɪfpək | 0.0097 | 0.0292 | **0.0197** | **0.0362** | 0.0816 | 0.0440 | 0.0007 | 0.0004 | **0.0000** | 0.0042 | 0.0029 | 1.2204 | 1.0082 |
| fp | tWfpxn | taʊfpən | 0.0445 | 0.0097 | **0.0197** | **0.0362** | 0.0816 | 0.0832 | 0.0005 | 0.0000 | **0.0000** | 0.0042 | 0.0169 | 1.2749 | 1.0216 |
| kt | baktxs | baktəs | 0.0512 | 0.0605 | **0.0535** | **0.0894** | 0.0816 | 0.0554 | 0.0039 | 0.0034 | **0.0036** | 0.0057 | 0.0081 | 1.3916 | 1.0247 |
| kt | pYktxm | paɪktəm | 0.0844 | 0.0343 | **0.0535** | **0.0894** | 0.0816 | 0.0355 | 0.0017 | 0.0030 | **0.0036** | 0.0057 | 0.0117 | 1.3787 | 1.0257 |
| kt | sWktxs | saʊktəs | 0.1024 | 0.0097 | **0.0535** | **0.0894** | 0.0816 | 0.0554 | 0.0007 | 0.0000 | **0.0036** | 0.0057 | 0.0081 | 1.3920 | 1.0181 |
| kt | zektxs | zeɪktəs | 0.0026 | 0.0292 | **0.0535** | **0.0894** | 0.0816 | 0.0554 | 0.0000 | 0.0020 | **0.0036** | 0.0057 | 0.0081 | 1.3117 | 1.0194 |
| mk | gumkxn | gumkən | 0.0260 | 0.0221 | **0.0494** | **0.0422** | 0.0816 | 0.0832 | 0.0004 | 0.0021 | **0.0002** | 0.0019 | 0.0169 | 1.3045 | 1.0215 |
| mk | n^mkxt | nʌmkət | 0.0238 | 0.0392 | **0.0494** | **0.0422** | 0.0816 | 0.1009 | 0.0014 | 0.0051 | **0.0002** | 0.0019 | 0.0083 | 1.3371 | 1.0169 |
| mk | s@mkxS | sæmkəs | 0.1024 | 0.0794 | **0.0494** | **0.0422** | 0.0816 | 0.0203 | 0.0046 | 0.0049 | **0.0002** | 0.0019 | 0.0000 | 1.3753 | 1.0116 |
| mk | Samkxn | ʃamkən | 0.0097 | 0.0605 | **0.0494** | **0.0422** | 0.0816 | 0.0832 | 0.0006 | 0.0058 | **0.0002** | 0.0019 | 0.0169 | 1.3266 | 1.0254 |
| mp | gumpxn | gumpən | 0.0260 | 0.0221 | **0.0494** | **0.0362** | 0.0816 | 0.0832 | 0.0004 | 0.0021 | **0.0091** | 0.0042 | 0.0169 | 1.2985 | 1.0327 |
| mp | kWmpxn | kaʊmpən | 0.0927 | 0.0097 | **0.0494** | **0.0362** | 0.0816 | 0.0832 | 0.0018 | 0.0000 | **0.0091** | 0.0042 | 0.0169 | 1.3528 | 1.0320 |
| mp | n^mpxt | nʌmpət | 0.0238 | 0.0392 | **0.0494** | **0.0362** | 0.0816 | 0.1009 | 0.0014 | 0.0051 | **0.0091** | 0.0042 | 0.0083 | 1.3311 | 1.0281 |
| mp | Sampxn | ʃampən | 0.0097 | 0.0605 | **0.0494** | **0.0362** | 0.0816 | 0.0832 | 0.0006 | 0.0058 | **0.0091** | 0.0042 | 0.0169 | 1.3206 | 1.0366 |
| pk | bapkxs | bapkəs | 0.0512 | 0.0605 | **0.0371** | **0.0422** | 0.0816 | 0.0554 | 0.0039 | 0.0025 | **0.0002** | 0.0019 | 0.0081 | 1.3280 | 1.0166 |
| pk | bupkxs | bupkəs | 0.0512 | 0.0221 | **0.0371** | **0.0422** | 0.0816 | 0.0554 | 0.0012 | 0.0018 | **0.0002** | 0.0019 | 0.0081 | 1.2896 | 1.0132 |
| pk | pYpkxm | paɪpkəm | 0.0844 | 0.0343 | **0.0371** | **0.0422** | 0.0816 | 0.0355 | 0.0017 | 0.0014 | **0.0002** | 0.0019 | 0.0117 | 1.3151 | 1.0169 |
| pk | sWpkxs | saʊpkəs | 0.1024 | 0.0097 | **0.0371** | **0.0422** | 0.0816 | 0.0554 | 0.0007 | 0.0000 | **0.0002** | 0.0019 | 0.0081 | 1.3284 | 1.0109 |
| pk | tIpkxf | tɪpkəf | 0.0445 | 0.0962 | **0.0371** | **0.0422** | 0.0816 | 0.014 | 0.0025 | 0.0049 | **0.0002** | 0.0019 | 0.0029 | 1.3156 | 1.0124 |
| pk | zepkxn | zeɪpkən | 0.0026 | 0.0292 | **0.0371** | **0.0422** | 0.0816 | 0.0832 | 0.0000 | 0.0017 | **0.0002** | 0.0019 | 0.0169 | 1.2759 | 1.0207 |
| pk | zepkxs | zeɪpkəs | 0.0026 | 0.0292 | **0.0371** | **0.0422** | 0.0816 | 0.0554 | 0.0000 | 0.0017 | **0.0002** | 0.0019 | 0.0081 | 1.2481 | 1.0119 |
| sp | daspxk | daspək | 0.0518 | 0.0605 | **0.0788** | **0.0362** | 0.0816 | 0.0440 | 0.0023 | 0.0024 | **0.0081** | 0.0042 | 0.0029 | 1.3529 | 1.0199 |
| sp | f^spxt | fʌspət | 0.0466 | 0.0392 | **0.0788** | **0.0362** | 0.0816 | 0.1009 | 0.0010 | 0.0039 | **0.0081** | 0.0042 | 0.0083 | 1.3833 | 1.0255 |
| sp | faspxt | faspət | 0.0466 | 0.0605 | **0.0788** | **0.0362** | 0.0816 | 0.1009 | 0.0019 | 0.0024 | **0.0081** | 0.0042 | 0.0083 | 1.4046 | 1.0249 |
| sp | kEspxs | kɛspəs | 0.0927 | 0.0729 | **0.0788** | **0.0362** | 0.0816 | 0.0554 | 0.0011 | 0.0069 | **0.0081** | 0.0042 | 0.0081 | 1.4176 | 1.0284 |
| ʃp | daSpxk | daʃpək | 0.0518 | 0.0605 | **0.0077** | **0.0362** | 0.0816 | 0.0440 | 0.0023 | 0.0002 | **0.0000** | 0.0042 | 0.0029 | 1.2818 | 1.0096 |
| ʃp | f^Spxt | fʌʃpət | 0.0466 | 0.0392 | **0.0077** | **0.0362** | 0.0816 | 0.1009 | 0.0010 | 0.0004 | **0.0000** | 0.0042 | 0.0083 | 1.3122 | 1.0139 |
| ʃp | foSpxm | foʃpəm | 0.0466 | 0.0493 | **0.0077** | **0.0362** | 0.0816 | 0.0355 | 0.0062 | 0.0008 | **0.0000** | 0.0042 | 0.0117 | 1.2569 | 1.0229 |
| ʃp | fWSpxt | faʊʃpət | 0.0466 | 0.0097 | **0.0077** | **0.0362** | 0.0816 | 0.1009 | 0.0006 | 0.0000 | **0.0000** | 0.0042 | 0.0083 | 1.2827 | 1.0131 |
| ʃp | keSpxf | keɪʃpəf | 0.0927 | 0.0292 | **0.0077** | **0.0362** | 0.0816 | 0.0140 | 0.0020 | 0.0005 | **0.0000** | 0.0042 | 0.0029 | 1.2614 | 1.0096 |
| ʃp | kESpxs | kɛʃpəs | 0.0927 | 0.0729 | **0.0077** | **0.0362** | 0.0816 | 0.0554 | 0.0011 | 0.0002 | **0.0000** | 0.0042 | 0.0081 | 1.3465 | 1.0136 |
| ʃp | zaSpxk | zaʃpək | 0.0026 | 0.0605 | **0.0077** | **0.0362** | 0.0816 | 0.0440 | 0.0001 | 0.0002 | **0.0000** | 0.0042 | 0.0029 | 1.2326 | 1.0074 |
| st | bYstxm | baɪstəm | 0.0512 | 0.0343 | **0.0788** | **0.0894** | 0.0816 | 0.0355 | 0.0023 | 0.0014 | **0.0232** | 0.0057 | 0.0117 | 1.3708 | 1.0443 |
| st | gIstxk | gɪstək | 0.0260 | 0.0962 | **0.0788** | **0.0894** | 0.0816 | 0.0440 | 0.0012 | 0.0168 | **0.0232** | 0.0057 | 0.0029 | 1.4160 | 1.0498 |
| st | mEstxm | mɛstəm | 0.0572 | 0.0729 | **0.0788** | **0.0894** | 0.0816 | 0.0355 | 0.0059 | 0.0069 | **0.0232** | 0.0057 | 0.0117 | 1.4154 | 1.0534 |
| st | mIstxm | mɪstəm | 0.0572 | 0.0962 | **0.0788** | **0.0894** | 0.0816 | 0.0355 | 0.0083 | 0.0168 | **0.0232** | 0.0057 | 0.0117 | 1.4387 | 1.0657 |
| st | nastxk | nastək | 0.0238 | 0.0605 | **0.0788** | **0.0894** | 0.0816 | 0.0440 | 0.0035 | 0.0024 | **0.0232** | 0.0057 | 0.0029 | 1.3781 | 1.0377 |
| st | Sestxk | ʃeɪstək | 0.0097 | 0.0292 | **0.0788** | **0.0894** | 0.0816 | 0.0440 | 0.0007 | 0.0030 | **0.0232** | 0.0057 | 0.0029 | 1.3327 | 1.0355 |
| st | tWstxn | taʊstən | 0.0445 | 0.0097 | **0.0788** | **0.0894** | 0.0816 | 0.0832 | 0.0005 | 0.0008 | **0.0232** | 0.0057 | 0.0169 | 1.3872 | 1.0471 |

Phone and biphone probabilities for the test items. Phone and biphone sums specific to the target word-medial consonant sequences appear in bold text.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Target | Klattese | IPA | Phone 1 | Phone 2 | **Phone 3** | **Phone 4** | Phone 5 | Phone 6 | Biphone 1 | Biphone 2 | **Biphone 3** | Biphone 4 | Biphone 5 | Phone Sum | Biphone Sum |
| fp | kufpxs | kufpəs | 0.0927 | 0.0221 | **0.0197** | **0.0362** | 0.0816 | 0.0554 | 0.0007 | 0.0004 | **0.0000** | 0.0042 | 0.0081 | 1.3077 | 1.0134 |
| m@fpxm | mæfpəm | 0.0572 | 0.0794 | **0.0197** | **0.0362** | 0.0816 | 0.0355 | 0.0101 | 0.0013 | **0.0000** | 0.0042 | 0.0117 | 1.3096 | 1.0273 |
| nefpxn | neɪfpən | 0.0238 | 0.0292 | **0.0197** | **0.0362** | 0.0816 | 0.0832 | 0.0017 | 0.0004 | **0.0000** | 0.0042 | 0.0169 | 1.2737 | 1.0232 |
| pOfpxn | pɔɪfpən | 0.0844 | 0.0034 | **0.0197** | **0.0362** | 0.0816 | 0.0832 | 0.0005 | 0.0000 | **0.0000** | 0.0042 | 0.0169 | 1.3085 | 1.0216 |
| kt | biktxm | biktəm | 0.0512 | 0.0318 | **0.0535** | **0.0894** | 0.0816 | 0.0355 | 0.0022 | 0.0022 | **0.0036** | 0.0057 | 0.0117 | 1.3430 | 1.0254 |
| foktxs | foʊktəs | 0.0466 | 0.0493 | **0.0535** | **0.0894** | 0.0816 | 0.0554 | 0.0062 | 0.0026 | **0.0036** | 0.0057 | 0.0081 | 1.3758 | 1.0262 |
| lEktxf | lɛktəf | 0.0341 | 0.0729 | **0.0535** | **0.0894** | 0.0816 | 0.014 | 0.004 | 0.0071 | **0.0036** | 0.0057 | 0.0029 | 1.3455 | 1.0233 |
| tuktxn | tuktən | 0.0445 | 0.0221 | **0.0535** | **0.0894** | 0.0816 | 0.0832 | 0.0021 | 0.001 | **0.0036** | 0.0057 | 0.0169 | 1.3743 | 1.0293 |
| mk | bemkxf | beɪmkəf | 0.0512 | 0.0292 | **0.0494** | **0.0422** | 0.0816 | 0.014 | 0.0017 | 0.0016 | **0.0002** | 0.0019 | 0.0029 | 1.2676 | 1.0083 |
| dImkxs | dɪmkəs | 0.0518 | 0.0962 | **0.0494** | **0.0422** | 0.0816 | 0.0554 | 0.0152 | 0.0068 | **0.0002** | 0.0019 | 0.0081 | 1.3766 | 1.0322 |
| kOmkxt | kɔɪmkət | 0.0927 | 0.0034 | **0.0494** | **0.0422** | 0.0816 | 0.1009 | 0.0003 | 0.0000 | **0.0002** | 0.0019 | 0.0083 | 1.3702 | 1.0107 |
| s@mkxf | sæmkəf | 0.1024 | 0.0794 | **0.0494** | **0.0422** | 0.0816 | 0.014 | 0.0046 | 0.0049 | **0.0002** | 0.0019 | 0.0029 | 1.3690 | 1.0145 |
| mp | bempxf | beɪmpəf | 0.0512 | 0.0292 | **0.0494** | **0.0362** | 0.0816 | 0.014 | 0.0017 | 0.0016 | **0.0091** | 0.0042 | 0.0029 | 1.2616 | 1.0195 |
| dimpxs | dɪmpəs | 0.0518 | 0.0318 | **0.0494** | **0.0362** | 0.0816 | 0.0554 | 0.003 | 0.0012 | **0.0091** | 0.0042 | 0.0081 | 1.3062 | 1.0256 |
| kOmpxt | kɔɪmpət | 0.0927 | 0.0034 | **0.0494** | **0.0362** | 0.0816 | 0.1009 | 0.0003 | 0.0000 | **0.0091** | 0.0042 | 0.0083 | 1.3642 | 1.0219 |
| s@mpxf | sæmpəf | 0.1024 | 0.0794 | **0.0494** | **0.0362** | 0.0816 | 0.014 | 0.0046 | 0.0049 | **0.0091** | 0.0042 | 0.0029 | 1.3630 | 1.0257 |
| pk | bipkxm | bipkəm | 0.0512 | 0.0318 | **0.0371** | **0.0422** | 0.0816 | 0.0355 | 0.0022 | 0.0015 | **0.0002** | 0.0019 | 0.0117 | 1.2794 | 1.0175 |
| fopkxs | foʊpkəs | 0.0466 | 0.0493 | **0.0371** | **0.0422** | 0.0816 | 0.0554 | 0.0062 | 0.001 | **0.0002** | 0.0019 | 0.0081 | 1.3122 | 1.0174 |
| lEpkxf | lɛpkəf | 0.0341 | 0.0729 | **0.0371** | **0.0422** | 0.0816 | 0.014 | 0.004 | 0.0029 | **0.0002** | 0.0019 | 0.0029 | 1.2819 | 1.0119 |
| tupkxn | tupkən | 0.0445 | 0.0221 | **0.0371** | **0.0422** | 0.0816 | 0.0832 | 0.0021 | 0.0018 | **0.0002** | 0.0019 | 0.0169 | 1.3107 | 1.0229 |
| sp | lIspxt | lispət | 0.0341 | 0.0962 | **0.0788** | **0.0362** | 0.0816 | 0.1009 | 0.0062 | 0.0168 | **0.0081** | 0.0042 | 0.0083 | 1.4278 | 1.0436 |
| n^spxk | nʌspək | 0.0238 | 0.0392 | **0.0788** | **0.0362** | 0.0816 | 0.044 | 0.0014 | 0.0039 | **0.0081** | 0.0042 | 0.0029 | 1.3036 | 1.0205 |
| tuspxn | tuspən | 0.0445 | 0.0221 | **0.0788** | **0.0362** | 0.0816 | 0.0832 | 0.0021 | 0.0014 | **0.0081** | 0.0042 | 0.0169 | 1.3464 | 1.0327 |
| zaspxm | zaspəm | 0.0026 | 0.0605 | **0.0788** | **0.0362** | 0.0816 | 0.0355 | 0.0001 | 0.0024 | **0.0081** | 0.0042 | 0.0117 | 1.2952 | 1.0265 |
| ʃp | lISpxt | lɪʃpət | 0.0341 | 0.0962 | **0.0077** | **0.0362** | 0.0816 | 0.1009 | 0.0062 | 0.0012 | **0.0000** | 0.0042 | 0.0083 | 1.3567 | 1.0199 |
| n^Spxk | nʌʃpək | 0.0238 | 0.0392 | **0.0077** | **0.0362** | 0.0816 | 0.044 | 0.0014 | 0.0004 | **0.0000** | 0.0042 | 0.0029 | 1.2325 | 1.0089 |
| tuSpxn | tuʃpən | 0.0445 | 0.0221 | **0.0077** | **0.0362** | 0.0816 | 0.0832 | 0.0021 | 0.0000 | **0.0000** | 0.0042 | 0.0169 | 1.2753 | 1.0232 |
| zaSpxm | zaʃpəm | 0.0026 | 0.0605 | **0.0077** | **0.0362** | 0.0816 | 0.0355 | 0.0001 | 0.0002 | **0.0000** | 0.0042 | 0.0117 | 1.2241 | 1.0162 |
| st | kustxs | kustəs | 0.0927 | 0.0221 | **0.0788** | **0.0894** | 0.0816 | 0.0554 | 0.0007 | 0.0014 | **0.0232** | 0.0057 | 0.0081 | 1.4200 | 1.0391 |
| m@stxm | mæstəm | 0.0572 | 0.0794 | **0.0788** | **0.0894** | 0.0816 | 0.0355 | 0.0101 | 0.0071 | **0.0232** | 0.0057 | 0.0117 | 1.4219 | 1.0578 |
| nestxn | neɪstən | 0.0238 | 0.0292 | **0.0788** | **0.0894** | 0.0816 | 0.0832 | 0.0017 | 0.003 | **0.0232** | 0.0057 | 0.0169 | 1.3860 | 1.0505 |
| pOstxn | pɔɪstən | 0.0844 | 0.0034 | **0.0788** | **0.0894** | 0.0816 | 0.0832 | 0.0005 | 0.0007 | **0.0232** | 0.0057 | 0.0169 | 1.4208 | 1.0470 |

**Appendix C**

Summary of the baseline generalized additive mixed model for the second question, containing only data from the first-in-first-out and last-in-first-out conditions. Target order was scaled to be symmetrical around the intercept. A smooth term marked as s() denotes a thin plate regression spline, and te() a tensor product smooth. The smooth terms for standard deviations and the sum of phone frequencies were treated as penalized random effects.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parametric coefficients | Estimate | Standard Error | *z-*value | *p*-value |
| Intercept | 4.99 | 1.37 | 3.63 | <0.001\* |
| English Frequency | -0.001 | 0.13 | -0.01 | 0.99 |
| Experimental Frequency | 0.21 | 0.10 | 2.14 | 0.032\* |
| Target Order | -0.17 | 0.06 | -3.13 | 0.002\* |
| Ordering = last-in-first-out | -0.15 | 0.22 | -0.70 | 0.486 |
| Smooth Terms/Random Parameters | Effective degrees of freedom | Ref. degrees of freedom | Χ2 | *p*-value |
| s(standard deviation) | 0.97 | 1.00 | 30.80 | <0.001\* |
| s(Phone Sum) | 0.74 | 1.00 | 2.79 | 0.051 |
| te(Participant x Target Order) | 6.78 | 7.78 | 22.91 | 0.002\* |
| Model Summary | | | | |
| Deviance explained | 1.58% |  |  |  |
| REML | 2410.7 |  |  |  |