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ON THE COGNITIVE BASIS OF CONTACT-INDUCED SOUND CHANGE:
VOWEL MERGER REVERSAL IN SHANGHAINESE: ONLINE APPENDICES

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APPENDIX A: MATERIALS AND MODELS IN STUDY 1

| ITEM | LEXICAL SET | SHANGHAINESE CITATION FORM* (IN STAGE II) | MANDARIN FORM | EMBEDDING COMPOUND (AND PART OF SPEECH) | EMBEDDING COMPOUND FREQUENCY |
|------|-------------|--|--------------------|--|------------------------------|
| 雷 | MN-[ej] | leɿ | lejɿ | 打雷 ‘thunder strikes’ (v.) | high |
| 垒 | MN-[ej] | leɿ | lejɿ | 堡垒 ‘fortress’ (n.) | low |
| 缆 | MN-[an] | leɿ | lanɿ | 光缆 ‘optical fiber’ (n.) | high |
| 澜 | MN-[an] | leɿ | lanɿ | 狂澜 ‘huge wave’ (n.) | low |
| 来 | MN-[aj] | leɿ | lajɿ | 上来 ‘to come up’ (v.) | high |
| 睐 | MN-[aj] | leɿ | lajɿ | 青睐 ‘to favor’ (v.) | low |
| 配 | MN-[ej] | p ^h eɿ | p ^h ejɿ | 搭配 ‘to match with’ (v.) | high |
| 沛 | MN-[ej] | p ^h eɿ | p ^h ejɿ | 充沛 ‘abundant’ (adj.) | low |
| 滩 | MN-[an] | t ^h eɿ | t ^h anɿ | 外滩 ‘the Bund’ (n.) | high |
| 坍 | MN-[an] | t ^h eɿ | t ^h anɿ | 压坍 ‘to crash’ (v.) | low |
| 态 | MN-[aj] | t ^h eɿ | t ^h ajɿ | 状态 ‘status’ (n.) | high |
| 胎 | MN-[aj] | t ^h eɿ | t ^h ajɿ | 保胎 ‘to protect the fetus’ (v.) | low |
| 贝 | MN-[ej] | peɿ | pejɿ | 宝贝 ‘treasure’ (n.) | high |
| 狈 | MN-[ej] | peɿ | pejɿ | 狼狈 ‘in an extremely embarrassing state’ (adj.) | low |
| 班 | MN-[an] | peɿ | panɿ | 上班 ‘to go to work’ (v.) | high |
| 阪 | MN-[an] | peɿ | panɿ | 大阪 ‘Osaka (Japanese city)’ (n.) | low |
| 呆 | MN-[aj] | teɿ | tajɿ | 痴呆 ‘retarded’ (adj.) | high |
| 歹 | MN-[aj] | teɿ | tajɿ | 为非作歹 ‘to do bad things’ (v.) | low |

* The tone of the test items will change when embedded in a compound due to tone sandhi.

TABLE A1. Critical items in study 1.

| | LM MODEL ON F1START | | | | LM MODEL ON F2START | | | |
|--------------|---------------------|-----------|----------|----------------|---------------------|-----------|----------|----------------|
| | β | <i>SE</i> | <i>t</i> | p_{MCMC} | β | <i>SE</i> | <i>t</i> | p_{MCMC} |
| (intercept) | 634.01 | 8.58 | 73.91 | < 0.001 | 1530.92 | 13.05 | 117.33 | < 0.001 |
| Age = Old | -54.20 | 3.49 | -15.55 | < 0.001 | 26.13 | 3.07 | 8.52 | < 0.001 |
| Sex = F | 37.90 | 2.58 | 14.70 | < 0.001 | 91.72 | 2.35 | 39.12 | < 0.001 |
| Onset = L | 46.90 | 8.01 | 5.86 | < 0.001 | -47.57 | 7.34 | -6.48 | < 0.001 |
| Onset = PHTH | -13.86 | 8.01 | -1.73 | 0.097 | 44.53 | 7.34 | 6.07 | < 0.001 |

| | LM MODEL ON F1END | | | | LM MODEL ON F2END | | | |
|-----------------------------|-------------------|-----------|----------|----------------|-------------------|-----------|----------|----------------|
| | β | <i>SE</i> | <i>t</i> | p_{MCMC} | β | <i>SE</i> | <i>t</i> | p_{MCMC} |
| (intercept) | 634.72 | 14.88 | 43.26 | < 0.001 | 1530.40 | 15.62 | 98.05 | < 0.001 |
| LexSet = MN-[an] | -5.65 | 15.24 | -0.37 | 0.72 | 21.87 | 15.89 | 1.38 | 0.15 |
| LexSet = MN-[ej] | -74.17 | 15.23 | -4.87 | < 0.001 | 66.74 | 15.88 | 4.20 | < 0.001 |
| Age = Old | -31.73 | 4.18 | -7.59 | < 0.001 | 29.09 | 5.58 | 5.21 | < 0.001 |
| LexSet = MN-[an]: Age = Old | — | — | — | — | -18.20 | 7.83 | -2.32 | 0.020 |
| LexSet = MN-[ej]: Age = Old | — | — | — | — | -24.95 | 7.79 | -3.21 | 0.002 |
| Sex = F | 28.12 | 3.15 | 8.93 | < 0.001 | 91.00 | 2.44 | 37.26 | < 0.001 |
| Onset = L | 28.87 | 8.80 | 3.28 | 0.0042 | — | — | — | — |
| Onset = PHTH | -11.76 | 8.80 | -1.34 | 0.18 | — | — | — | — |

TABLE A2. Fixed-effect terms in the LM models on formant measures in the reading experiment, study 1.

Bold = $p_{MCMC} < 0.05$.

| | β | <i>SE</i> | <i>z</i> | $p(z)$ |
|------------------|---------|-----------|----------|----------------|
| (intercept) | -1.63 | 0.25 | -6.42 | < 0.001 |
| LexSet = MN-[an] | 0.50 | 0.25 | 2.00 | 0.045 |
| LexSet = MN-[ej] | 2.42 | 0.25 | 9.75 | < 0.001 |
| Age = Old | -0.52 | 0.14 | -3.63 | < 0.001 |
| Frq = H | 0.33 | 0.10 | 3.38 | < 0.001 |
| Onset = L | 1.14 | 0.14 | 8.38 | < 0.001 |
| Onset = PHTH | -0.94 | 0.15 | -6.35 | < 0.001 |

TABLE A3. Fixed-effect terms in the GLM model on Diphthong in the reading experiment, study 1.

Bold = $p(|z|) < 0.05$.

| | LM MODEL ON F1START | | | | LM MODEL ON F2START | | | |
|--------------|---------------------|-----------|----------|-------------------|---------------------|-----------|----------|-------------------|
| | β | <i>SE</i> | <i>t</i> | p_{MCMC} | β | <i>SE</i> | <i>t</i> | p_{MCMC} |
| (intercept) | 663.30 | 9.37 | 70.75 | < 0.001 | 1550.92 | 13.11 | 118.28 | < 0.001 |
| Age = Old | -53.74 | 3.71 | -14.50 | < 0.001 | — | — | — | — |
| Sex = F | 41.50 | 2.78 | 14.94 | < 0.001 | 90.87 | 2.18 | 41.70 | < 0.001 |
| Onset = L | 38.96 | 7.52 | 5.18 | < 0.001 | -37.91 | 6.47 | -5.86 | < 0.001 |
| Onset = PHTH | -1.50 | 7.52 | -0.20 | 0.84 | 35.19 | 6.47 | 5.44 | < 0.001 |
| Block.L | 7.91 | 3.19 | 2.48 | 0.014 | -6.78 | 2.45 | -2.76 | 0.006 |
| Block.Q | -0.96 | 3.19 | -0.30 | 0.77 | -1.01 | 2.45 | -0.41 | 0.70 |

| | LM MODEL ON F1END | | | | LM MODEL ON F2END | | | |
|-----------------------------|-------------------|-----------|----------|-------------------|-------------------|-----------|----------|-------------------|
| | β | <i>SE</i> | <i>t</i> | p_{MCMC} | β | <i>SE</i> | <i>t</i> | p_{MCMC} |
| (intercept) | 675.13 | 18.33 | 36.84 | < 0.001 | 1566.59 | 15.70 | 99.81 | < 0.001 |
| LexSet = MN-[an] | -5.66 | 19.73 | -0.29 | 0.77 | 1.39 | 11.38 | 0.12 | 0.89 |
| LexSet = MN-[ej] | -130.14 | 19.73 | -6.60 | < 0.001 | 86.36 | 11.38 | 7.79 | 0.001 |
| Age = Old | -37.73 | 7.92 | -4.76 | < 0.001 | 7.51 | 5.59 | 1.34 | 0.18 |
| LexSet = MN-[an]: Age = Old | 9.34 | 11.14 | -0.84 | 0.40 | -0.95 | 7.86 | -0.12 | 0.89 |
| LexSet = MN-[ej]: Age = Old | 34.99 | 11.14 | 3.14 | 0.002 | -43.24 | 7.86 | -5.50 | < 0.001 |
| Sex = F | 39.33 | 3.47 | 11.32 | < 0.001 | 92.08 | 2.48 | 37.07 | < 0.001 |

TABLE A4. Fixed-effect terms in the LM models on formant measures in the translation experiment, study 1.

Bold = $p_{\text{MCMC}} < 0.05$.

| | β | <i>SE</i> | <i>z</i> | $p(z)$ |
|-----------------------------|---------|-----------|----------|----------------|
| (intercept) | -1.38 | 0.26 | -5.37 | < 0.001 |
| LexSet = MN-[an] | 0.35 | 0.24 | 1.44 | 0.15 |
| LexSet = MN-[ej] | 3.12 | 0.27 | 11.60 | < 0.001 |
| Age = Old | 0.10 | 0.24 | 0.42 | 0.68 |
| LexSet = MN-[an]: Age = Old | -0.53 | 0.34 | -1.55 | 0.12 |
| LexSet = MN-[ej]: Age = Old | -0.91 | 0.34 | -2.64 | 0.008 |
| Frq = H | 0.17 | 0.07 | 2.35 | 0.019 |
| Onset = L | 0.97 | 0.11 | 9.20 | < 0.001 |
| Onset = PHTH | -0.56 | 0.11 | -5.22 | < 0.001 |

TABLE A5. Fixed-effect terms in the GLM model on Diphthong in the translation experiment, study 1.

Bold = $p(|z|) < 0.05$.

APPENDIX B: MATERIALS AND MODELS IN STUDY 2

| ITEM | LEXICAL SET | SHANGHAINESE CITATION FORM* (IN STAGE II) | MANDARIN FORM | EMBEDDING COMPOUND (AND PART OF SPEECH) | EMBEDDING COMPOUND FREQUENCY |
|------|------------------------------|---|---------------------------------|--|------------------------------------|
| 退 | Structure-mismatched MN-[ej] | t ^h e1 | t ^h wej ¹ | 辞退 ‘to lay off’ (v.) | high |
| 腿 | Structure-mismatched MN-[ej] | t ^h e1 | t ^h wej ⁴ | 方腿 ‘Spam (meat)’ (n.) | high |
| 对 | Structure-mismatched MN-[ej] | te1 | twej ¹ | 不对 ‘not correct’ (adj.) | high |
| 碎 | Structure-mismatched MN-[ej] | se1 | swej ¹ | 打碎 ‘to break something’ (v.) | high |
| 配 | Regular MN-[ej] | p ^h e1 | p ^h ej ¹ | 搭配 ‘to match with’ (v.) | high |
| 贝 | Regular MN-[ej] | pe1 | pej ¹ | 宝贝 ‘treasure’ (n.) | high |
| 态 | MN-[aj] | t ^h e1 | t ^h aj ¹ | 状态 ‘status’ (n.) | high |
| 呆 | MN-[aj] | tɛ1 | taj ¹ | 痴呆 ‘retarded’ (adj.) | high |
| 赛 | MN-[aj] | se1 | saj ¹ | 决赛 ‘final competition’ (n.) | high |

*The tone of the test items will change when embedded in a compound due to tone sandhi.

TABLE B1. Critical items in study 2.

| | LM MODEL ON F1START | | | | LM MODEL ON F2START | | | |
|---------------------------------------|---------------------|-----------|----------|----------------|---------------------|-----------|----------|----------------|
| | β | <i>SE</i> | <i>t</i> | p_{MCMC} | β | <i>SE</i> | <i>t</i> | p_{MCMC} |
| (intercept) | 583.56 | 8.72 | 66.91 | < 0.001 | 1582.71 | 19.57 | 80.88 | < 0.001 |
| LexSet = MN-[aj] | — | — | — | — | -21.87 | 21.65 | -1.01 | 0.39 |
| LexSet = MN-[ej] (regular) | — | — | — | — | -31.14 | 24.54 | -1.27 | 0.19 |
| Age = Old | -50.66 | 4.83 | -10.50 | < 0.001 | 13.82 | 4.02 | 3.44 | < 0.001 |
| Sex = F | 36.37 | 3.49 | 10.44 | < 0.001 | 82.82 | 3.82 | 21.71 | < 0.001 |
| Onset = PHTH | 26.46 | 6.54 | 4.05 | 0.006 | — | — | — | — |
| Onset = PT | -2.17 | 6.95 | -0.31 | 0.76 | — | — | — | — |
| LexSet = MN-[aj]: Sex = F | — | — | — | — | 12.75 | 4.74 | 2.69 | 0.007 |
| LexSet = MN-[ej] (regular): Sex = F | — | — | — | — | 11.64 | 5.33 | 2.18 | 0.029 |
| | LM MODEL ON F1END | | | | LM MODEL ON F2END | | | |
| | β | <i>SE</i> | <i>t</i> | p_{MCMC} | β | <i>SE</i> | <i>t</i> | p_{MCMC} |
| (intercept) | 547.98 | 13.60 | 40.29 | < 0.001 | 1594.90 | 20.73 | 76.93 | < 0.001 |
| LexSet = MN-[aj] | 78.16 | 10.53 | 7.42 | < 0.001 | -52.35 | 25.90 | -2.02 | 0.042 |
| LexSet = MN-[ej] (regular) | -31.82 | 12.02 | -2.65 | 0.036 | 37.35 | 29.36 | 1.27 | 0.17 |
| Age = Old | -20.29 | 9.11 | -2.23 | 0.028 | -3.86 | 6.44 | -0.60 | 0.54 |
| LexSet = MN-[aj]: Age = Old | -34.64 | 14.08 | -2.46 | 0.015 | 38.70 | 9.99 | 3.87 | < 0.001 |
| LexSet = MN-[ej] (regular): Age = Old | 37.65 | 15.77 | 2.39 | 0.016 | -16.77 | 11.18 | -1.50 | 0.14 |
| Sex = F | 31.43 | 4.58 | 6.86 | < 0.001 | 81.80 | 4.12 | 19.85 | < 0.001 |
| Onset = PHTH | 17.01 | 4.67 | 3.64 | 0.021 | — | — | — | — |
| Onset = PT | -8.42 | 4.97 | -1.69 | 0.16 | — | — | — | — |
| LexSet = MN-[aj]: Sex = F | — | — | — | — | 12.60 | 5.16 | 2.44 | 0.015 |
| LexSet = MN-[ej] (regular): Sex = F | — | — | — | — | 7.34 | 5.80 | 1.26 | 0.22 |

TABLE B2. Fixed-effect terms in the LM models on formant measures in the reading experiment, study 2.

Bold = $p_{MCMC} < 0.05$.

| | β | <i>SE</i> | <i>z</i> | $p(z)$ |
|---------------------------------------|---------|-----------|----------|----------------|
| (intercept) | -0.26 | 0.30 | -0.87 | 0.38 |
| LexSet = MN-[aj] | -2.53 | 0.44 | -5.69 | < 0.001 |
| LexSet = MN-[ej] (regular) | 1.10 | 0.38 | 2.92 | 0.004 |
| Age = Old | -0.94 | 0.27 | -3.46 | < 0.001 |
| LexSet = MN-[aj]: Age = Old | 1.46 | 0.57 | 2.57 | 0.01 |
| LexSet = MN-[ej] (regular): Age = Old | -0.71 | 0.47 | -1.49 | 0.14 |
| Onset = PHTH | -0.14 | 0.16 | -0.83 | 0.41 |
| Onset = PT | 0.64 | 0.17 | 3.71 | < 0.001 |

TABLE B3. Fixed-effect terms in the GLM model on Diphthong in the reading experiment, study 2.

Bold = $p(|z|) < 0.05$.

| | LM MODEL ON F1START | | | | LM MODEL ON F2START | | | |
|--------------|---------------------|-----------|----------|-------------------|---------------------|-----------|----------|-------------------|
| | β | <i>SE</i> | <i>t</i> | p_{MCMC} | β | <i>SE</i> | <i>t</i> | p_{MCMC} |
| (intercept) | 622.65 | 8.44 | 73.81 | < 0.001 | 1574.97 | 14.85 | 106.06 | < 0.001 |
| Age = Old | -56.69 | 5.69 | -9.96 | < 0.001 | — | — | — | — |
| Sex = F | 47.37 | 4.04 | 11.72 | < 0.001 | 81.79 | 2.88 | 28.38 | < 0.001 |
| Onset = PHTH | 43.28 | 5.32 | 8.14 | < 0.001 | — | — | — | — |
| Onset = PT | -8.60 | 5.67 | -1.52 | 0.17 | — | — | — | — |

| | LM MODEL ON F1END | | | | LM MODEL ON F2END | | | |
|--|-------------------|-----------|----------|-------------------|-------------------|-----------|----------|-------------------|
| | β | <i>SE</i> | <i>t</i> | p_{MCMC} | β | <i>SE</i> | <i>t</i> | p_{MCMC} |
| (intercept) | 539.38 | 16.43 | 32.82 | < 0.001 | 1657.96 | 16.46 | 100.76 | < 0.001 |
| LexSet = MN-[aj] | 112.90 | 10.70 | 10.55 | < 0.001 | -87.78 | 9.15 | -9.60 | < 0.001 |
| LexSet = MN-[ej] (regular) | 7.47 | 12.23 | 0.61 | 0.57 | 5.82 | 10.35 | 0.56 | 0.59 |
| Age = Old | -4.37 | 9.83 | -0.44 | 0.66 | -33.61 | 6.01 | -5.60 | < 0.001 |
| LexSet = MN-[aj]: Age = Old | -41.66 | 15.03 | -2.77 | 0.007 | 47.67 | 9.18 | 5.20 | < 0.001 |
| LexSet = MN-[ej] (regular): Age = Old | 1.44 | 16.97 | 0.08 | 0.93 | -18.47 | 10.37 | -1.78 | 0.079 |
| Sex = F | 42.98 | 4.97 | 8.66 | < 0.001 | 92.30 | 3.09 | 29.88 | < 0.001 |
| Onset = PHTH | 23.62 | 4.51 | 5.24 | 0.001 | — | — | — | — |
| Onset = PT | -9.64 | 4.87 | -1.98 | 0.10 | — | — | — | — |

TABLE B4. Fixed-effect terms in the LM models on formant measures in the translation experiment, study 2.

Bold = $p_{\text{MCMC}} < 0.05$.

| | β | <i>SE</i> | <i>z</i> | $p(z)$ |
|---------------------------------------|---------|-----------|----------|----------------|
| (intercept) | 1.02 | 0.37 | 2.74 | 0.006 |
| LexSet = MN-[aj] | -3.34 | 0.38 | -8.76 | < 0.001 |
| LexSet = MN-[ej] (regular) | 0.50 | 0.38 | 1.33 | 0.18 |
| Age = Old | -0.97 | 0.28 | -3.50 | < 0.001 |
| LexSet = MN-[aj]: Age = Old | 1.36 | 0.50 | 2.73 | 0.006 |
| LexSet = MN-[ej] (regular): Age = Old | -0.11 | 4.50 | -0.23 | 0.82 |

TABLE B5. Fixed-effect terms in the GLM model on Diphthong in the translation experiment, study 2.

Bold = $p(|z|) < 0.05$.

APPENDIX C: MATERIALS AND MODELS IN STUDY 3

| ITEM | LEXICAL SET | SHANGHAINESE CITATION FORM* (IN STAGE II) | MANDARIN FORM | EMBEDDING COMPOUND (AND PART OF SPEECH) | EMBEDDING COMPOUND FREQUENCY |
|------|--------------------------|---|--------------------|---|------------------------------------|
| 赔 | Onset-mismatched MN-[ej] | beɿ | p ^h ejɿ | 索赔 ‘to ask for indemnification’ (v.) | low |
| 陪 | Onset-mismatched MN-[ej] | beɿ | p ^h ejɿ | 不陪 ‘not to accompany’ (v.) | low |
| 备 | Onset-mismatched MN-[ej] | beɿ | pejɿ | 准备 ‘to prepare’ (v.) | high |
| 倍 | Onset-mismatched MN-[ej] | beɿ | pejɿ | 两倍 ‘twice’ (adj.) | high |
| 配 | Regular MN-[ej] | p ^h eɿ | p ^h ejɿ | 搭配 ‘to match with’ (v.) | high |
| 沛 | Regular MN-[ej] | p ^h eɿ | p ^h ejɿ | 充沛 ‘abundant’ (adj.) | low |
| 贝 | Regular MN-[ej] | peɿ | pejɿ | 宝贝 ‘treasure’ (n.) | high |
| 狈 | Regular MN-[ej] | peɿ | pejɿ | 狼狈 ‘in an extremely embarrassing state’ (adj.) | low |
| 态 | MN-[aj] | t ^h eɿ | t ^h ajɿ | 状态 ‘status’ (n.) | high |
| 胎 | MN-[aj] | t ^h eɿ | t ^h ajɿ | 保胎 ‘to protect the fetus’ (v.) | low |
| 呆 | MN-[aj] | teɿ | tajɿ | 痴呆 ‘retarded’ (adj.) | high |
| 歹 | MN-[aj] | teɿ | tajɿ | 为非作歹 ‘to do bad things’ (v.) | low |

* The tone of the test items will change when embedded in a compound due to tone sandhi.

TABLE C1. Critical items in study 3.

| | LM MODEL ON F1START | | | | LM MODEL ON F2START | | | |
|--|---------------------|-----------|----------|-------------------|---------------------|-----------|----------|-------------------|
| | β | <i>SE</i> | <i>t</i> | p_{MCMC} | β | <i>SE</i> | <i>t</i> | p_{MCMC} |
| (intercept) | 630.99 | 10.75 | 58.70 | < 0.001 | 1512.92 | 21.08 | 71.76 | < 0.001 |
| LexSet = MN-[aj] | -21.17 | 11.10 | -1.91 | 0.11 | 50.17 | 19.80 | 2.53 | 0.021 |
| LexSet = MN-[ej] (regular) | -20.86 | 11.10 | -1.88 | 0.11 | 22.45 | 19.80 | 1.13 | 0.26 |
| Age = Old | -56.82 | 4.00 | -14.19 | < 0.001 | 23.93 | 4.01 | 5.97 | < 0.001 |
| Sex = F | 36.15 | 2.93 | 12.33 | < 0.001 | 82.42 | 4.20 | 19.62 | < 0.001 |
| Onset = PHTH | 13.74 | 4.97 | 2.76 | 0.030 | 17.66 | 8.84 | 2.00 | 0.057 |
| Frq = H | 14.90 | 7.01 | 2.12 | 0.075 | — | — | — | — |
| LexSet = MN-[aj]: Frq = H | -18.25 | 9.95 | -1.83 | 0.11 | — | — | — | — |
| LexSet = MN-[ej] (regular): Frq = H | -27.66 | 9.92 | -2.79 | 0.028 | — | — | — | — |
| LexSet = MN-[aj]: Sex = F | — | — | — | — | 12.08 | 5.04 | 2.40 | 0.018 |
| LexSet = MN-[ej] (regular): Sex = F | — | — | — | — | 9.94 | 5.01 | 1.98 | 0.053 |

| | LM MODEL ON F1END | | | | LM MODEL ON F2END | | | |
|--|-------------------|-----------|----------|-------------------|-------------------|-----------|----------|-------------------|
| | β | <i>SE</i> | <i>t</i> | p_{MCMC} | β | <i>SE</i> | <i>t</i> | p_{MCMC} |
| (intercept) | 583.97 | 16.77 | 34.82 | < 0.001 | 1572.45 | 23.71 | 66.31 | < 0.001 |
| LexSet = MN-[aj] | 37.12 | 17.03 | 2.18 | 0.055 | -33.39 | 29.72 | -1.12 | 0.20 |
| LexSet = MN-[ej] (regular) | -18.35 | 17.01 | -1.08 | 0.31 | 14.88 | 29.71 | 0.50 | 0.56 |
| Age = Old | -24.13 | 5.52 | -4.37 | < 0.001 | -0.43 | 7.01 | -0.06 | 0.97 |
| Sex = F | 27.22 | 4.14 | 6.58 | < 0.001 | 88.05 | 3.14 | 28.03 | < 0.001 |
| LexSet = MN-[aj]: Age = Old | — | — | — | — | 31.57 | 10.09 | 3.13 | 0.002 |
| LexSet = MN-[ej] (regular): Age = Old | — | — | — | — | 12.33 | 9.99 | 1.23 | 0.22 |

TABLE C2. Fixed-effect terms in the LM models on formant measures in the reading experiment, study 3.

Bold = $p_{\text{MCMC}} < 0.05$.

| | β | <i>SE</i> | <i>z</i> | $p(z)$ |
|----------------------------|---------|-----------|----------|----------------|
| (intercept) | -0.44 | 0.45 | -0.96 | 0.33 |
| LexSet = MN-[aj] | -2.23 | 0.50 | -4.49 | < 0.001 |
| LexSet = MN-[ej] (regular) | 0.85 | 0.47 | 1.82 | 0.069 |
| Age = Old | -0.79 | 0.18 | -4.45 | < 0.001 |
| Sex = F | 0.29 | 0.13 | 2.21 | 0.027 |
| Onset = PHTH | -0.45 | 0.23 | -2.00 | 0.046 |

TABLE C3. Fixed-effect terms in the GLM model on Diphthong in the reading experiment, study 3.

Bold = $p(|z|) < 0.05$.

| | LM MODEL ON F1START | | | | LM MODEL ON F2START | | | |
|--|---------------------|-----------|----------|--------------------------|---------------------|-----------|----------|--------------------------|
| | β | <i>SE</i> | <i>t</i> | <i>p</i> _{MCMC} | β | <i>SE</i> | <i>t</i> | <i>p</i> _{MCMC} |
| (intercept) | 665.84 | 8.22 | 81.00 | < 0.001 | 1538.19 | 18.06 | 85.20 | < 0.001 |
| LexSet = MN-[aj] | -32.66 | 6.50 | -5.03 | 0.002 | 44.37 | 15.41 | 2.88 | 0.004 |
| LexSet = MN-[ej] (regular) | -8.00 | 6.47 | -1.24 | 0.29 | 12.52 | 15.40 | 0.81 | 0.42 |
| Age = Old | -60.63 | 4.76 | -12.73 | < 0.001 | — | — | — | — |
| Sex = F | 46.89 | 3.41 | 13.75 | < 0.001 | 83.42 | 2.69 | 31.01 | < 0.001 |
| Onset = PHTH | 22.56 | 2.89 | 7.79 | < 0.001 | 13.45 | 6.89 | 1.95 | 0.051 |
| Frq = H | -0.57 | 4.10 | -0.14 | 0.91 | — | — | — | — |
| LexSet = MN-[aj]: Frq = H | 4.04 | 5.81 | 0.69 | 0.54 | — | — | — | — |
| LexSet = MN-[ej] (regular): Frq = H | -11.98 | 5.78 | -2.07 | 0.077 | — | — | — | — |

| | LM MODEL ON F1END | | | | LM MODEL ON F2END | | | |
|--|-------------------|-----------|----------|--------------------------|-------------------|-----------|----------|--------------------------|
| | β | <i>SE</i> | <i>t</i> | <i>p</i> _{MCMC} | β | <i>SE</i> | <i>t</i> | <i>p</i> _{MCMC} |
| (intercept) | 574.42 | 17.45 | 32.91 | < 0.001 | 1648.40 | 16.46 | 100.15 | < 0.001 |
| LexSet = MN-[aj] | 77.97 | 11.79 | 6.61 | < 0.001 | -69.39 | 10.77 | -6.44 | < 0.001 |
| LexSet = MN-[ej] (regular) | -8.96 | 11.76 | -0.76 | 0.45 | -3.11 | 10.75 | -0.29 | 0.79 |
| Age = Old | 2.44 | 9.83 | 0.25 | 0.82 | -40.42 | 7.04 | -5.74 | < 0.001 |
| Sex = F | 39.10 | 4.31 | 9.07 | < 0.001 | 92.10 | 3.12 | 29.56 | < 0.001 |
| Onset = PHTH | 15.80 | 4.28 | 3.69 | 0.005 | — | — | — | — |
| LexSet = MN-[aj]: Age = Old | -44.27 | 13.87 | -3.19 | 0.001 | 48.08 | 9.93 | 4.84 | < 0.001 |
| LexSet = MN-[ej] (regular): Age = Old | -22.81 | 13.81 | -1.65 | 0.10 | 8.86 | 9.89 | 0.90 | 0.38 |

TABLE C4. Fixed-effect terms in the LM models on formant measures in the translation experiment, study 3.

Bold = $p_{\text{MCMC}} < 0.05$.

| | β | <i>SE</i> | <i>z</i> | $p(z)$ |
|---------------------------------------|---------|-----------|----------|----------------|
| (intercept) | 1.33 | 0.38 | 3.53 | < 0.001 |
| LexSet = MN-[aj] | -3.61 | 0.35 | -10.26 | < 0.001 |
| LexSet = MN-[ej] (regular) | 0.14 | 0.31 | 0.46 | 0.64 |
| Age = Old | -1.56 | 0.29 | -5.40 | < 0.001 |
| LexSet = MN-[aj]: Age = Old | 1.99 | 0.46 | 4.36 | < 0.001 |
| LexSet = MN-[ej] (regular): Age = Old | 0.68 | 0.41 | 1.66 | 0.096 |

TABLE C5. Fixed-effect terms in the GLM model on Diphthong in the translation experiment, study 3.

Bold = $p(|z|) < 0.05$.

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