Supporting information

**Appendix 1**

Table 1 contains the target items with values for raw frequency in OpenSubtitles2011 (REF), MI score in OpenSubtitles2011, congruency, transparency, and collocate-node relationship. Table 2 contains the distractor items.

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| TABLE 1. Target items with frequency of occurrence, raw frequency, MI score, congruency, semantic transparency, and collocate-node relationship | | | | | | |
| Item | FoO | Frequency | MI score | Congruency | Transparency | Collocate-node |
| abusive language | 1 | 21 | 10.25 | 1 | free combination | adjective-noun |
| beyond the pale | 1 | 98 | 11.29 | 0 | figurative idiom | other |
| bodily fluids | 1 | 425 | 17.87 | 1 | free combination | adjective-noun |
| breeding ground | 1 | 336 | 10.02 | 1 | figurative idiom | adjective-noun |
| building site | 1 | 292 | 5.98 | 1 | free combination | adjective-noun |
| cause offence | 2 | 10 | 5.42 | 0 | free combination | verb-noun |
| cell phone | 1 | 23300 | 11.55 | 0 | free combination | noun-noun |
| collateral damage | 1 | 1106 | 15.52 | 1 | free combination | adjective-noun |
| common denominator | 1 | 284 | 15.44 | 1 | free combination | adjective-noun |
| day care | 1 | 828 | 8.87 | 1 | free combination | noun-noun |
| depend on | 2 | 19375 | 7.94 | 0 | free combination | verb-preposition |
| draw from | 2 | 610 | 5.25 | 0 | figurative idiom | verb-preposition |
| drive off | 1 | 1874 | 4.86 | 0 | free combination | verb-particle |
| evolutionary advantage | 1 | 21 | 19.53 | 1 | free combination | adjective-noun |
| fight or flight response | 2 | 114 | 7.77 | 1 | free combination | noun-noun |
| find out | 3 | 117839 | 6.52 | 0 | restricted collocation | verb-preposition |
| foul language | 1 | 251 | 11.36 | 1 | free combination | adjective-noun |
| free speech | 1 | 295 | 7.13 | 0 | free combination | adjective-noun |
| get away with | 3 | 11358 | 4.31 | 1 | figurative idiom | verb-particle |
| give rise to | 3 | 354 | 7.44 | 0 | figurative idiom | verb-noun |
| grist to the mill | 1 | 3 | 16.66 | 0 | pure idiom | noun-noun |
| guinea pig | 1 | 1637 | 15.11 | 0 | figurative idiom | noun-noun |
| heck of a lot | 1 | 201 | 7 | 0 | free combination | noun-noun |
| highest echelons | 1 | 10 | 13.43 | 0 | free combination | adjective-noun |
| ice cubes | 1 | 978 | 13.27 | 1 | free combination | noun-noun |
| in the end | 1 | 12001 | 6.42 | 0 | figurative idiom | other |
| jazz up | 1 | 77 | 6.4 | 0 | pure idiom | verb-preposition |
| keep a diary | 1 | 303 | 9.3 | 1 | restricted collocation | verb-noun |
| laugh like hell | 1 | 16 | 2.25 | 0 | restricted collocation | verb-noun |
| locker room | 1 | 2103 | 10.34 | 0 | free combination | noun-noun |
| make sense | 1 | 20458 | 10.63 | 0 | restricted collocation | verb-noun |
| meet your maker | 1 | 380 | 9.44 | 0 | pure idiom | verb-noun |
| melting pot | 1 | 113 | 8.19 | 0 | figurative idiom | adjective-noun |
| mince words | 1 | 264 | 12.71 | 0 | restricted collocation | verb-noun |
| mutual pleasure | 1 | 10 | 6.33 | 1 | free combination | adjective-noun |
| pain relievers | 1 | 46 | 13.26 | 1 | free combination | noun-noun |
| pass over into | 1 | 4 | 4.54 | 1 | free combination | verb-particle |
| private parts | 1 | 315 | 9.05 | 0 | free combination | adjective-noun |
| pushing up daisies | 1 | 63 | 11.55 | 0 | pure idiom | noun-noun |
| sexual depravity | 1 | 8 | 10.81 | 1 | free combination | adjective-noun |
| sheer coincidence | 1 | 33 | 10.57 | 1 | free combination | adjective-noun |
| shift the blame | 1 | 38 | 8.27 | 0 | free combination | verb-noun |
| spark off | 1 | 34 | 5.66 | 0 | figurative idiom | verb-particle |
| spend a penny | 3 | 59 | 7.02 | 0 | pure idiom | verb-noun |
| spread the word | 1 | 1003 | 8.98 | 0 | restricted collocation | verb-noun |
| steady pace | 4 | 56 | 10.77 | 1 | free combination | adjective-noun |
| supernatural powers | 1 | 246 | 12.76 | 1 | free combination | adjective-noun |
| take into account | 1 | 773 | 6.38 | 0 | restricted collocation | verb-noun |
| take umbrage | 1 | 60 | 10.14 | 0 | free combination | verb-noun |
| tap into | 1 | 1716 | 8.83 | 0 | figurative idiom | verb-preposition |
| tell off | 1 | 162 | 2.25 | 0 | restricted collocation | verb-particle |
| turning point | 1 | 640 | 4.56 | 1 | free combination | adjective-noun |
| unleash a torrent of | 1 | 1 | 13.26 | 1 | restricted collocation | verb-noun |
| well versed in | 1 | 108 | 13.79 | 0 | free combination | other |
| white lie | 1 | 366 | 6.88 | 0 | restricted collocation | adjective-noun |
| win the right | 1 | 47 | 1.3 | 0 | restricted collocation | verb-noun |
| *Note*: FoO = Frequency of occurrence in the input. | | | | | | |

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| TABLE 2. Distractor items with frequency, MI score, congruency, semantic transparency, and collocate-node relationship | | | | | |
| Item | Frequency | MI score | Congruency | Transparency | Collocate-node |
| break the mold | 119 | 8.26 | 0 | figurative idiom | verb-noun |
| chip in | 1506 | 6.15 | 0 | figurative idiom | verb-part |
| cut back on | 424 | 3.41 | 0 | figurative idiom | verb-part |
| get round to | 170 | 1.03 | 0 | pure idiom | verb-noun |
| hit the roof | 156 | 7.01 | 0 | figurative idiom | verb-noun |
| joint effort | 56 | 8.48 | 1 | free combination | adjective-noun |
| once in a blue moon | 103 | 8.33 | 0 | restricted collocation | noun-noun |
| piece of advice | 907 | 9.23 | 0 | free combination | noun-noun |
| pull a muscle | 143 | 8.53 | 0 | free combination | verb-noun |

**Appendix 2**

Below are the two questionnaires about learners’ TV viewing habits, the content of the documentary, and the experimental treatment. The first questionnaire tested learners’ minimal comprehension of the input. Participants were asked what they had learned from the documentary in terms of content and grammar/vocabulary. They were also asked to rate if the input was interesting on a five-point Likert scale, relevant to the course, easy to understand, and of appropriate length. The second questionnaire, administered after the posttests, was designed to explore how participants had experienced the experimental treatment and how they had proceeded. It was used to check whether learners had been aware of the purpose of the study during the treatment, whether they recognized some of the target items while watching the documentary, and if there may have been a test effect.

Questionnaire 1

1 = strongly DISAGREE – 5 = strongly AGREE

1. The topic of the video was interesting. 1 2 3 4 5
2. The topic of the video is relevant to this English course. 1 2 3 4 5
3. The length of the video was appropriate/OK. 1 2 3 4 5
4. The video was easy to understand. 1 2 3 4 5
5. I mainly focused on the content of the video. 1 2 3 4 5
6. Watching a video is a good way to improve your English. 1 2 3 4 5
7. Watching a video is a good way to improve your listening skills in English.

1 2 3 4 5

1. Watching a video is a good way to improve your English vocabulary. 1 2 3 4 5
2. Watching a video is a good way to improve your grammar skills in English.

1 2 3 4 5

1. I paid attention to the words that were used in the video. 1 2 3 4 5
2. What have you learned in terms of content?
3. What have you learned in terms of language/vocabulary (new words)/grammar? Write as many items as you can remember.

Questionnaire 2

1. In the video you watched last week, there were some expressions that also occurred in the vocabulary tests two weeks ago. Did you notice this while watching the video?

Yes/no

If yes, did you pay extra attention to the expressions while watching the video?

Yes/no

Did you think you would get vocabulary tests afterwards, with the same expressions?

Yes/no

1. When you received the first vocabulary test today, did you notice that the same expressions were tested in the previous vocabulary tests, a few weeks before?

Yes/no

Did you notice that the expressions in the test also occurred in the video?

Yes/no

Did you expect a second test, like last time?

Yes/no

Did you try to memorize expressions from the first test for the second test?

Yes/no

Do you think the first test helped you get a higher score on the second test?

Yes/no

**Appendix 3**

Additional GEE analyses were conducted with different reference categories for Collocate-node relationship in the meaning recall and form recall pre- and posttests, and for Transparency in the meaning recall tests. The results of the additional analyses for form recall are shown in Tables 3-7. The results of the additional analyses for meaning recall are shown in Tables 8-12 (different reference categories for Collocate-node relationship) and 13-15 (different reference categories for Transparency).

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| TABLE 3. GEE: Form recall (Collocate-node = Adjective-noun) | | | | | | | |
| Parameter | Wald Chi-Square | df | Sig. | B | Exp(B) | 95% CI | |
| Lower | Upper |
| (Intercept) | 130.21 | 1 | < .0001 | -4.334 | .013 | .006 | .028 |
| Prior voc. knowledge | 32.17 | 1 | < .0001 | .020 | 1.021 | 1.013 | 1.028 |
| Raw frequency | 36.23 | 1 | < .0001 | .430 | 1.537 | 1.336 | 1.768 |
| Meaning known in pretest | 123.14 | 1 | < .0001 | 1.349 | 3.852 | 3.036 | 4.888 |
| Collocate-node = Other | 3.29 | 1 | .070 | -.566 | .568 | .308 | 1.047 |
| Collocate-node = Verb-noun | 4.85 | 1 | .028 | -.329 | .720 | .537 | .965 |
| Collocate-node = Noun-noun | .30 | 1 | .582 | -.098 | .907 | .640 | 1.285 |
| Collocate-node = Verb-preposition | 17.66 | 1 | < .0001 | -1.224 | .294 | .166 | .520 |
| Collocate-node = Verb-particle | .82 | 1 | .366 | -.230 | .795 | .483 | 1.307 |
| Collocate-node = Adjective-noun |  |  |  |  |  |  |  |
| *Note*: B = coefficient, Exp(B) = odds ratio, 95% CI = 95% confidence interval for Exp(B). | | | | | | | |

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| TABLE 4. GEE: Form recall (Collocate-node = Verb-noun) | | | | | | | |
| Parameter | Wald Chi-Square | df | Sig. | B | Exp(B) | 95% CI | |
| Lower | Upper |
| (Intercept) | 126.68 | 1 | < .0001 | -4.662 | .009 | .004 | .021 |
| Prior voc. knowledge | 32.17 | 1 | < .0001 | .020 | 1.021 | 1.013 | 1.028 |
| Raw frequency | 36.23 | 1 | < .0001 | .430 | 1.537 | 1.336 | 1.768 |
| Meaning known in pretest | 123.14 | 1 | < .0001 | 1.349 | 3.852 | 3.036 | 4.888 |
| Collocate-node = Adjective-noun | 4.85 | 1 | .028 | .329 | 1.389 | 1.037 | 1.861 |
| Collocate-node = Other | .49 | 1 | .485 | -.237 | .789 | .406 | 1.534 |
| Collocate-node = Noun-noun | 1.58 | 1 | .209 | .231 | 1.259 | .879 | 1.804 |
| Collocate-node = Verb-preposition | 10.04 | 1 | .002 | -.895 | .409 | .235 | .711 |
| Collocate-node = Verb-particle | .18 | 1 | .671 | .099 | 1.104 | .699 | 1.743 |
| Collocate-node = Verb-noun |  |  |  |  |  |  |  |
| *Note*: B = coefficient, Exp(B) = odds ratio, 95% CI = 95% confidence interval for Exp(B). | | | | | | | |

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| TABLE 5. GEE: Form recall (Collocate-node = Noun-noun) | | | | | | | |
| Parameter | Wald Chi-Square | df | Sig. | B | Exp(B) | 95% CI | |
| Lower | Upper |
| (Intercept) | 107.14 | 1 | < .0001 | -4.432 | .012 | .005 | .028 |
| Prior voc. knowledge | 32.17 | 1 | < .0001 | .020 | 1.021 | 1.013 | 1.028 |
| Raw frequency | 36.23 | 1 | < .0001 | .430 | 1.537 | 1.336 | 1.768 |
| Meaning known in pretest | 123.14 | 1 | < .0001 | 1.349 | 3.852 | 3.036 | 4.888 |
| Collocate-node = Adjective-noun | .30 | 1 | .582 | .098 | 1.103 | .778 | 1.564 |
| Collocate-node = Verb-noun | 1.58 | 1 | .209 | -.231 | .794 | .554 | 1.137 |
| Collocate-node = Other | 1.88 | 1 | .171 | -.468 | .626 | .321 | 1.223 |
| Collocate-node = Verb-preposition | 18.64 | 1 | < .0001 | -1.126 | .324 | .195 | .541 |
| Collocate-node = Verb-particle | .25 | 1 | .620 | -.132 | .877 | .522 | 1.474 |
| Collocate-node = Noun-noun |  |  |  |  |  |  |  |
| *Note*: B = coefficient, Exp(B) = odds ratio, 95% CI = 95% confidence interval for Exp(B). | | | | | | | |

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| TABLE 6. GEE: Form recall (Collocate-node = Verb-preposition) | | | | | | | |
| Parameter | Wald Chi-Square | df | Sig. | B | Exp(B) | 95% CI | |
| Lower | Upper |
| (Intercept) | 117.34 | 1 | < .0001 | -5.557 | .004 | .001 | .011 |
| Prior voc. knowledge | 32.17 | 1 | < .0001 | .020 | 1.021 | 1.013 | 1.028 |
| Raw frequency | 36.23 | 1 | < .0001 | .430 | 1.537 | 1.336 | 1.768 |
| Meaning known in pretest | 123.14 | 1 | < .0001 | 1.349 | 3.852 | 3.036 | 4.888 |
| Collocate-node = Adjective-noun | 17.66 | 1 | < .0001 | 1.224 | 3.400 | 1.921 | 6.015 |
| Collocate-node = Verb-noun | 10.04 | 1 | .002 | .895 | 2.448 | 1.407 | 4.257 |
| Collocate-node = Noun-noun | 18.64 | 1 | < .0001 | 1.126 | 3.082 | 1.849 | 5.137 |
| Collocate-node = Other | 2.44 | 1 | .118 | .658 | 1.931 | .845 | 4.408 |
| Collocate-node = Verb-particle | 8.34 | 1 | .004 | .994 | 2.702 | 1.376 | 5.306 |
| Collocate-node = Verb-preposition |  |  |  |  |  |  |  |
| *Note*: B = coefficient, Exp(B) = odds ratio, 95% CI = 95% confidence interval for Exp(B). | | | | | | | |

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| TABLE 7. GEE: Form recall (Collocate-node = Verb-particle) | | | | | | | |
| Parameter | Wald Chi-Square | df | Sig. | B | Exp(B) | 95% CI | |
| Lower | Upper |
| (Intercept) | 87.32 | 1 | < .0001 | -4.563 | .010 | .004 | .027 |
| Prior voc. knowledge | 32.17 | 1 | < .0001 | .020 | 1.021 | 1.013 | 1.028 |
| Raw frequency | 36.23 | 1 | < .0001 | .430 | 1.537 | 1.336 | 1.768 |
| Meaning known in pretest | 123.14 | 1 | < .0001 | 1.349 | 3.852 | 3.036 | 4.888 |
| Collocate-node = Adjective-noun | .82 | 1 | .366 | .230 | 1.258 | .765 | 2.070 |
| Collocate-node = Verb-noun | .18 | 1 | .671 | -.099 | .906 | .574 | 1.430 |
| Collocate-node = Noun-noun | .25 | 1 | .620 | .132 | 1.141 | .678 | 1.918 |
| Collocate-node = Verb-preposition | 8.34 | 1 | .004 | -.994 | .370 | .188 | .727 |
| Collocate-node = Other | .7 | 1 | .403 | -.336 | .714 | .325 | 1.571 |
| Collocate-node = Verb-particle |  |  |  |  |  |  |  |
| *Note*: B = coefficient, Exp(B) = odds ratio, 95% CI = 95% confidence interval for Exp(B). | | | | | | | |

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| TABLE 8. GEE: Meaning recall (Collocate-node = Adjective-noun) | | | | | | | |
| Parameter | Wald Chi-Square | df | Sig. | B | Exp(B) | 95% CI | |
| Lower | Upper |
| (Intercept) | 23.37 | 1 | < .0001 | -4.481 | .011 | .002 | .070 |
| Prior voc. knowledge | 12.26 | 1 | < .0001 | .030 | 1.031 | 1.013 | 1.048 |
| MI score | 11.84 | 1 | .001 | .091 | 1.095 | 1.040 | 1.154 |
| Raw frequency | 39.66 | 1 | < .0001 | .519 | 1.680 | 1.430 | 1.975 |
| Collocate-node = Other | 2.67 | 1 | .102 | -.493 | .611 | .338 | 1.103 |
| Collocate-node = Verb-noun | 19.41 | 1 | < .0001 | -.852 | .426 | .292 | .623 |
| Collocate-node = Noun-noun | 1.26 | 1 | .262 | .288 | 1.333 | .807 | 2.203 |
| Collocate-node = Verb-preposition | 8.66 | 1 | .003 | -.960 | .383 | .202 | .726 |
| Collocate-node = Verb-particle | 15.5 | 1 | < .0001 | -1.223 | .294 | .160 | .541 |
| Collocate-node = Adjective-noun |  |  |  |  |  |  |  |
| Transparency = Free combination | 4.96 | 1 | .026 | .529 | 1.697 | 1.066 | 2.701 |
| Transparency = Restricted collocation | .08 | 1 | .796 | .078 | 1.081 | .598 | 1.957 |
| Transparency = Figurative idiom | 15.37 | 1 | < .0001 | -1.001 | .368 | .223 | .606 |
| Transparency = Pure idiom |  |  |  |  |  |  |  |
| *Note*: B = coefficient, Exp(B) = odds ratio, 95% CI = 95% confidence interval for Exp(B). | | | | | | | |

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| TABLE 9. GEE: Meaning recall (Collocate-node = Verb-noun) | | | | | | | |
| Parameter | Wald Chi-Square | df | Sig. | B | Exp(B) | 95% CI | |
| Lower | Upper |
| (Intercept) | 33.04 | 1 | < .0001 | -5.334 | .005 | .001 | .030 |
| Prior voc. knowledge | 12.26 | 1 | < .0001 | .030 | 1.031 | 1.013 | 1.048 |
| MI score | 11.84 | 1 | .001 | .091 | 1.095 | 1.040 | 1.154 |
| Raw frequency | 39.66 | 1 | < .0001 | .519 | 1.680 | 1.430 | 1.975 |
| Collocate-node = Adjective-noun | 19.41 | 1 | < .0001 | .852 | 2.345 | 1.605 | 3.426 |
| Collocate-node = Other | 1.43 | 1 | .232 | .359 | 1.432 | .794 | 2.583 |
| Collocate-node = Noun-noun | 24.05 | 1 | < .0001 | 1.140 | 3.127 | 1.983 | 4.931 |
| Collocate-node = Verb-preposition | 0.15 | 1 | .696 | -.108 | .898 | .524 | 1.539 |
| Collocate-node = Verb-particle | 1.46 | 1 | .227 | -.371 | .690 | .378 | 1.260 |
| Collocate-node = Verb-noun |  |  |  |  |  |  |  |
| Transparency = Free combination | 4.96 | 1 | .026 | .529 | 1.697 | 1.066 | 2.701 |
| Transparency = Restricted collocation | .07 | 1 | .796 | .078 | 1.081 | .598 | 1.957 |
| Transparency = Figurative idiom | 15.37 | 1 | < .0001 | -1.001 | .368 | .223 | .606 |
| Transparency = Pure idiom |  |  |  |  |  |  |  |
| *Note*: B = coefficient, Exp(B) = odds ratio, 95% CI = 95% confidence interval for Exp(B). | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| TABLE 10. GEE: Meaning recall (Collocate-node = Noun-noun) | | | | | | | |
| Parameter | Wald Chi-Square | df | Sig. | B | Exp(B) | 95% CI | |
| Lower | Upper |
| (Intercept) | 21.02 | 1 | < .0001 | -4.194 | .015 | .003 | .091 |
| Prior voc. knowledge | 12.26 | 1 | < .0001 | .030 | 1.031 | 1.013 | 1.048 |
| MI score | 11.84 | 1 | .001 | .091 | 1.095 | 1.040 | 1.154 |
| Raw frequency | 39.66 | 1 | < .0001 | .519 | 1.680 | 1.430 | 1.975 |
| Collocate-node = Adjective-noun | 1.26 | 1 | .262 | -.288 | .750 | .454 | 1.239 |
| Collocate-node = Verb-noun | 24.05 | 1 | < .0001 | -1.140 | .320 | .203 | .504 |
| Collocate-node = Other | 4.7 | 1 | .030 | -.781 | .458 | .226 | .928 |
| Collocate-node = Verb-preposition | 14.07 | 1 | < .0001 | -1.248 | .287 | .150 | .551 |
| Collocate-node = Verb-particle | 15.62 | 1 | < .0001 | -1.511 | .221 | .104 | .467 |
| Collocate-node = Noun-noun |  |  |  |  |  |  |  |
| Transparency = Free combination | 4.96 | 1 | .026 | .529 | 1.697 | 1.066 | 2.701 |
| Transparency = Restricted collocation | .07 | 1 | .796 | .078 | 1.081 | .598 | 1.957 |
| Transparency = Figurative idiom | 15.37 | 1 | < .0001 | -1.001 | .368 | .223 | .606 |
| Transparency = Pure idiom |  |  |  |  |  |  |  |
| *Note*: B = coefficient, Exp(B) = odds ratio, 95% CI = 95% confidence interval for Exp(B). | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| TABLE 11. GEE: Meaning recall (Collocate-node = Verb-preposition) | | | | | | | |
| Parameter | Wald Chi-Square | df | Sig. | B | Exp(B) | 95% CI | |
| Lower | Upper |
| (Intercept) | 31.34 | 1 | < .0001 | -5,441 | .004 | .001 | .029 |
| Prior voc. knowledge | 12.26 | 1 | < .0001 | .030 | 1.031 | 1.013 | 1.048 |
| MI score | 11.84 | 1 | .001 | .091 | 1.095 | 1.040 | 1.154 |
| Raw frequency | 39.66 | 1 | < .0001 | .519 | 1.680 | 1.430 | 1.975 |
| Collocate-node = Adjective-noun | 8.66 | 1 | .003 | .960 | 2.611 | 1.378 | 4.949 |
| Collocate-node = Verb-noun | .15 | 1 | .696 | .108 | 1.114 | .650 | 1.909 |
| Collocate-node = Noun-noun | 14.07 | 1 | < .0001 | 1.248 | 3.482 | 1.814 | 6.681 |
| Collocate-node = Other | 1.65 | 1 | .199 | .467 | 1.595 | .783 | 3.250 |
| Collocate-node = Verb-particle | .38 | 1 | .541 | -.263 | .769 | .331 | 1.785 |
| Collocate-node = Verb-preposition |  |  |  |  |  |  |  |
| Transparency = Free combination | 4.96 | 1 | .026 | .529 | 1.697 | 1.066 | 2.701 |
| Transparency = Restricted collocation | .07 | 1 | .796 | .078 | 1.081 | .598 | 1.957 |
| Transparency = Figurative idiom | 15.37 | 1 | < .0001 | -1.001 | .368 | .223 | .606 |
| Transparency = Pure idiom |  |  |  |  |  |  |  |
| *Note*: B = coefficient, Exp(B) = odds ratio, 95% CI = 95% confidence interval for Exp(B). | | | | | | | |

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| TABLE 12. GEE: Meaning recall (Collocate-node = Verb-particle) | | | | | | | |
| Parameter | Wald Chi-Square | df | Sig. | B | Exp(B) | 95% CI | |
| Lower | Upper |
| (Intercept) | 31.37 | 1 | < .0001 | -5.704 | .003 | .000 | .025 |
| Prior voc. knowledge | 12.26 | 1 | < .0001 | .030 | 1.031 | 1.013 | 1.048 |
| MI score | 11.84 | 1 | .001 | .091 | 1.095 | 1.040 | 1.154 |
| Raw frequency | 39.66 | 1 | < .0001 | .519 | 1.680 | 1.430 | 1.975 |
| Collocate-node = Adjective-noun | 15.5 | 1 | < .0001 | 1.223 | 3.398 | 1.848 | 6.247 |
| Collocate-node = Verb-noun | 1.46 | 1 | .227 | .371 | 1.449 | .794 | 2.645 |
| Collocate-node = Noun-noun | 15.62 | 1 | < .0001 | 1.511 | 4.530 | 2.141 | 9.583 |
| Collocate-node = Verb-preposition | .38 | 1 | .541 | .263 | 1.301 | .560 | 3.022 |
| Collocate-node = Other | 2.92 | 1 | .087 | .730 | 2.075 | .899 | 4.793 |
| Collocate-node = Verb-particle |  |  |  |  |  |  |  |
| Transparency = Free combination | 4.96 | 1 | .026 | .529 | 1.697 | 1.066 | 2.701 |
| Transparency = Restricted collocation | .07 | 1 | .796 | .078 | 1.081 | .598 | 1.957 |
| Transparency = Figurative idiom | 15.37 | 1 | < .0001 | -1.001 | .368 | .223 | .606 |
| Transparency = Pure idiom |  |  |  |  |  |  |  |
| *Note*: B = coefficient, Exp(B) = odds ratio, 95% CI = 95% confidence interval for Exp(B). | | | | | | | |

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| TABLE 13. GEE: Meaning recall (Transparency = Free combination) | | | | | | | |
| Parameter | Wald Chi-Square | df | Sig. | B | Exp(B) | 95% CI | |
| Lower | Upper |
| (Intercept) | 24.76 | 1 | < .0001 | -4.446 | .012 | .002 | .068 |
| Prior voc. knowledge | 12.26 | 1 | < .0001 | .030 | 1.031 | 1.013 | 1.048 |
| MI score | 11.84 | 1 | .001 | .091 | 1.095 | 1.040 | 1.154 |
| Raw frequency | 39.66 | 1 | < .0001 | .519 | 1.680 | 1.430 | 1.975 |
| Collocate-node = Adjective-noun | 2.67 | 1 | .102 | .493 | 1.637 | .907 | 2.957 |
| Collocate-node = Verb-noun | 1.43 | 1 | .232 | -.359 | .698 | .387 | 1.259 |
| Collocate-node = Noun-noun | 4.7 | 1 | .030 | .781 | 2.183 | 1.078 | 4.422 |
| Collocate-node = Verb-preposition | 1.65 | 1 | .199 | -.467 | .627 | .308 | 1.278 |
| Collocate-node = Verb-particle | 2.92 | 1 | .087 | -.730 | .482 | .209 | 1.113 |
| Collocate-node = Other |  |  |  |  |  |  |  |
| Transparency = Pure idiom | 4.96 | 1 | .026 | .529 | 1.697 | 1.066 | 2.701 |
| Transparency = Restricted collocation | .07 | 1 | .796 | .078 | 1.081 | .598 | 1.957 |
| Transparency = Figurative idiom | 15.37 | 1 | < .0001 | -1.001 | .368 | .223 | .606 |
| Transparency = Free combination |  |  |  |  |  |  |  |
| *Note*: B = coefficient, Exp(B) = odds ratio, 95% CI = 95% confidence interval for Exp(B). | | | | | | | |

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| TABLE 14. GEE: Meaning recall (Transparency = Restricted collocation) | | | | | | | |
| Parameter | Wald Chi-Square | df | Sig. | B | Exp(B) | 95% CI | |
| Lower | Upper |
| (Intercept) | 28.46 | 1 | < .0001 | -4.896 | 0.007 | 0.001 | 0.045 |
| Prior voc. knowledge | 12.26 | 1 | < .0001 | .030 | 1.031 | 1.013 | 1.048 |
| MI score | 11.84 | 1 | .001 | .091 | 1.095 | 1.040 | 1.154 |
| Raw frequency | 39.66 | 1 | < .0001 | .519 | 1.680 | 1.430 | 1.975 |
| Collocate-node = Adjective-noun | 2.67 | 1 | .102 | .493 | 1.637 | .907 | 2.957 |
| Collocate-node = Verb-noun | 1.43 | 1 | .232 | -.359 | .698 | .387 | 1.259 |
| Collocate-node = Noun-noun | 4.7 | 1 | .030 | .781 | 2.183 | 1.078 | 4.422 |
| Collocate-node = Verb-preposition | 1.65 | 1 | .199 | -.467 | .627 | .308 | 1.278 |
| Collocate-node = Verb-particle | 2.92 | 1 | .087 | -.730 | .482 | .209 | 1.113 |
| Collocate-node = Other |  |  |  |  |  |  |  |
| Transparency = Free combination | 3.80 | 1 | .051 | .450 | 1.569 | .998 | 2.467 |
| Transparency = Pure idiom | .07 | 1 | .796 | -.078 | .925 | .511 | 1.674 |
| Transparency = Figurative idiom | 16.54 | 1 | < .0001 | -1.079 | .340 | .202 | .572 |
| Transparency = Restricted collocation |  |  |  |  |  |  |  |
| *Note*: B = coefficient, Exp(B) = odds ratio, 95% CI = 95% confidence interval for Exp(B). | | | | | | | |

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| TABLE 15. GEE: Meaning recall (Transparency = Figurative idiom) | | | | | | | |
| Parameter | Wald Chi-Square | df | Sig. | B | Exp(B) | 95% CI | |
| Lower | Upper |
| (Intercept) | 40.93 | 1 | < .0001 | -5.975 | .003 | .000 | .016 |
| Prior voc. knowledge | 12.26 | 1 | < .0001 | .030 | 1.031 | 1.013 | 1.048 |
| MI score | 11.84 | 1 | .001 | .091 | 1.095 | 1.040 | 1.154 |
| Raw frequency | 39.66 | 1 | < .0001 | .519 | 1.680 | 1.430 | 1.975 |
| Collocate-node = Adjective-noun | 2.67 | 1 | .102 | .493 | 1.637 | .907 | 2.957 |
| Collocate-node = Verb-noun | 1.43 | 1 | .232 | -.359 | .698 | .387 | 1.259 |
| Collocate-node = Noun-noun | 4.7 | 1 | .030 | .781 | 2.183 | 1.078 | 4.422 |
| Collocate-node = Verb-preposition | 1.65 | 1 | .199 | -.467 | .627 | .308 | 1.278 |
| Collocate-node = Verb-particle | 2.92 | 1 | .087 | -.730 | .482 | .209 | 1.113 |
| Collocate-node = Other |  |  |  |  |  |  |  |
| Transparency = Free combination | 62.51 | 1 | < .0001 | 1.530 | 4.616 | 3.159 | 6.744 |
| Transparency = Restricted collocation | 16.54 | 1 | < .0001 | 1.079 | 2.942 | 1.749 | 4.949 |
| Transparency = Pure idiom | 15.37 | 1 | < .0001 | 1.001 | 2.721 | 1.650 | 4.487 |
| Transparency = Figurative idiom |  |  |  |  |  |  |  |
| *Note*: B = coefficient, Exp(B) = odds ratio, 95% CI = 95% confidence interval for Exp(B). | | | | | | | |