

A Detailed Experimental Results by Language

| | | SET1 | | | | | | SET2 | | | | | | SET3 | | | | | | | |
|----|------------|-------|-------|--------------|--------------|--------------|--------------|-------|-------|-------|--------------|--------------|--------------|--------------|-------|-------|-------|--------------|--------------|--------------|--------------|
| | | COPY | PT | SIG17 | SIG17+SHIP | MED+PT | MED+PT+SHIP | COPY | MED | PT | SIG17 | SIG17+SHIP | MED+PT | MED+PT+SHIP | COPY | MED | PT | SIG17 | SIG17+SHIP | MED+PT | MED+PT+SHIP |
| 1 | albanian | .0385 | .0305 | .1224 | .2742 | .6793 | .6568 | .0385 | .0055 | .0305 | .8362 | .2335 | .8786 | .8891 | .0385 | .1808 | .0305 | .8951 | .4276 | .9750 | .9700 |
| 2 | arabic | .0334 | .0445 | .4262 | .4744 | .8191 | .8006 | .0334 | .0378 | .0445 | .5389 | .7265 | .8962 | .9096 | .0334 | .3988 | .0445 | .5567 | .7509 | .9400 | .9526 |
| 3 | armenian | .0233 | .0841 | .7912 | .9002 | .9235 | .9174 | .0233 | .0319 | .0841 | .8089 | .9706 | .9762 | .9787 | .0233 | .5297 | .0841 | .8611 | .8049 | .9919 | .9899 |
| 4 | basque | .0004 | .6743 | .0050 | .1034 | .9298 | .9427 | .0004 | .0108 | .6743 | .0457 | .0968 | .9132 | .9190 | - | - | - | - | - | - | - |
| 5 | bengali | .0357 | .0127 | .7720 | .9019 | .6675 | .6599 | .0357 | .0102 | .0127 | .8586 | .9172 | .8344 | .8089 | .0357 | .0701 | .0127 | .8752 | .9248 | .8675 | .8713 |
| 6 | bookmal | .1321 | .0377 | .4025 | .4151 | .1069 | .1069 | .1321 | .0377 | .0377 | .5094 | .5094 | .3585 | .3585 | .1321 | .4277 | .0377 | .6792 | .6855 | .5094 | .5157 |
| 7 | bulgarian | .0854 | .0151 | .3920 | .4958 | .4807 | .4774 | .0854 | .0318 | .0151 | .4908 | .5444 | .5243 | .5427 | .0854 | .2663 | .0151 | .7471 | .8425 | .8208 | .8191 |
| 8 | catalan | .0173 | .0210 | .9407 | .5664 | .4908 | .4982 | .0173 | .0415 | .0210 | .9533 | .9706 | .9659 | .9641 | .0173 | .5626 | .0210 | .9603 | .9795 | .9897 | .9874 |
| 9 | czech | .1255 | .0498 | .2656 | .3503 | .2873 | .3122 | .1255 | .0166 | .0498 | .5643 | .5873 | .5332 | .5373 | .1255 | .2739 | .0498 | .8579 | .8794 | .8444 | .8423 |
| 10 | danish | .1738 | .0230 | .4230 | .4230 | .1705 | .1738 | .1738 | .0492 | .0230 | .7016 | .7016 | .4918 | .5016 | .1738 | .4984 | .0230 | .7574 | .7541 | .3541 | .4066 |
| 11 | dutch | .1661 | .0018 | .4963 | .5664 | .4908 | .4982 | .1661 | .0424 | .0018 | .6771 | .8653 | .7841 | .7915 | .1661 | .4317 | .0018 | .7804 | .8856 | .8727 | .8727 |
| 12 | english | .2080 | .0240 | .7640 | .7640 | .4000 | .4000 | .2080 | .0600 | .0240 | .8400 | .8400 | .7360 | .7360 | .2080 | .6680 | .0240 | .9120 | .9120 | .8440 | .8440 |
| 13 | estonian | .0373 | .0210 | .3888 | .6857 | .7881 | .7992 | .0373 | .0081 | .0210 | .6257 | .7119 | .9173 | .9173 | .0373 | .2893 | .0210 | .7730 | .7189 | .9761 | .9796 |
| 14 | faroesse | .1570 | .0239 | .4978 | .5755 | .3991 | .3946 | .1570 | .0149 | .0239 | .5919 | .6831 | .6069 | .6024 | .1570 | .3602 | .0239 | .7010 | .7549 | .7175 | .7160 |
| 15 | finnish | .0650 | .0257 | .6082 | .7630 | .6330 | .6236 | .0650 | .0274 | .0257 | .6279 | .8896 | .8777 | .8760 | .0650 | .3311 | .0257 | .6929 | .9264 | .9615 | .9504 |
| 16 | french | .0213 | .0142 | .8709 | .9040 | .8918 | .8943 | .0213 | .0930 | .0142 | .8516 | .9233 | .9487 | .9517 | .0213 | .6880 | .0142 | .9263 | .9548 | .9964 | .9980 |
| 17 | gaelic | .3684 | .0202 | .4413 | .5061 | .4170 | .3927 | .3684 | .0000 | .0202 | .4130 | .4858 | .4413 | .4575 | - | - | - | - | - | - | - |
| 18 | georgian | .0534 | .0036 | .7886 | .8682 | .7684 | .7613 | .0534 | .1235 | .0036 | .8242 | .8967 | .8753 | .8646 | .0534 | .6211 | .0036 | .9097 | .9549 | .9335 | .9477 |
| 19 | german | .2959 | .0174 | .6983 | .7466 | .6460 | .6267 | .2959 | .0000 | .0174 | .7041 | .8375 | .7485 | .7563 | .2959 | .4391 | .0174 | .7640 | .8549 | .8743 | .8743 |
| 20 | haida | .0087 | .0981 | .4715 | .9452 | .9279 | .9611 | .0087 | .0000 | .0981 | .6453 | .9481 | .9394 | .9762 | - | - | - | - | - | - | - |
| 21 | hebrew | .0507 | .0178 | .3238 | .6148 | .6548 | .6459 | .0507 | .2109 | .0178 | .4270 | .6530 | .8639 | .8585 | .0507 | .5329 | .0178 | .5427 | .6984 | .9137 | .9377 |
| 22 | hindi | .0038 | .6005 | .6449 | .7082 | .9405 | .9264 | .0038 | .0000 | .6005 | .7031 | .8565 | .9504 | .9496 | .0038 | .3621 | .6005 | .9539 | .4922 | .9979 | 1.000 |
| 23 | hungarian | .0310 | .0038 | .1791 | .5489 | .5435 | .5488 | .0310 | .0060 | .0038 | .4452 | .7621 | .7498 | .7415 | .0310 | .3447 | .0038 | .5412 | .8237 | .9108 | .9146 |
| 24 | icelandic | .1640 | .0148 | .4579 | .5657 | .4106 | .4136 | .1640 | .0295 | .0148 | .5451 | .6721 | .4993 | .5288 | .1640 | .2393 | .0148 | .6691 | .7474 | .7696 | .7430 |
| 25 | irish | .1971 | .0128 | .3230 | .4343 | .3248 | .3285 | .1971 | .0109 | .0128 | .4033 | .4872 | .5675 | .5766 | .1971 | .2518 | .0128 | .4799 | .5712 | .6788 | .6588 |
| 26 | italian | .0186 | .0100 | .6643 | .7200 | .6962 | .6976 | .0186 | .0190 | .0100 | .7186 | .7767 | .9052 | .9233 | .0186 | .3171 | .0100 | .7305 | .7848 | .9733 | .9719 |
| 27 | khaling | .0209 | .5773 | .4230 | .4422 | .9686 | .9716 | .0007 | .2258 | .5773 | .5820 | .6208 | .9918 | .9895 | .0007 | .6979 | .5773 | .7908 | .6583 | .9960 | .9983 |
| 28 | kurmanji | .0817 | .0174 | .7843 | .8017 | .4591 | .4539 | .0817 | .0765 | .0174 | .8835 | .8887 | .7965 | .8330 | .0817 | .7165 | .0174 | .9287 | .9165 | .9287 | .9183 |
| 29 | latin | .0600 | .0146 | .2416 | .5198 | .3016 | .2899 | .0600 | .0000 | .0146 | .3909 | .8507 | .4905 | .5168 | .0600 | .2050 | .0146 | .4671 | .8814 | .6852 | .7379 |
| 30 | latvian | .0735 | .0115 | .6888 | .7579 | .4971 | .5115 | .0735 | .0101 | .0115 | .7983 | .8919 | .7752 | .7680 | .0735 | .5086 | .0115 | .8646 | .9669 | .9179 | .9150 |
| 31 | lithuanian | .0169 | .0125 | .3845 | .4951 | .4790 | .4835 | .0169 | .0134 | .0125 | .6619 | .8287 | .7395 | .7431 | .0169 | .2810 | .0125 | .6048 | .8582 | .8260 | .8359 |
| 32 | maced. | .0959 | .0072 | .4249 | .6023 | .4149 | .4077 | .0959 | .0615 | .0072 | .8655 | .8898 | .7611 | .7954 | .0959 | .5722 | .0072 | .8970 | .9714 | .9614 | .9599 |
| 33 | navajo | .0589 | .0014 | .2658 | .3563 | .0466 | .0370 | .0589 | .0616 | .0014 | .3315 | .4801 | .0329 | .0315 | .0589 | .2849 | .0014 | .3795 | .5695 | .0301 | .0137 |
| 34 | nynorsk | .1043 | .0245 | .4233 | .4233 | .1043 | .1043 | .1043 | .0123 | .0245 | .6074 | .6074 | .3067 | .3129 | .1043 | .4785 | .0245 | .6442 | .6626 | .4172 | .4294 |
| 35 | persian | .0218 | .2400 | .7342 | .1633 | .9880 | .9844 | .0218 | .0509 | .2400 | .7829 | .1815 | .9898 | .9960 | .0218 | .6073 | .2400 | .7644 | .1971 | .9993 | .9989 |
| 36 | polish | .0986 | .0218 | .5672 | .6453 | .5928 | .5826 | .0986 | .0205 | .0218 | .8028 | .8271 | .7631 | .7452 | .0986 | .3995 | .0218 | .9001 | .8924 | .8515 | .8553 |
| 37 | portug. | .0697 | .0432 | .9171 | .9694 | .9135 | .9190 | .0697 | .1058 | .0432 | .9529 | .9858 | .9784 | .9742 | .0697 | .6829 | .0432 | .9616 | .9861 | .9839 | .9823 |
| 38 | quechua | .0083 | .5093 | .9133 | .9998 | .9835 | .9856 | .0083 | .2750 | .5093 | .9134 | .9999 | .9887 | .9926 | .0083 | .7852 | .5093 | .8913 | .9994 | .9965 | .9994 |
| 39 | romanian | .0754 | .0133 | .1420 | .2500 | .1317 | .1213 | .0754 | .0074 | .0133 | .6154 | .7663 | .5814 | .6124 | .0754 | .2914 | .0133 | .7988 | .7825 | .7500 | .7544 |
| 40 | russian | .1166 | .0092 | .4018 | .4617 | .3221 | .3528 | .1166 | .0598 | .0092 | .8298 | .8574 | .7715 | .7761 | .1166 | .6610 | .0092 | .8589 | .8712 | .8635 | .8650 |
| 41 | sami | .0436 | .0048 | .1562 | .3986 | .2890 | .3046 | .0436 | .0155 | .0048 | .3172 | .8351 | .7856 | .7818 | .0436 | .2250 | .0048 | .4568 | .9108 | .9108 | .9176 |
| 42 | SCB | .0870 | .2802 | .3007 | .3116 | .5266 | .5133 | .0870 | .0000 | .2802 | .3684 | .3744 | .6401 | .6196 | .0870 | .0918 | .2802 | .8575 | .7536 | .8829 | .8841 |
| 43 | slovak | .1301 | .0053 | .4439 | .5365 | .3226 | .3012 | .1301 | .0160 | .0053 | .5936 | .6667 | .4011 | .3993 | .1301 | .3119 | .0053 | .6934 | .7184 | .6310 | .6275 |
| 44 | slovene | .1094 | .0151 | .5774 | .7928 | .5925 | .5867 | .1094 | .0012 | .0151 | .6787 | .8510 | .8254 | .8661 | .1094 | .4505 | .0151 | .7648 | .9302 | .9430 | .9336 |
| 45 | sorani | .0110 | .1285 | .5478 | .5435 | .6162 | .6272 | .0110 | .0042 | .1285 | .6839 | .5773 | .8216 | .8225 | .0110 | .2984 | .1285 | .7210 | .6044 | .8512 | .8529 |
| 46 | sorbian | .0799 | .0237 | .3758 | .5643 | .5793 | .6080 | .0799 | .1024 | .0237 | .6592 | .8402 | .7328 | .7553 | .0799 | .5031 | .0237 | .8227 | .8901 | .8664 | .8739 |
| 47 | spanish | .0144 | .0207 | .8067 | .8835 | .9186 | .9088 | .0144 | .0330 | .0207 | .9218 | .8884 | .9768 | .9709 | .0144 | .5884 | .0207 | .9358 | .8891 | .9853 | .9874 |
| 48 | swedish | .1824 | .0441 | .4353 | .5118 | .2735 | .2735 | .1824 | .0441 | .0441 | .5735 | .7088 | .5176 | .5265 | .1824 | .4206 | .0441 | .7824 | .8471 | .7235 | .7353 |
| 49 | turkish | .0168 | .0894 | .2050 | .6984 | .8748 | .8643 | .0168 | .0358 | .0894 | .7204 | .9258 | .9754 | .9740 | .0168 | .5388 | .0894 | .8673 | .9402 | .9934 | .9941 |
| 50 | ukrainian | .0873 | .0159 | .4222 | .4921 | .3460 | .3206 | .0873 | .0413 | .0159 | .6714 | .6619 | .5857 | .5984 | .0873 | .3984 | .0159 | .7397 | .7619 | .7413 | .7508 |
| 51 | urdu | .0264 | .5434 | .8059 | .8059 | .8754 | .8720 | .0264 | .0014 | .5434 | .8102 | .8102 | .9438 | .9485 | .0264 | .2007 | .5434 | .9533 | .7040 | .9887 | .9901 |
| 52 | welsh | .0277 | .0147 | .5167 | .4319 | .9104 | .9128 | .0277 | .0513 | .0147 | .8280 | .8843 | .9707 | .9756 | .0277 | .3504 | .0147 | .8525 | .9446 | .9886 | .9919 |
| 53 | average | .0810 | .0883 | .5012 | .5971 | .5808 | .5793 | .0810 | .0432 | .0883 | .6576 | .7355 | .7486 | .7547 | .0782 | .4211 | .0775 | .7707 | .8008 | .8454 | .8483 |

Table 4: Accuracy on PC for SIG17+SHIP (the shared task baseline SIG17 with SHIP), MED+PT (MED with paradigm transduction), and MED+PT+SHIP (MED with paradigm transduction and SHIP). We omit the column “MED” for SET1: all results were < .001 except for .0123 for Navajo. bookmal = Norwegian Bokmål, gaelic = Scottish Gaelic, maced. = Macedonian, nynorsk = Norwegian Nynorsk, portug. = Portuguese, sami = Northern Sami, SCB = Serbo-Croatian, sorbian = Lower Sorbian. Since Basque, Scottish Gaelic, and Haida are low-resource languages, no SET3 data is available.