| source / bin | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PDF eigenvector 27 | +0.1 | 0.0 | $+0.2$ | +0.1 | -0.1 | -0.1 | $+0.1$ | -0.3 | +0.1 | $+0.1$ | $+0.1$ | -0.3 | $+0.2$ | 0.0 | $+0.1$ | $+0.2$ | -0.1 | -0.1 | 0.0 | $-0.2$ | $+0.2$ | $+0.1$ | 0.0 | -0.1 | +0.2 | $+0.1$ | $+0.1$ | 0.0 | -0.2 | -0.1 | -0.1 | $-0.2$ | +0.2 | +0.2 | 0.0 | -0. |
|  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | +0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| PDF eigenvector 28 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | +0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | 0.0 | 0.0 | $+0.1$ | +0.1 | +0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
|  | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | +0.1 | 0.0 | 0.0 | 0.0 | +0.1 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | $+0.1$ | 0.0 | 0.0 | 0.0 | 0.0 | +0.1 | $+0.1$ | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | $+0.1$ | 0.0 | 0.0 | 0.0 | 0.0 |
| ${ }^{\alpha}{ }_{S}$ | +0.1 | 0.0 | +0.1 | 0.0 | 0 | 0.0 | 0.0 | -0.2 | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | 1 | $+0.1$ | 0.0 | 0.0 | 0.0 | -0.1 | +0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | . 0 | -0.1 | -0.2 | 0.1 | 0.1 | 0.0 | 0.0 |
|  | -0.1 | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | +0.2 | -0.1 | 0.0 | 0.0 | +0.2 | -0.1 | 0.0 | -0.1 | -0.1 | 0.0 | 0.0 | 0.0 | +0.2 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | +0.1 | $+0.2$ | -0.1 | -0.1 | -0.1 | 0.0 |
| $m_{\mathrm{t}}^{\mathrm{MC}}$ | +1.6 | -0.1 | +0.5 | -0.8 | -0.6 | +0.1 | -0.2 | -0.3 | $+0.2$ | $+0.6$ | $+0.1$ | +0.1 | +1.2 | $+0.4$ | -1.9 | -1.5 | -1.2 | -0.5 | 0.0 | $+0.2$ | $+0.7$ | -0.5 | 0.0 | +0.5 | +1.2 | -0.6 | $+0.5$ | 0.0 | $+0.1$ | +1.3 | $+0.7$ | -0.3 | $+0.3$ | +0.4 | -0.3 | $+0.4$ |
|  | +0.5 | -1.6 | -0.9 | +0.9 | +0.5 | +0.9 | $+0.7$ | -0.2 | -0.5 | +0.1 | -0.6 | -0.3 | $-0.5$ | +1.0 | -0.8 | -0.9 | -0.1 | $+0.2$ | +0.3 | +0.9 | $+0.3$ | -1.1 | -0.7 | +0.6 | +0.1 | +1.1 | -1.4 | +1.2 | $+0.2$ | -0.4 | +1.0 | $+0.5$ | +0.1 | $-0.4$ | +0.7 | -0.4 |
| $\mu_{r, f}$ | +0.7 | +0.2 | +1.3 | +0.6 | -0.1 | -0.3 | 0.3 | -1.2 | +0.4 | -0.1 | -0.2 | -1.8 | +0.8 | -0.1 | $+0.7$ | $+0.8$ | -0.6 | -0.5 | -0.1 | -0.8 | $+0.5$ | $+0.2$ | 0.0 | -0.9 | +1.7 | +0.9 | +1.1 | +0.1 | -1.2 | -1.2 | -1.3 | $-0.7$ | +1.9 | $+2.0$ | +1.6 | +0.7 |
|  | -0.9 | -0.3 | -1.5 | -0.8 | +0.1 | +0.2 | -0.4 | +1.2 | -0.3 | +0.1 | $+0.5$ | +2.7 | -1.0 | +0.1 | -0.8 | -0.7 | +0.7 | +0.6 | +0.2 | +0.9 | -0.5 | -0.2 | $+0.2$ | +1.4 | -2.0 | -0.6 | -1.3 | -0.2 | +1.3 | +1.1 | +1.0 | $+0.2$ | -2.4 | -2.5 | -2.2 | -1.2 |
| $h_{\text {damp }}$ | +1.4 | +0.8 | -1.6 | -1.0 | -0.8 | +0.1 | -0.4 | -0.6 | -0.1 | +1.4 | -0.6 | +1.2 | +0.5 | +4.4 | $+0.3$ | -2.3 | -3.2 | -0.9 | +1.3 | $+0.3$ | +1.1 | -2.1 | -0.6 | +3.6 | +12.0 | +2.0 | +3.0 | $+0.7$ | -3.1 | -1.8 | $+0.3$ | $-2.7$ | +1.2 | -1.5 | -2.2 | +2.1 |
|  | +2.4 | -1.7 | $-2.7$ | -1.0 | -0.4 | +1.5 | +1.5 | +0.6 | -1.3 | $+0.2$ | -1.3 | -1.4 | -2.9 | -1.8 | -4.7 | -3.9 | -0.6 | -0.5 | +2.0 | +0.4 | +2.0 | $-2.1$ | +1.4 | +2.4 | -0.2 | +1.1 | +2.9 | $+0.7$ | -0.3 | +0.9 | +4.8 | +1.2 | +3.0 | 0.0 | +1.1 | +4.8 |
| PS ISR | -0.2 | -1. | -1.7 | -0.1 | -0.5 | 0.0 | $+0.4$ | -0.2 | -0.7 | +0.3 | -0.3 | -1.7 | $+6.2$ | +0.5 | -1.2 | -1.1 | +0.1 | -0.6 | $+0.8$ | +3.3 | +3.7 | -0.3 | $+4.2$ | $+3.2$ | -0.1 | -5.5 | +8.7 | -9.2 | $-2.3$ | $+0.2$ | $+0.1$ | +1.1 | $-1.6$ | -2.5 | -1.6 | -2.6 |
|  | +0.8 | -1.2 | -1.6 | -0.9 | +0.3 | +1.4 | +1.5 | +0.3 | -0.1 | +0.1 | -0.2 | +0.4 | +2.0 | -2.4 | -4.1 | -3.3 | -0.5 | -1.0 | -0.2 | $+0.8$ | -1.4 | $-3.4$ | -0.9 | $-0.2$ | -1.0 | +5.5 | +4.6 | $-2.4$ | +1.7 | -1.5 | +1.0 | +3.5 | +3.1 | +1.3 | +5.3 | +2.3 |
| PS FSR | -1.8 | -3.9 | -3.3 | -1.7 | -0.3 | +0.6 | +1.3 | $+0.1$ | -1.3 | -0.6 | -1.0 | -0.3 | +1.9 | +2.6 | -1.0 | -2.4 | +0.4 | $+0.7$ | +1.8 | +1.3 | +1.1 | -1.5 | +0.8 | $+2.0$ | +5.0 | $-1.0$ | +8.5 | +5.1 | +1.0 | +2.5 | +4.5 | $+0.5$ | $+0.3$ | +1.5 | -0.2 | -0.6 |
|  | +4.1 | +1.3 | +1.5 | +0.4 | -0.5 | -0.1 | $+0.2$ | -0.5 | +0.6 | +0.8 | $+0.2$ | -0.3 | +0.9 | +1.1 | $-2.1$ | -2.4 | -1.8 | $-2.3$ | -0.3 | +0.2 | +0.5 | -1.0 | 0.0 | -0.7 | -3.9 | +2.1 | +0.5 | -1.6 | +0.4 | -1.8 | +0.9 | $-2.5$ | 0.0 | -0.9 | +0.3 | +2.6 |
| UE tune | +3. | 1.2 | -3.5 | 0.0 | -0.8 | 1.1 | 1.0 | $-0.2$ | 0.0 | -0.2 | -0.8 | -1.9 | +3.9 | +2.8 | -2.3 | -3.9 | $-3.0$ | $-1.4$ | $+1.5$ | +2.2 | +1.3 | $-1.3$ | +0.8 | +2.6 | +4.5 | +3.9 | +11.7 | -1.8 | $-0.7$ | -3.7 | +2.1 | +1.2 | 0.0 | -0.3 | 0.0 | -0.9 |
|  | +2.7 | 0.0 | $-2.7$ | -1.1 | +0.4 | +0.6 | +1.1 | -0.2 | -0.5 | +1.1 | -1.0 | +0.4 | -1.1 | +1.8 | -4.7 | -2.8 | -0.9 | $-0.7$ | -1.2 | +2.6 | +0.1 | -1.0 | -0.4 | +1.3 | +0.4 | -0.3 | -1.1 | -2.8 | +1.3 | +1.4 | +1.4 | +2.6 | -0.1 | -0.7 | +2.6 | -0.2 |
| colour reconnection | +1.1 | +0.6 | +0.1 | -0.9 | -0.6 | -0.7 | +0.1 | -0.1 | +0.1 | +0.4 | -1.1 | -0.8 | +1.6 | +2.7 | -2.1 | -4.4 | $+0.2$ | -1.8 | -0.3 | +2.1 | +0.7 | -1.6 | +1.6 | +2.5 | +5.5 | +1.1 | -0.8 | +2.2 | -1.8 | -0.2 | +1.1 | -1.3 | +1.1 | $+0.1$ | -0.6 | +2.3 |
|  | +3.0 | +0.6 | +1.0 | +0.1 | 0.0 | +1.5 | +1.6 | +0.5 | +0.3 | +1.8 | $+0.2$ | +0.2 | +1.0 | -0.4 | -2.6 | -3.8 | -2.4 | $-2.7$ | -0.9 | $+0.7$ | +1.5 | -2.5 | +1.5 | +0.9 | +5.9 | +3.9 | -0.8 | $+0.9$ | -4.1 | -4.4 | -4.6 | -4.4 | -0.6 | $-2.3$ | +0.4 | -0.5 |
|  | +2.5 | -1.6 | -1.1 | -0.2 | +0.1 | +0.5 | +0.9 | +0.6 | -0.2 | +1.7 | -0.5 | -0.2 | +2.4 | +1.4 | -0.8 | -1.7 | -3.2 | -1.9 | 0.0 | +1.1 | -0.1 | -1.2 | +1.1 | -0.4 | -0.1 | -1.9 | +1.7 | +0.1 | -0.4 | -1.2 | -0.5 | -2.8 | $+0.9$ | +1.2 | -0.3 | +1.7 |
| fragmentation $\mathbf{b} \rightarrow B$ | +1.3 | +0.7 | +1.2 | +0.4 | +0.3 | +0.1 | $+0.3$ | $-0.7$ | +0.1 | -0.4 | -0.4 | -1.0 | +0.5 | +0.6 | $+0.4$ | $+0.4$ | +0.1 | $+0.3$ | $+0.2$ | -0.6 | $+0.2$ | -0.4 | -0.5 | -0.6 | -1.1 | +1.8 | -0.3 | -0.5 | $+0.5$ | $+0.4$ | +0.1 | -0.6 | -0.3 | -0.4 | -0.9 | -0.6 |
|  | -0.7 | $-0.4$ | -0.6 | -0.3 | -0.2 | -0.1 | -0.1 | $+0.3$ | 0.0 | $+0.2$ | $+0.3$ | +0.5 | -0.2 | -0.4 | -0.4 | -0.3 | 0.0 | $-0.2$ | 0.0 | $+0.3$ | -0.1 | $+0.2$ | +0.3 | $+0.4$ | +0.4 | -1.1 | -0.1 | $+0.3$ | -0.3 | -0.1 | -0.1 | $+0.1$ | $+0.2$ | +0.2 | +0.6 | $+0.4$ |
|  | +0.2 | +0.1 | +0.2 | +0.1 | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | -0.1 | -0.2 | 0.0 | 0.0 | 0.0 | +0.1 | 0.0 | 0.0 | 0.0 | -0.1 | +0.1 | -0.1 | -0.1 | -0.1 | -0.3 | +0.3 | -0.1 | -0.1 | $+0.1$ | $+0.1$ | 0.0 | $-0.2$ | 0.0 | -0.1 | -0.1 | -0.1 |
|  | +1.4 | +0.8 | +1.2 | +0.6 | +0.1 | +0.1 | +0.1 | -0.6 | -0.3 | -0.5 | -0.6 | -1.1 | +1.6 | +1.0 | +1.1 | +1.1 | $+0.2$ | $+0.3$ | +0.4 | -0.2 | -0.3 | -0.5 | -0.9 | $-0.8$ | +0.5 | +1.7 | +0.8 | +1.0 | +0.3 | $+0.4$ | -0.2 | $-0.7$ | -0.5 | -1.1 | -1.1 | -0.9 |
| branching ratio $B \rightarrow \mu$ | -0.2 | -0.2 | -0.2 | -0.1 | $+0.1$ | +0.1 | $+0.1$ | 0.0 | $+0.1$ | 0.0 | $+0.1$ | +0.1 | -0.4 | -0.3 | -0.3 | -0.2 | $+0.2$ | $+0.1$ | +0.1 | $+0.1$ | 0.0 | $+0.1$ | 0.0 | 0.0 | -0.4 | -0.4 | 0.0 | 0.0 | $+0.3$ | -0.1 | $+0.1$ | -0.2 | 0.0 | 0.0 | +0.1 | 0.0 |
|  | +0.4 | +0.3 | $+0.4$ | $+0.2$ | -0.1 | -0.1 | $-0.2$ | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | $+0.6$ | +0.4 | $+0.5$ | $+0.3$ | -0.2 | -0.2 | -0.2 | -0.2 | -0.1 | -0.1 | -0.1 | 0.0 | +0.7 | $+0.7$ | +0.4 | +0.2 | -0.1 | $-0.2$ | -0.2 | -0.1 | $-0.1$ | 0.0 | -0.1 | -0.1 |

