|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| A\ BC | 00 | 01 | 11 | 10 |
| 0 | 0 | 1 | 1 | 0 |
| 1 | 0 | 1 | 0 | 0 |

|  |  |  |  |
| --- | --- | --- | --- |
| A | B | C | Q |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 1 |
| 0 | 1 | 0 | 0 |
| 0 | 1 | 1 | 1 |
| 1 | 0 | 0 | 0 |
| 1 | 0 | 1 | 1 |
| 1 | 1 | 0 | 0 |
| 1 | 1 | 1 | 0 |

SOP Version:

Boolean expression: Q = B̅C + A̅C = C(B̅+A̅)

Loop Red: A,A̅,B̅,C -> B̅C

Loop Blue: A̅,B̅,C,B,C -> A̅C

POS Version:

Boolean expression: C(B̅+A̅)

Loop Yellow: A,A̅,B,C,B̅,C-> C

Loop Purple: A̅,B̅,C̅,B̅,C -> A̅+B̅

We can see that had we not furthered the simplification of the SOP version, it would use more gates than the POS version. In this case, however, after an easy simplification both circuits become the exact same.