

| range | homomorphic image | number of such mappings |
|-------|-------------------|-------------------------------------|
| 1 | $\{0\}$ | 1 |
| 2 | $\{0, 1\}$ | $2^{p+q-1} - 1$ |
| | $\{0, -1\}$ | dtto |
| 3 | $\{0, 1, 2\}$ | $3^{p-1} - 2^{p-1}$ |
| | $\{-2, -1, 0\}$ | dtto |
| | $\{-1, 0, 1\}$ | $3^{p-1} + 3^q - 2^p - 2^{q+1} + 2$ |