```
Needs["Quantum`Computing`"];
```

```
ClearAliases[];
SetComputingAliases[];
```

```
tabla = Grid[{{"Expression", "Result (in TraditionalForm)"},
   {Defer[Expand[QuantumEvaluate[C^{1̂}[NOT[2̂]] · C^{1̂}[NOT[2̂]]]]],
    TraditionalForm@Expand[QuantumEvaluate[C^{1̂}[NOT[2̂]] · C^{1̂}[NOT[2̂]]]]},
   {Defer[Expand[QuantumEvaluate[(C^{1̂}[NOT[2̂]])^2]]],
    TraditionalForm@Expand[QuantumEvaluate[(C^{1̂}[NOT[2̂]])^2]]},
   {Defer[Expand[QuantumEvaluate[⊗_{m=1}^{2}(C^{1̂}[NOT[2̂]])]]],
    TraditionalForm@Expand[QuantumEvaluate[⊗_{m=1}^{2}(C^{1̂}[NOT[2̂]])]]},
   {Defer[Expand[QuantumEvaluate[C^{1̂}[NOT[2̂]] · C^{2̂}[NOT[3̂]]]]],
    TraditionalForm@Expand[QuantumEvaluate[C^{1̂}[NOT[2̂]] · C^{2̂}[NOT[3̂]]]]},
   {Defer[Expand[QuantumEvaluate[(C^{1̂}[NOT[2̂]])^{⊗2}]]],
    TraditionalForm@Expand[QuantumEvaluate[(C^{1̂}[NOT[2̂]])^{⊗2}]]},
   {Defer[Expand[QuantumEvaluate[⊗_{m=1}^{2}(C^{m̂}[NOT[m̂ + 1]])]]],
    TraditionalForm@Expand[QuantumEvaluate[⊗_{m=1}^{2}(C^{m̂}[NOT[m̂ + 1]])]]},
   {Defer[Expand[(α | 1_{1̂}, 1_{2̂}⟩ · ⟨1_{1̂}, 0_{2̂} | + β | 1_{1̂}, 0_{2̂}⟩ · ⟨1_{1̂}, 1_{2̂} |) ⊗
       (α | 1_{1̂}, 1_{2̂}⟩ · ⟨1_{1̂}, 0_{2̂} | + β | 1_{1̂}, 0_{2̂}⟩ · ⟨1_{1̂}, 1_{2̂} |)]],
    TraditionalForm@Expand[(α | 1_{1̂}, 1_{2̂}⟩ · ⟨1_{1̂}, 0_{2̂} | + β | 1_{1̂}, 0_{2̂}⟩ · ⟨1_{1̂}, 1_{2̂} |) ⊗
       (α | 1_{1̂}, 1_{2̂}⟩ · ⟨1_{1̂}, 0_{2̂} | + β | 1_{1̂}, 0_{2̂}⟩ · ⟨1_{1̂}, 1_{2̂} |)]},
   {Defer[Expand[(α | 1_{1̂}, 1_{2̂}⟩ · ⟨1_{1̂}, 0_{2̂} | + β | 1_{1̂}, 0_{2̂}⟩ · ⟨1_{1̂}, 1_{2̂} |)^2]],
    TraditionalForm@Expand[(α | 1_{1̂}, 1_{2̂}⟩ · ⟨1_{1̂}, 0_{2̂} | + β | 1_{1̂}, 0_{2̂}⟩ · ⟨1_{1̂}, 1_{2̂} |)^2]},
   {Defer[⊗_{m=1}^{2}(α | 1_{1̂}, 1_{2̂}⟩ · ⟨1_{1̂}, 0_{2̂} | + β | 1_{1̂}, 0_{2̂}⟩ · ⟨1_{1̂}, 1_{2̂} |)],
    TraditionalForm[⊗_{m=1}^{2}(α | 1_{1̂}, 1_{2̂}⟩ · ⟨1_{1̂}, 0_{2̂} | + β | 1_{1̂}, 0_{2̂}⟩ · ⟨1_{1̂}, 1_{2̂} |)]},
   {Defer[Expand[(α | 1_{1̂}, 1_{2̂}⟩ · ⟨1_{1̂}, 0_{2̂} | + β | 1_{1̂}, 0_{2̂}⟩ · ⟨1_{1̂}, 1_{2̂} |) ⊗
```

```
      (α | 1_2̂, 1_3̂⟩ · ⟨1_2̂, 0_3̂ | + β | 1_2̂, 0_3̂⟩ · ⟨1_2̂, 1_3̂ |)]],
  TraditionalForm@Expand[(α | 1_1̂, 1_2̂⟩ · ⟨1_1̂, 0_2̂ | + β | 1_1̂, 0_2̂⟩ · ⟨1_1̂, 1_2̂ |) ⊗
      (α | 1_2̂, 1_3̂⟩ · ⟨1_2̂, 0_3̂ | + β | 1_2̂, 0_3̂⟩ · ⟨1_2̂, 1_3̂ |)]},
 {Defer[(α | 1_1̂, 1_2̂⟩ · ⟨1_1̂, 0_2̂ | + β | 1_1̂, 0_2̂⟩ · ⟨1_1̂, 1_2̂ |)^⊗2],
  TraditionalForm[(α | 1_1̂, 1_2̂⟩ · ⟨1_1̂, 0_2̂ | + β | 1_1̂, 0_2̂⟩ · ⟨1_1̂, 1_2̂ |)^⊗2]},
 {Defer[⊗_{m=1}^{2} (α | 1_m̂, 1_m+1̂⟩ · ⟨1_m̂, 0_m+1̂ | + β | 1_m̂, 0_m+1̂⟩ · ⟨1_m̂, 1_m+1̂ |)],
  TraditionalForm[⊗_{m=1}^{2} (α | 1_m̂, 1_m+1̂⟩ · ⟨1_m̂, 0_m+1̂ | + β | 1_m̂, 0_m+1̂⟩ · ⟨1_m̂, 1_m+1̂ |)]},
 {"Expression", "Result (in TraditionalForm)"}
},
Background → {None, {{Cyan, LightMagenta, LightMagenta, LightMagenta, LightYellow,
    LightYellow, LightYellow, LightMagenta, LightMagenta, LightMagenta,
    LightYellow, LightYellow, LightYellow}}}, Frame → All,
ItemSize → {{30, 30}}, ItemStyle → {{Directive[FontSize → 16, Bold], Automatic}},
Alignment → {Center, Center}]
```

Expression	Result (in Tradit
Expand[QuantumEvaluate[$C^{\{\hat{1}\}}[NOT[\hat{2}]] \cdot C^{\{\hat{1}\}}[NOT[\hat{2}]]$]]	| 00⟩⟨00 | + | 01⟩⟨01 | + |
Expand[QuantumEvaluate[$C^{\{\hat{1}\}}[NOT[\hat{2}]]^2$]]	| 00⟩⟨00 | + | 01⟩⟨01 | + |
Expand[QuantumEvaluate[$\otimes_{m=1}^{2}(C^{\{\hat{1}\}}[NOT[\hat{2}]])$]]	| 00⟩⟨00 | + | 01⟩⟨01 | + |
Expand[QuantumEvaluate[$C^{\{\hat{1}\}}[NOT[\hat{2}]] \cdot C^{\{\hat{2}\}}[NOT[\hat{3}]]$]]	| 000⟩⟨000 | + | 001⟩⟨001 ⟨010 | + | 010⟩⟨011 | + | ⟨101 | + | 101⟩⟨110 | + |
Expand[QuantumEvaluate[$(C^{\{\hat{1}\}}[NOT[\hat{2}]])^{\otimes 2}$]]	| 000⟩⟨000 | + | 001⟩⟨001 ⟨010 | + | 010⟩⟨011 | + | ⟨101 | + | 101⟩⟨110 | + |

Expression	Result (in Tradit
$\text{Expand}\left[\text{QuantumEvaluate}\left[\otimes_{m=1}^{2}\left(C^{\{\hat{m}\}}\left[\mathcal{NOT}\left[1 \hat{+} m\right]\right]\right)\right]\right]$	$\vert 000\rangle\langle 000 \vert + \vert 001\rangle\langle 001$ $\langle 010 \vert + \vert 010\rangle\langle 011 \vert + \vert$ $\langle 101 \vert + \vert 101\rangle\langle 110 \vert + \vert$
$\text{Expand}\left[\left(\alpha \vert 1_{\hat{1}}, 1_{\hat{2}}\rangle \cdot \langle 1_{\hat{1}}, 0_{\hat{2}} \vert + \beta \vert 1_{\hat{1}}, 0_{\hat{2}}\rangle \cdot \langle 1_{\hat{1}}, 1_{\hat{2}} \vert\right) \otimes \left(\alpha \vert 1_{\hat{1}}, 1_{\hat{2}}\rangle \cdot \langle 1_{\hat{1}}, 0_{\hat{2}} \vert + \beta \vert 1_{\hat{1}}, 0_{\hat{2}}\rangle \cdot \langle 1_{\hat{1}}, 1_{\hat{2}} \vert\right)\right]$	$\alpha\,\beta \vert 10\rangle\langle 10 \vert + \alpha\,\beta$
$\text{Expand}\left[\left(\alpha \vert 1_{\hat{1}}, 1_{\hat{2}}\rangle \cdot \langle 1_{\hat{1}}, 0_{\hat{2}} \vert + \beta \vert 1_{\hat{1}}, 0_{\hat{2}}\rangle \cdot \langle 1_{\hat{1}}, 1_{\hat{2}} \vert\right)^{2}\right]$	$\alpha\,\beta \vert 10\rangle\langle 10 \vert + \alpha\,\beta$
$\otimes_{m=1}^{2}\left(\alpha \vert 1_{\hat{1}}, 1_{\hat{2}}\rangle \cdot \langle 1_{\hat{1}}, 0_{\hat{2}} \vert + \beta \vert 1_{\hat{1}}, 0_{\hat{2}}\rangle \cdot \langle 1_{\hat{1}}, 1_{\hat{2}} \vert\right)$	$\alpha\,\beta \vert 10\rangle\langle 10 \vert + \alpha\,\beta$
$\text{Expand}\left[\left(\alpha \vert 1_{\hat{1}}, 1_{\hat{2}}\rangle \cdot \langle 1_{\hat{1}}, 0_{\hat{2}} \vert + \beta \vert 1_{\hat{1}}, 0_{\hat{2}}\rangle \cdot \langle 1_{\hat{1}}, 1_{\hat{2}} \vert\right) \otimes \left(\alpha \vert 1_{\hat{2}}, 1_{\hat{3}}\rangle \cdot \langle 1_{\hat{2}}, 0_{\hat{3}} \vert + \beta \vert 1_{\hat{2}}, 0_{\hat{3}}\rangle \cdot \langle 1_{\hat{2}}, 1_{\hat{3}} \vert\right)\right]$	$\alpha\,\beta \vert 101\rangle\langle 110 \vert + \beta^{2}$
$\left(\alpha \vert 1_{\hat{1}}, 1_{\hat{2}}\rangle \cdot \langle 1_{\hat{1}}, 0_{\hat{2}} \vert + \beta \vert 1_{\hat{1}}, 0_{\hat{2}}\rangle \cdot \langle 1_{\hat{1}}, 1_{\hat{2}} \vert\right)^{\otimes 2}$	$\alpha\,\beta \vert 101\rangle\langle 110 \vert + \beta^{2}$
$\otimes_{m=1}^{2}\left(\alpha \vert 1_{\hat{m}}, 1_{m\hat{+}1}\rangle \cdot \langle 1_{\hat{m}}, 0_{m\hat{+}1} \vert + \beta \vert 1_{\hat{m}}, 0_{m\hat{+}1}\rangle \cdot \langle 1_{\hat{m}}, 1_{m\hat{+}1} \vert\right)$	$\alpha\,\beta \vert 101\rangle\langle 110 \vert + \beta^{2}$

```
Export["tabla.pdf", Style[tabla, ShowStringCharacters → False]]
```

```
Import["tabla.pdf"]
```

```
Export["tabla.jpg", tabla]
```

```
Import["tabla.jpg"]
```