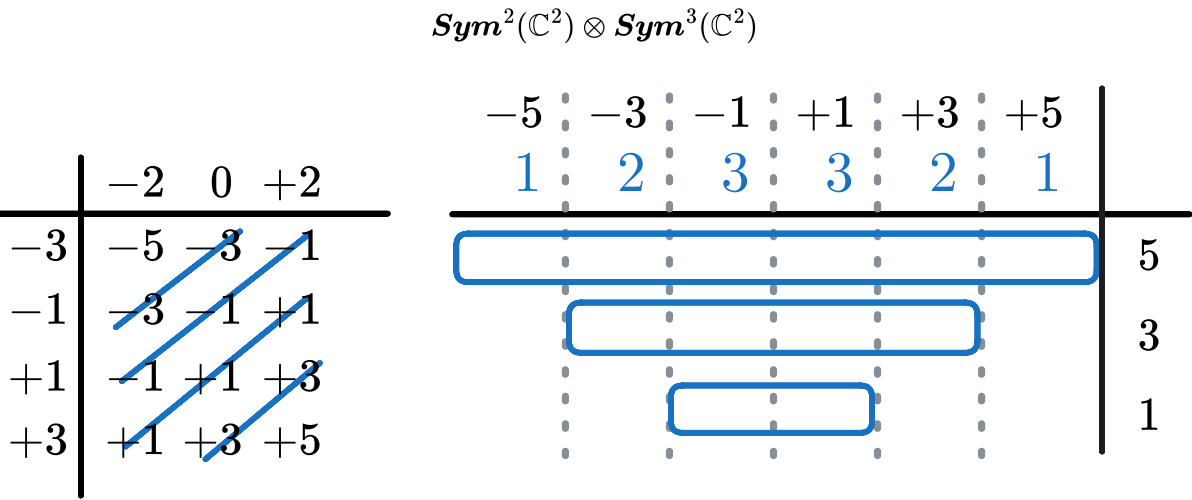


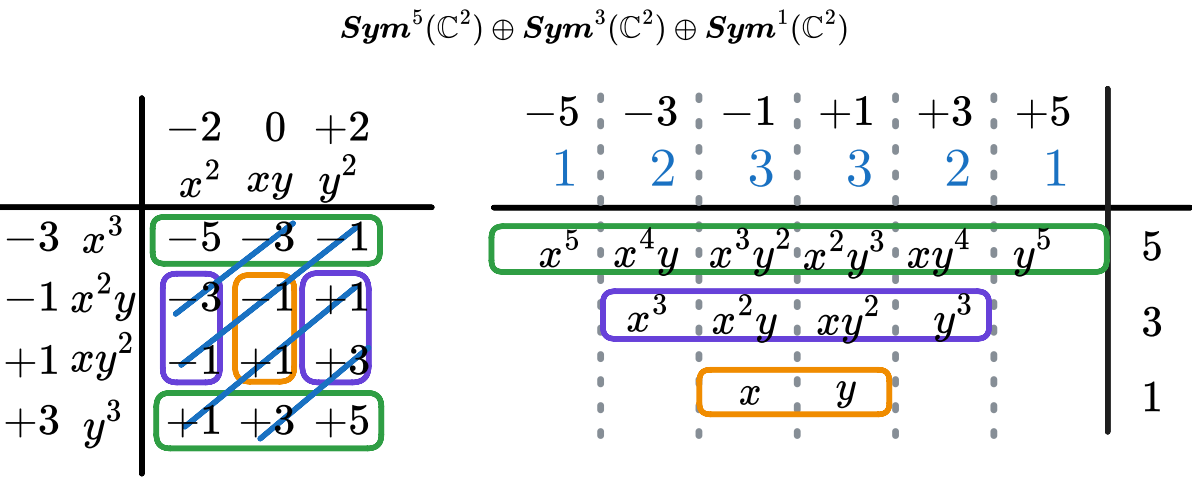
This note, that [was found here](#), as a part of [a collection](#) is written (completely with human hands) by [Rupadarshi Ray](#), was created on June 19, 2024 12:11:50 AM, was last modified on August 28, 2026 12:30:30 PM, and was exported on September 7, 2026 3:09:48 PM.

$2 \otimes 3 \cong_{\mathfrak{sl}(2,\mathbb{C})} 5 \oplus 3 \oplus 1$

The tensor product



decomposes as



where we choose the projection

$Sym^2(\mathbb{C}^2) \otimes Sym^3(\mathbb{C}^2) \rightarrow Sym^5(\mathbb{C}^2) \oplus Sym^3(\mathbb{C}^2) \oplus Sym^1(\mathbb{C}^2)$
 $|x^2, x^3\rangle \mapsto |x^5\rangle$

- the weight character

$(t^{-2} + 1 + t^2)(t^{-3} + t^{-1} + t + t^3)$
 $= t^{-5} + 2t^{-3} + 3t^{-1} + 3t + 2t^3 + t^5$

- the quotient projection

$Sym^2(\mathbb{C}^2) \otimes Sym^3(\mathbb{C}^2) \rightarrow Sym^5(\mathbb{C}^2)$

is multiplication of polynomials but carefully

.

Current note has 0 direct children and 0 total descendants.

- [stem](#)
 - [SL C 2](#)
 - [rep](#)
 - [FinVec_C irreducible representations of \$\mathfrak{sl}\(2, \mathbb{C}\)\$](#)
 - [2 \$\otimes\$ 3 = 5 \$\oplus\$ 3 \$\oplus\$ 1 for FinVec_C irreps of \$\mathfrak{sl}\(2, \mathbb{C}\)\$](#)

And it has 2 siblings.

- [stem](#)
 - [SL C 2](#)
 - [rep](#)
 - [FinVec_C irreducible representations of \$\mathfrak{sl}\(2, \mathbb{C}\)\$](#)
 - [2 \$\otimes\$ 3 = 5 \$\oplus\$ 3 \$\oplus\$ 1 for FinVec_C irreps of \$\mathfrak{sl}\(2, \mathbb{C}\)\$](#)
 - [Sym² Sym²\(\$\mathbb{C}^2\$ \) \$\cong_{SL_C\(2\)}\$ Sym⁰\(\$\mathbb{C}^2\$ \) \$\oplus\$ Sym⁴\(\$\mathbb{C}^2\$ \)](#)