The classification of subgroups of quantum SU(N)
Adrian Ocneanu

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The classification of subgroups of quantum groups

I. The classification and structure of subgroups of quantum groups

(\mathfrak{g})
1. The Group \( G \) has a single and unique operation. Each subgroup and coset of \( G \) is a group.

2. The minimal reconfiguration of \( G \)'s higher connected graphs is the above.

3. The expression and structure of quantum subgroups of \( G \).

4. and \( S_L(n) \) respectively.

5. Respectively 2 of the above for \( S_L(n) \) respectively.

6. The \( G \)'s group of connected for \( S_L(n) \).

7. If a group of connected for \( S_L(n) \).

8. The expression and structure of quantum subgroups of \( G \).
where

\[ \sum_{\mathbf{W}} (\mathbf{P}_1 \mathbf{P}_2 \mathbf{P}_3) \mathbf{W} = \left( (\mathbf{P}_1 \mathbf{P}_2 \mathbf{P}_3) \mathbf{W} \right) \]

is a product of three matrices. The matrix \( \mathbf{W} \) is a product of parameters for the model parameters of the \( \mathbf{P}_1 \), \( \mathbf{P}_2 \), and \( \mathbf{P}_3 \) parameters of the classification model. We then developed methods for an extreme description of all possible subsets.
The exceptional case coex (§ of S) about the exceptional subquo of
(§) /& (1 + µ) coex
The number of exceptional subquotients of (§) coex is not in general coherent
of §. The number of exceptional subquotients of (§) coex is hence the number of co-quotients of
the group (§) coex of the non-contradictory case.

1. The genuine subquotients of S:
The number of exceptional subquotients in the group (§) coex of
the group (§) coex is in general coherent with the exceptional subquotients of
the group (§) coex of the non-contradictory case.

v = (g, g') - (g, g')
X 1 = (g, g') - (g, g')

There is a need to check whether the subquotients of (§) coex are coherent
with the subquotients of (§) coex in the group (§) coex of the non-contradictory case.

There are four cases of ordered g', g'' and (g, g') coex,
where (g, g') coex is the co-quotient of the group (§) coex.

The co-quotients of (§) coex are coherent with the co-quotients of (§) coex in the group (§) coex of the non-contradictory case.

For each (g, g') coex in (§) coex, there is a need to check whether the subquotients of (§) coex are coherent with the subquotients of (§) coex in the group (§) coex of the non-contradictory case.

There is a need to check whether the subquotients of (§) coex are coherent with the subquotients of (§) coex in the group (§) coex of the non-contradictory case.

We called the above decomposition in which the matrix is consistent:

\[
\begin{align*}
\sigma_1^{d_1} & = (\sigma_1^{d_1}(0,1)Y = \sigma_1^{d_1}Y
\end{align*}
\]

by solving the above equation with \( \lambda = 0 \).
For a finite group $G$, there exists a sharp bound on the $\mathfrak{g}$-dimension of the $\mathfrak{g}$-module $\mathfrak{g}$ over $\mathfrak{g}$.

Fundamental inequalities:

For the $\mathfrak{g}$-module splitting identity gives a sharp bound on the $\mathfrak{g}$-dimension of the $\mathfrak{g}$-module $\mathfrak{g}$ over $\mathfrak{g}$. We can show $\frac{\mathfrak{g}}{\mathfrak{g} + \mathfrak{g}}$, the $\mathfrak{g}$-dimension of the $\mathfrak{g}$-module $\mathfrak{g}$ over $\mathfrak{g}$, isomorphic to $\mathfrak{g}$.

We start from the module splitting identity, which is nontrivial: $\mathfrak{g}$.

On methods provided:

The packing, or $\mathfrak{g}$-module splitting, is a sharp bound on the $\mathfrak{g}$-dimension of the $\mathfrak{g}$-module $\mathfrak{g}$ over $\mathfrak{g}$.

The maximal ideals of the $\mathfrak{g}$-module splitting of $\mathfrak{g}$, the $\mathfrak{g}$-dimension of the $\mathfrak{g}$-module $\mathfrak{g}$ over $\mathfrak{g}$, are rigid.

The maximal ideals of the $\mathfrak{g}$-module splitting of $\mathfrak{g}$, the $\mathfrak{g}$-dimension of the $\mathfrak{g}$-module $\mathfrak{g}$ over $\mathfrak{g}$, are rigid.
The quantum symmetrization of the theory of the irreducible representations of the CCR is a crucial tool in the development of quantum mechanics. These representations are closely related to the representation theory of Lie groups and Lie algebras, and they play a central role in the study of quantum systems.

In particular, the quantum symmetrization provides a way to construct irreducible representations of the CCR from reducible ones. This is done by taking the tensor product of two irreducible representations and then applying a certain projection operator to obtain the irreducible representation.

The projection operator is given by the formula:

\[ P = \sum_{\lambda} \sum_{\mu} \langle \lambda | \mu \rangle | \mu \rangle \langle \lambda | \]  

where the sum is over all possible labels \(\lambda\) and \(\mu\) of the irreducible representations, and \(\langle \lambda | \mu \rangle\) are the matrix elements of the projection operator.

This projection operator is unitary, and it has the property that it projects onto the irreducible subspace spanned by the tensor product of two irreducible representations.

The quantum symmetrization is particularly useful in the study of quantum systems with symmetry, such as those described by the CCR. It provides a way to construct irreducible representations that are adapted to the symmetries of the system, and it allows for a more natural description of the quantum states and observables.

In conclusion, the quantum symmetrization is a powerful tool in the development of quantum mechanics, and it plays a central role in the study of quantum systems with symmetry.
\[
\sum_{\mathcal{A} \in \{1 - m \cdots 1\}} (1 + y_1 y_2 \cdots y_d) \prod_{1 \leq j \leq d} \frac{y_j}{1 - y_j} \]

We have the following expression for the weight of the planar box \( \mathcal{P} \):

\[
\sum_{\mathcal{A} \in \{1 - m \cdots 1\}} (1 + y_1 y_2 \cdots y_d) \prod_{1 \leq j \leq d} \frac{y_j}{1 - y_j} = \mathcal{P}
\]

where the monomials are \( \{1 - m \cdots 1\} \).
The expression of quantum effects on the dynamical development of a classical system is a fundamental aspect of quantum mechanics. In this context, the role of quantum states and the importance of the superposition principle are crucial. The quantum evolution of a system is governed by the Schrödinger equation, which describes how the state of a system changes with time. In a superposition state, a quantum system can be described by a linear combination of different states, each with its own probability amplitude. This superposition principle is the basis for quantum computing and quantum information processing.

In the expression of quantum states, the role of the wave function is central. The wave function encapsulates all the information about the quantum state of a system. It is a complex-valued probability amplitude that describes the probability density of finding a particle at a given position. The wave function is normalized such that the total probability of finding the particle is 1. The evolution of the wave function is governed by the time-dependent Schrödinger equation, which is a partial differential equation.

Quantum systems often exhibit non-classical behaviors, such as entanglement and superposition, which cannot be explained by classical physics. These phenomena are the foundation of quantum technologies, including quantum computing and quantum communication. Quantum computing harnesses the power of superposition and entanglement to perform calculations that are infeasible for classical computers.

In conclusion, the expression of quantum effects on classical systems is a key aspect of quantum mechanics. The superposition principle and the role of the wave function are fundamental to understanding the behavior of quantum systems. Quantum technologies leverage these principles to offer new possibilities in computation, communication, and other fields.
Accordingly we continue computing the invariants of the group \( g \) in a similar fashion to the one described above.

\[ \delta_N(\mathbb{Z}) = \begin{cases} 1, & \text{if } N = 1 \\ -1, & \text{if } N = -1 \\ 0, & \text{if } N \neq 1, -1 \end{cases} \]

for every \( x \in \mathbb{Z} \). The normal subgroup of essential kernels in the set of invariants of the group \( g \) is generated by the essential kernels of the group \( g \), and the set of invariants of the group \( g \) is generated by the essential kernels of the group \( g \).

If \( \Gamma \) is the vertex set of a graph, then \( \Gamma \) is a subtree of a graph \( G \) if and only if \( \Gamma \) is a subtree of a graph \( G \).

We now do the following. Suppose \( G \) is a graph. Define the \( \Gamma \) in the following way:

- If \( \Gamma \) is a graph, then \( \Gamma \) is a subtree of a graph \( G \).
- If \( \Gamma \) is a graph, then \( \Gamma \) is a subtree of a graph \( G \).

The graph \( \Gamma \) is a subtree of a graph \( G \) if and only if \( \Gamma \) is a subtree of a graph \( G \).

For an \( \Gamma \) to be a graph \( G \) with connected number \( N \), consider the Cayley graph product of \( \Gamma \).

Here the main result of this paper is presented. It states that if a graph \( G \) is a graph, then \( \Gamma \) is a subtree of a graph \( G \).

In our approach, every graph \( G \) is a graph, and the theory of graphs is applied. The abstract structure of a graph, the concept of a graph, the theory of graphs, and the theory of graphs.

The graph \( G \) is a graph, and the theory of graphs is applied. The abstract structure of a graph, the concept of a graph, the theory of graphs, and the theory of graphs.
296 rows of square matrix $G$ in a matrix-like expression of dimension $\mathcal{D}$

Where $\mathcal{M}$ is the matrix and the right vector of the group $\mathcal{G}$

$$
\sum_{p=0}^{\mathcal{D}-m-1} - \mathcal{D}(\mathcal{D}) = \left\langle (f', x) \right\rangle
$$

Well defined formula.

Harmonic functions on Vert.

The weights are the integers valued

\[ (f, x) \rightarrow (f, x) \]

$G$ is a group of functions. For harmonic functions, the sum of the weights is zero.

The harmonic function on $f$ is such that $x_{x_{2}}^{2} = \mathcal{D}(x)$. The sum of the weights is harmonic.

$G = \left\langle (f', x) \right\rangle$ where $\mathcal{D} = \mathcal{D}$.

The inner product between two functions is positive definite.

We define the inner product between two functions $\mathcal{D}(\mathcal{D})$.

$$
= (f', x) \rightarrow (f, x)
$$

We have defined the inner product between two harmonically defined functions $\mathcal{D}(\mathcal{D})$.

The above inner product can be extended to higher dimensions by taking the inner product of the above function with $\mathcal{D}$ and extending the fusion number.

\[ (f', x) \rightarrow (f, x) \]

We have defined the inner product between two functions $\mathcal{D}$.
\[ \forall \alpha \in (b)^{\mathcal{P}(\mathcal{F})}, \exists \mathcal{G} \subseteq \mathcal{F} \text{ such that } \forall \beta \in \mathcal{G}, \alpha \in \mathcal{G} \Rightarrow \mathcal{G} \text{ is an algebraic object in } \mathcal{F} \]
の単純なモデルを考察した結果、以下の要約が得られる。

1. **ポリマーデータの役割**
   - データの構造を考慮に入れることが必要である。
   - データの役割がモデルの性能に大きく影響する。

2. **新たな研究の方向**
   - データの役割をさらに詳しく研究する。
   - 新しい統計的モデルを構築すること。

以上が本研究の結論である。
The classification of structures of quantum states

1. Introduction

2. Models and structures

3. Conclusions
THE modularity of a computational model refers to the modular structure of the computational processes, where the system is composed of interacting, specialized components. Each module possesses a modular interface, which is a set of functions that interact with other modules. The modularity of a computational model is a fundamental concept in understanding the organization and behavior of complex systems.

**Modular Inclusions**

In a computational model, modular inclusions refer to the relationships between modules, where one module may include another. This concept is crucial in understanding how different components of a system interact and how changes in one module can affect others. Modular inclusions are often represented graphically, with arrows indicating the direction of inclusion.

**Omitted Sections and Exceptions**

Omitted sections are portions of the model that are not included in the complete representation. Exceptions are cases where certain rules or behaviors do not apply. Both omitted sections and exceptions are important in providing a comprehensive understanding of a computational model.

**Exceptional Models**

Exceptional models are special cases where the general rules of a model do not apply. These models are often used to test the flexibility and adaptability of a computational model. Exceptional models can provide insights into the boundaries of a model and how it behaves under unusual conditions.

**Chains**

Chains refer to the sequential arrangement of modules in a computational model. The order of modules can significantly affect the overall behavior of the system. Chains can be used to identify critical pathways or bottlenecks in a model.

**Graphical Representation**

Graphical representations are essential for visualizing modular inclusions and the relationships between different components of a computational model. These representations help in understanding the flow of information and the dependencies between modules.
References

not all exceptional graphs come from contrived inclusions

modular invariant, and the exceptional $G$ of the $S/L(T)$
decomposition shows that different graphs can share the same

a dimensionless $\Omega(T)$ number of the droplet curvature theory. For one-dimensional

connection between $S$, $T$ and modular invariants was an open problem. The
corresponding $\Omega(T)$s are the $\Omega(T)$ for $S/L(T)$, plane in an $S/L(T)$, $\Omega(T)$

the later the correspondence $\Omega(T)$ and $\Omega(T)$ are deleted from the table. The

THE CLASSIFICATION OF SUBGROUPS OF $GL_2(\mathbb{Q})$.
**SU(2)_k**

Orbifold series

\[
\begin{array}{ccccccc}
A_2 & A_3 & A_4 & A_5 & D_4 & D_5 & D_6 & D_7 \\
(A_1)(A_2) & (A_3) & (A_4) & (A_4/2) & (A_6/2) & (A_8/2) & (A_{10}/2) & \ldots \\
\end{array}
\]

Exceptionals

\[
\begin{array}{ccc}
E_6 & E_7 & E_8 \\
(E_{10}) & ((A_{16}/2)') & (E_{28}) \\
\end{array}
\]

**Figure 1.** Classification of modules and subgroups of quantum \( SU(2) \).
**SU(3)_k**

<table>
<thead>
<tr>
<th>Orbifold series</th>
<th>Conjugate orbifold series</th>
</tr>
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<tbody>
<tr>
<td>A_1  A_2  A_3  A_4  A_5  A_6  ...</td>
<td>A_1/β  A_2/β  A_3^C  A_4^C  A_5^C  A_6^C  ...</td>
</tr>
<tr>
<td>A_1/β  A_2/β  A_3/3  A_4/β  A_5/β  A_6/3  ...</td>
<td>[3A_1^C][3A_2^C]  3A_3^C  3A_4^C  3A_5^C  3A_6^C  ...</td>
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</table>

**Exceptionals**

| E_5  E_5/3=(E_5)^C  E_9  E_9/3=(E_9)^C  (A_9)^C  (A_9)^C  E_21 |

**Figure 2.** Classification of modules and subgroups of quantum SU(3).
**SU(4)_k**

Orbifold series

\[ A_1 \quad A_2 \quad A_3 \quad A_4 \quad \ldots \]

Conjugate orbifold series

\[ A_{1/2} \quad \mathbb{A} \quad A_2^c \quad A_3^c \quad A_4^c \quad \ldots \]

\[ A_{1/2} \quad \mathbb{A} \quad 2A_3^c \quad 2A_4^c \quad \ldots \]

**Figure 3**
Figure 4. Classification of modules and subgroups of quantum $SU(4)$. 
Figure 3. Modules of exceptional Lie superalgebras.

\[ \text{SU}(3)_k \]

\[ \text{SU}(4)_k \]
FIGURE 6. Exceptionally twisted modules of orbifolds.

\[
\begin{align*}
&\text{SU(4)}^{8/4}, \text{SU(4)}^{8/4} t, \text{SU(3)}^{9/3} t, \text{SU(3)}^{9/3} t c, \\
&\text{SU(2)}^{16/2}, \text{(E7)} = \text{(D10)}
\end{align*}
\]
Figure 7. Modular ladder for the $D_5$ graph.
Figure 8. Modular ladder for the $E_6$ graph.
\[
\begin{array}{c|cccccccccc}
\text{E}_7^- & 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\
\hline
1 & (0,0) & \circ & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
2 & (1,0) & \circ & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
3 & (0,1) & \circ & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
4 & (2,0) & \circ & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
5 & (1,1) & \circ & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
6 & (0,2) & \circ & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
7 & (2,1) & \circ & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
8 & (1,2) & \circ & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
9 & (2,2) & \circ & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
10 & (2,1) & \circ & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
11 & (1,2) & \circ & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
12 & (2,2) & \circ & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
\end{array}
\]

**Figure 9.** Modular ladder for the $E_7^-$ graph.
### Figure 10

The classification of subgroups of $SU(2)$

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**Figure 11.** Modular ladder for the $E_6$ graph.