Review of: "The Change of Basis Groupoid"

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Potential competing interests: No potential competing interests to declare.

This article mainly discusses the properties and structure of the Change of Basis Groupoid, as well as the definition and properties of the basis transformation matrix. It uses the concept of category theory to analyze the algebraic structure of basis transformations and proves that the basis transformation group is a groupoid.

1. Research conclusion: The research conclusion of this article is about the properties and characteristics of the basis transformation group. By defining and analyzing the concept of basis transformation group, the author draws the following conclusions:

- The basis transformation matrix in the basis transformation group has upper triangular and lower triangular properties.

- The inverse and composite operations of the basis transformation matrices in the basis transformation group maintain the upper and lower triangular properties. - The inverse and composite operations of the basis transformation matrices in the basis transformation group maintain the alternating property.

2. Innovation of research: The innovation of this research lies in:

- Proposing the concept of basis transformation group, and defining the basis transformation matrix and basis transformation group function.

- Revealed the characteristics and properties of the basis transformation matrix in the basis transformation group, such as upper triangular, lower triangular and alternating properties. - By introducing subgroups and lemmas, the subgroups and properties of the basis transformation group are further discussed.

3. Shortcomings of the study: The shortcomings of this study include:

- The article does not mention specific application scenarios and actual cases. - There is less discussion on other properties and characteristics of basis transformation groups, such as closure and homomorphism.

4. Research significance: The theoretical and practical significance of this study include:

- It has a certain promoting effect on theoretical research in the fields of linear algebra and group theory, and enriches the theoretical system in related fields.

- It can provide theoretical support and guidance for the application of basis transformation groups in practical problems, and improve the efficiency and accuracy of problem solving.