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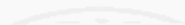
The Yang-Baxter equation

If X is a set, a **set-theoretical solution** of the Yang-Baxter equation $r : X \times X \rightarrow X \times X$ is a map such that the well-known **identity**

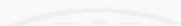
$$r_1 r_2 r_1 = r_2 r_1 r_2$$

is satisfied, where $r_1 = r \circ \text{id}_X$ and $r_2 = \text{id}_X \circ r$.









Solution of the arg-max equation

||| output associated to a min-iac

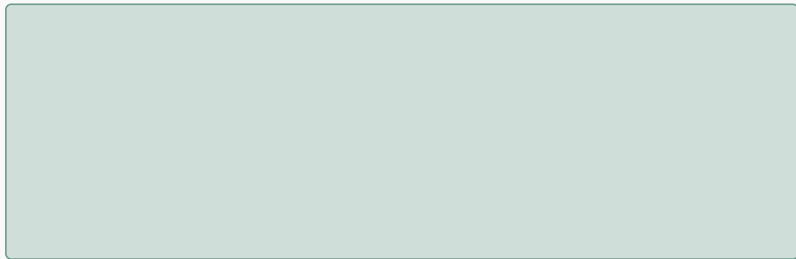
||| matched product



existence

definition (F. Truciu, L. J. , J. Stefanello, J. Lee, 2017)

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eigenvalues

Definition (F. T. , L. , . Stefanello, . Lee , 017)

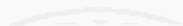
If B is a set with two operations

Exercises

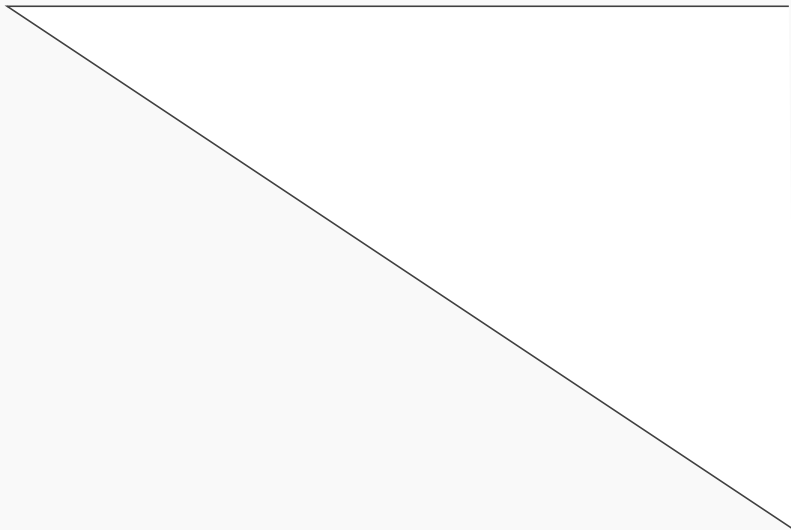
Definition (Friedman, LeVeine, Stefanello, 2017)

If B is a set with two operations $+$ and \cdot such that

50 If



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How to obtain solutions through separation

The Dirac equation (F. Dirac, Proc. R. Soc. London, 1928; J. Stefanielli, J. Math. Phys., 1977)

Let B be a self-adjoint operator.

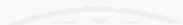
III. Outcome associated to a mismatch

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If B is a semi-basis and $a \in B$, then $a : B \rightarrow B; b \mapsto$ 825] TJ/F43 8. 96 Tf 0

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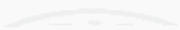
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Solution of the arg-max equation

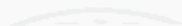
||| output associated to a min-max

||| matched product



properties of semi-bilinear forms

If B is a semi-bilinear form, E the set of idempotents of $(B; +)$ and 0 is the identity of $(B; \cdot)$



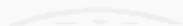
properties of semi-ideals

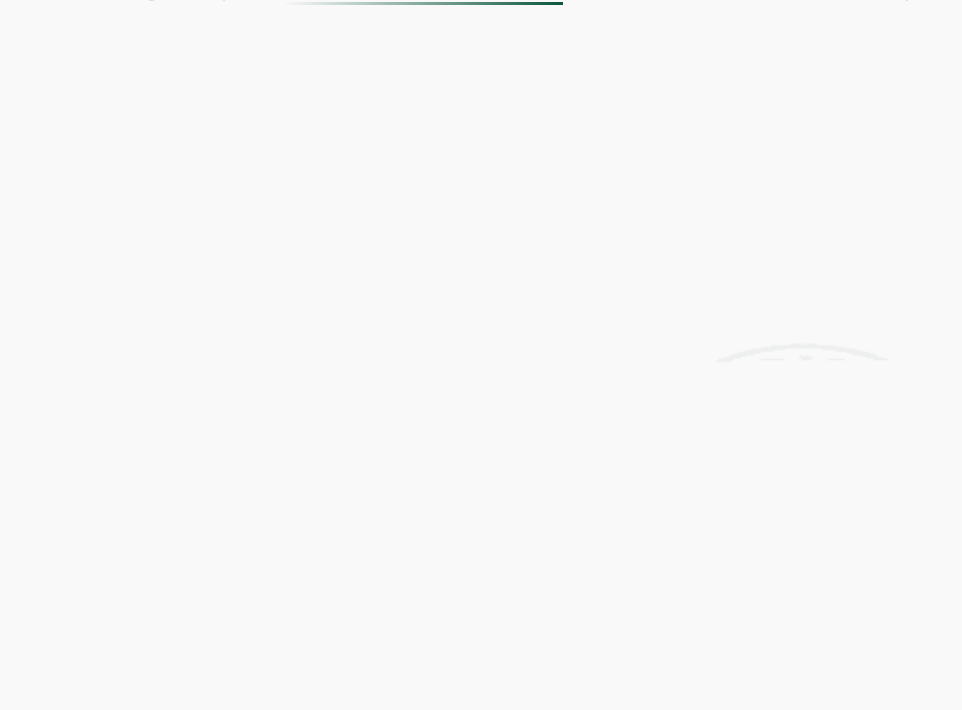
If B is a semi-ideal, then the set of idempotents of $(B; +)$



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The solution associate to a new base



Solution of the arg-max problem

|| output associated to a min-acc

|| matched product

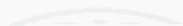


Comparison between the two

If B is a skew brace then B is a semi-brace with a group as additive structure.
 What is the relation between the solution associated to B as skew brace and the one associated to B as semi-brace?

Let $a, b \in B$. Then

$$a + a \cdot b = (a + a) +$$



Comparison between the two solutions

If B is a skew bialgebra then B is a semi-bialgebra with a group as additive structure.

Comparison between the two solutions

If B is a skew-symmetric



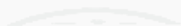


The solution

The solution (F. tian, L. J. J. Stefanielli, in preparation)

Let G be a simple Lie algebra and E a faithful $\mathfrak{sl}(2)$ -module,

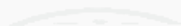
the optimal

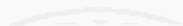


Solution of the $\arg\max$ equation

||| solution associated to a minimax

||| matched product

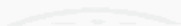




Take notes



the optimal



The ergodic theorem

Vladimir

The ergodic theorem (F. Birkhoff, L. B. von Neumann, J. von Neumann, J. von Neumann)

Let B be a measurable set,

The orthogonality

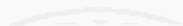
Video 1

The orthogonal matrix A is defined by the condition $A^T A = I$, where I is the identity matrix. This implies that the columns of A are orthonormal vectors. For a 2D matrix, this means that the columns are perpendicular and have unit length. The determinant of an orthogonal matrix is either 1 or -1, indicating a rotation or reflection, respectively.

Solution of the arg-max equation

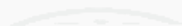
III. output associated to a minimum

III. matched product



relation associated to the trace of

$L_t G b 0 0$



Solution of the arg-Max equation

|| Solution associated to a minimax

|| matched product



relation associate to the table



