$n_1 = n_2 = 4$  is also analyzed. There is now an extra isomorphism corresponding to the graph automorphism of the Dynkin diagram for  $C_2$ .

Much of the material in this book, including the two theorems above, is more general than previously published results in the area. Recently, Callan [2] has applied the same method to unitary groups over noncommutative domains possessing a division ring of quotients, assuming the underlying Witt index is at least three. The objectives of the book and the basic methods are very clearly presented. No problems are included, but then none are needed, for the best way to fully understand some of the more intricate proofs is to break them into pieces, as does the author, and work out the separate details for oneself.

## REFERENCES

- 1. A. Borel and J. Tits, Homomorphismes "abstraits" de groupes algébriques simples, Ann. of Math. (2) 97 (1973), 499-571.
- 2. D. Callan, The isomorphisms of unitary groups over noncommutative domains, J. Algebra 52 (1978), 475-503.
- 3. J. Dieudonné, On the automorphisms of the classical groups, Mem. Amer. Math. Soc., no. 2, Amer. Math. Soc., Providence, R. I., 1951.
- 4. \_\_\_\_\_, La géométrie des groupes classiques, 2nd. ed., Ergebnisse der Mathematik und ihrer Grenzgebiete, Band 5, Springer-Verlag, Berlin and New York, 1963.
  - 5. B. R. McDonald, Geometric algebra over local rings, Dekker, New York and Basel, 1976.
- 6. O. T. O'Meara, *Lectures on linear groups*, CBMS Regional Conf. Ser. in Math., no. 22, Amer. Math. Soc., Providence, R. I., 1974.
- 7. O. Schreier and B. L. van der Waerden, Die Automorphismen der projektiven Gruppen, Abh. Math. Sem. Univ. Hamburg 6 (1928), 303-322.

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BULLETIN (New Series) OF THE AMERICAN MATHEMATICAL SOCIETY Volume 1, Number 5, September 1979 © 1979 American Mathematical Society 0002-9904/79/0000-0409/\$01.75

Fundamentals of decision analysis, by Irving H. LaValle, Holt, Rinehart and Winston, New York, Chicago, San Francisco, Atlanta, Dallas, Montreal, Toronto, London, Sydney, 1978, xiii + 626 pp.

To know the rules is not the same as to know how to play the game. As in chess or tennis, so in decision analysis. Decision analysis is applied decision theory, or how to make decisions that are consistent with the choices, information, and preferences of the decision maker. Decision analysis is both a language and philosophy for decision making and a practical procedure for arriving at decisions. The procedure consists of analyzing (Latin: loosening back) the decision problem into its choice, information, and preference component parts, which can then be judgmentally assessed by the decision maker and combined by logic to allow a consistent course of action. To see why this book would be more appropriately titled *Fundamentals of statistical decision theory*, we must consider the present state of decision analysis in more detail.

The domain of decision analysis is shown graphically in Figure 1. The first three rows represent the three elements of formulation that we have dis-