the variation of the value of a game as function of its matrix.

The first four papers, by Goldman and Tucker, culminate in a *Theory of linear programming*, preceded (also logically) by an examination of the structure of polyhedral convex cones under set inclusion, by variants of the reviewer's theorems on the resolution of a polyhedral convex set into the sum of a polyhedron and a polyhedral cone and on systems related by matrix transposition, and by Tucker's opening paper on *Dual systems of homogeneous linear relations*, which consolidates previous transposition theorems and introduces the concept of slackness, stressing the importance of equated constraints (casually appearing in Stiemke, Math. Ann. vol. 76, p. 342; cf. also Miller, Amer. Math. Monthly vol. 17, p. 137; Černikov, Mat. Sb. N.S. vol. 38 (80), pp. 506–507).

As might be expected from the editors of Annals Studies 24 and 28, the value of this representative cross-section of recent research in the field is enhanced by careful revision, pleasant appearance, a clear and instructive résumé of the individual papers in the preface to the study, and an extensive and up-to-date bibliography.

**Theodore S. Motzkin**


This monograph contains four chapters. Chapter I deals with 3-honeycombs $\mathfrak{W}$ of curves in a Euclidean plane $\mathbb{E}_2$, called 3-webs of curves in *Geometrie der Gewebe* (Springer, Berlin, 1938) by the author and G. Bol. For a $\mathfrak{W}$ three Pfaffian forms are introduced, and the connection $\gamma$ and the curvature $k$ are derived by exterior differentiation. It is proved that a necessary and sufficient condition for $\mathfrak{W}$ to be a hexagonal honeycomb is that $k$ vanishes identically. Furthermore $k$ is expressed in terms of a honeycomb function $W$. There are also obtained a complete system of invariants and a canonical expansion of the function $W$, from which G. Thomsen's geometric interpretation of the curvature $k$ is deduced. Rotations and conformal mappings of honeycombs are studied by means of complex Pfaffian forms.

Chapter II is devoted to 4-honeycombs $\mathfrak{W}$ of surfaces in a three-dimensional Euclidean space $\mathbb{E}_3$. As in Chapter I for a $\mathfrak{W}$ the author introduces four Pfaffian forms and obtains the connection $\gamma$, the curvatures $a_1$, $a_2$, $a_3$, a complete system of invariants and a canonical expansion of a honeycomb function $W$. It is proved that a necessary and sufficient condition for a $\mathfrak{W}$ to be an octahedral honeycomb is