52[9].—EDGAR KARST, *The First 2500 Reciprocals and their Partial Sums of all Twin Primes (p, p + 2) between (3, 5) and (102761, 102763)*, Department of Mathematics, University of Arizona, Tucson, Arizona, January 1969. Ms. of 271 computer sheets deposited in the UMT file.

Herein are tabulated to 20D the reciprocals of the first 2500 twin primes, together with the cumulative sums, calculated on an IBM 1130 system. This table is preceded by a listing of the computer program employed in its construction. An appended table of two pages lists the first member of each of the prime pairs considered.

In his introductory remarks the author notes the accuracy of the counts of twin primes published by Glaisher [1] and by Hardy & Littlewood [2] and confirms the errors in Sutton [3] as announced by Sexton [4]. However, he fails to refer to extensive counts of twin primes by Lehmer [5] and by Gruenberger & Armerding [6].

The author also remarks upon the slow convergence of the series of the reciprocals of the twin primes; for example, his table reveals that the sum of the reciprocals of the first 2500 such primes is 1.6733 . . . , whereas Fröberg [7] has calculated the sum to 4D of all such reciprocals to be 1.7019 (herein referred to as Brun's constant).

Regrettably, the appearance of these tables is marred by the occasional suppression of zeros in the computer-printed output.

<div align="right">J. W. W.</div>

1. J. W. L. GLAISHER, "An enumeration of prime-pairs," *Messenger of Math.*, v. 8, 1878, pp. 28–33.

2. G. H. HARDY & J. E. LITTLEWOOD, "Partitio numerorum III: On the expression of a number as a sum of primes," *Acta Math.*, v. 44, 1923, pp. 1–70.

3. C. S. SUTTON, "An investigation of the average distribution of twin prime numbers," *J. Math. and Phys.*, v. 16, 1937, pp. 1–42.

4. C. R. SEXTON, "Counts of twin primes less than 100000," *MTAC*, v. 8, 1954, pp. 47–49, Note 158.

5. D. H. LEHMER, "Tables concerning the distribution of primes up to 37 millions," 1957, ms. deposited in UMT file. (See *MTAC*, v. 13, 1959, pp. 56–57, RMT 3.)

6. F. GRUENBERGER & G. ARMERDING, *Statistics on the First Six Million Prime Numbers*, Rand Corporation, Santa Monica, California, 1961. (See *Math. Comp.*, v. 19, 1965, pp. 503–505, RMT 73.)

7. CARL-ERIK FRÖBERG, "On the sum of inverses of primes and of twin primes," *Nordisk Mat. Tidskr. Informations-Behandling*, v. 1, 1961, pp. 15–20.

53[10, 13.35].—MICHAEL A. ARBIB, Editor, *Algebraic Theory of Machines, Languages, and Semigroups*, Academic Press, New York, 1968, xvi + 359 pp., 23 cm. Price $16.00.

This book is a collection of papers or chapters in the general areas of finite state machines, context-free languages, and finite semigroups. Some of the contributions are appropriately called "chapters" as they are written in a consistent notation and provide a basis for later contributions. Other contributions are accurately described as "papers" as they are written in their own notation and are independent of the other contributions.

A major portion of this book is devoted to topics relating to the Krohn-Rhodes decomposition theorem for finite semigroups and machines. This portion includes three chapters on finite semigroups supplying needed background for two algebraic proofs of the decomposition theorem and applications to semigroup complexity. Although self-contained, these chapters are heavy on notation and will be difficult