1145-11-1487   **Angelica Castillo** (`angelica.castillo01@utrgv.edu`), Department of Mathematics, University of Texas Rio Grande Valley, Edinburg, TX 7839-2999, and **Brandt Kronholm*** (`brandt.kronholm@utrgv.edu`), Department of Mathematics, University of Texas Rio Grande Valley, Edinburg, TX 7839-2999. *A Technique in Partitions.*

In a 1974 paper titled *"A Technique in Partitions"*, H. Gupta describes "...a remarkably simple method of dealing with generating functions..." with the goal of establishing closed-term formulas for partition functions restricted to parts from a finite set. Gupta writes "...this leads to a formula which establishes a perfect relationship between the number of partitions and a linear combination of certain combinatory functions in which the coefficients are nonnegative integers." The formula that Gupta describes is known as a constituent of a quasipolynomial.

The main result of Gupta's paper shows that the sums of the previously mentioned coefficients for the constituents from a given quasipolynomial are the same.

In this talk we first revisit Gupta's proof in order to bring needed clarity to it. We then make use of the result and establish an infinite family of congruences for a family of restricted partition functions. The family of restricted partition functions in question is closely related to $\nu_k(n)$, the number of partitions of n into k part sizes and our result may offer further insight into recent work of William Keith. (Received September 22, 2018)

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