

Friday, March 23, 2:30 pm
Pickard Hall, Room 304

**Comparison between a voter's power and his capacity
to influence the voting outcome under locally generated
measures of dissatisfaction***

Dr. Bertrand Tchantcho
Advanced Teachers' Training College
University of Yaounde I - Cameroon
PO BOX 47
btchantcho@yahoo.fr

Abstract: Our model of vote is formalized by the concept of *voting game* in which any majority enjoys the total power of decision. Any voter owns an implicit portion of this and the measure of that portion has interested many authors in the literature. The Shapley-Shubik (SS) and the Banzhaf-Coleman (BC) indices assign to each voter i , nonnegative real numbers $\mu_S(i)$ and $\mu_B(i)$ respectively which measure his power in the game. In a qualitative approach, Taylor and Zwicker (T) introduce the influence relation \geq_T , which ranks the voters with respect to the importance of their power.

Do these power theories really measure the voters' ability to influence the voting outcome at least when this outcome is represented by the dominance of the game?

Diffo Lambo et al obtain a "yes" answer about (T) and a characterization of games that yield a "yes" answer about (SS) and (BC) when individual preferences are strict orderings. These results are no longer true when individual preferences are weak orderings. We obtain a sufficient condition (stated as a compatibility condition on the distance on binary relations used to measure dissatisfaction) for a positive answer about (T), (SS) and (BC). However, very few concrete distances on binary relations have so far been exhibited in the literature. We develop the so called locally generated distances $d_{\alpha,\beta,\lambda}$. A characterization of the distances $d_{\alpha,\beta,\lambda}$ for which (T) translates the voters' ability to influence the voting outcome is given. Other results state sufficient conditions on real numbers parameters α , β and λ for which (SS) and (BC) are relevant measures of voting power.

* In collaboration with
Dr. Lawrence Diffo Lambo
Advanced Teachers' Training College
University of Yaounde I - Cameroon