

Introduction: Personnel Classification

- Classification = selecting from one applicant pool for different positions simultaneously, thus evaluating in which position an individual would be expected to achieve more than in another (Fig. 1)

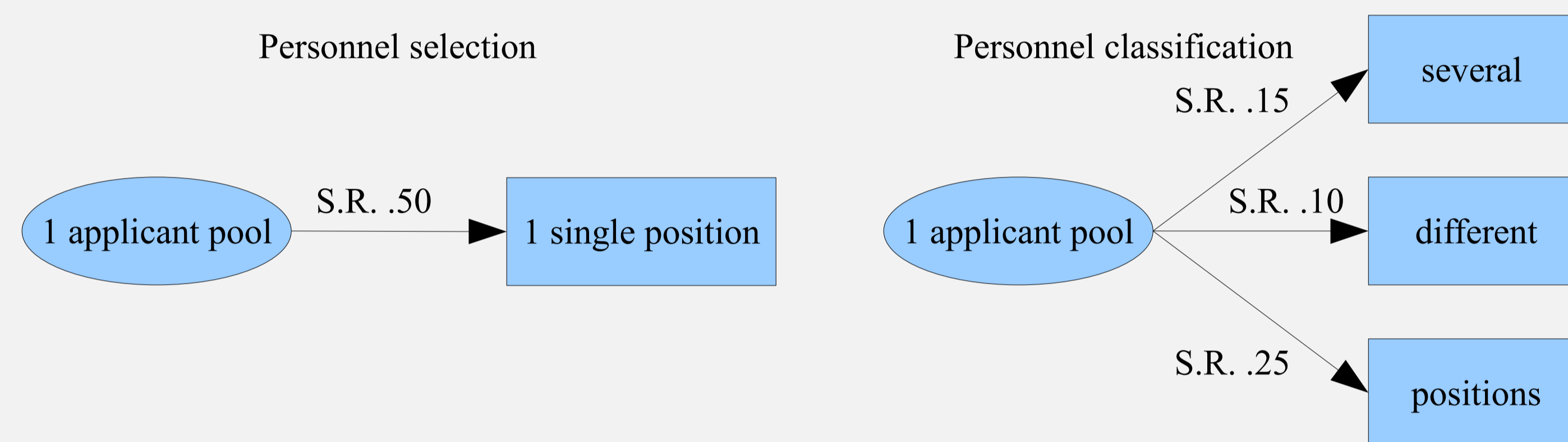


Figure 1. Personnel selection vs personnel classification.

- Classification can substantially increase the efficiency of high stakes personnel decisions (Brogden, 1951)
- Method: different predictor composite scores are constructed from an available test battery, one for each of the positions, for all applicants
- These various predictor composite scores are used as criterion estimates
- Consequently, validities of different predictors should vary across positions
- The goal of personnel classification is to maximize classification efficiency by assigning individuals to the position for which they have the highest estimated criterion score
- What about the **diversity** goal? Quality-diversity dilemma has been neglected in classification context!

Efficiency and Adverse Impact of Classification Decisions

- Analytic method for estimating **the expected efficiency** (expected criterion score of assigned applicants) of classification decisions (De Corte, 2000)
- Present contribution:
 1. heterogeneous applicant pool instead of homogeneous applicant pool
 2. general, instead of only regression weighted, predictor composites as assignment basis (De Corte et al., 2007)
 3. estimation of expected efficiency and adverse impact ratio (AIR)
 4. implementation into multi-objective optimization program: Pareto optimal efficiency - AIR trade-offs

Results

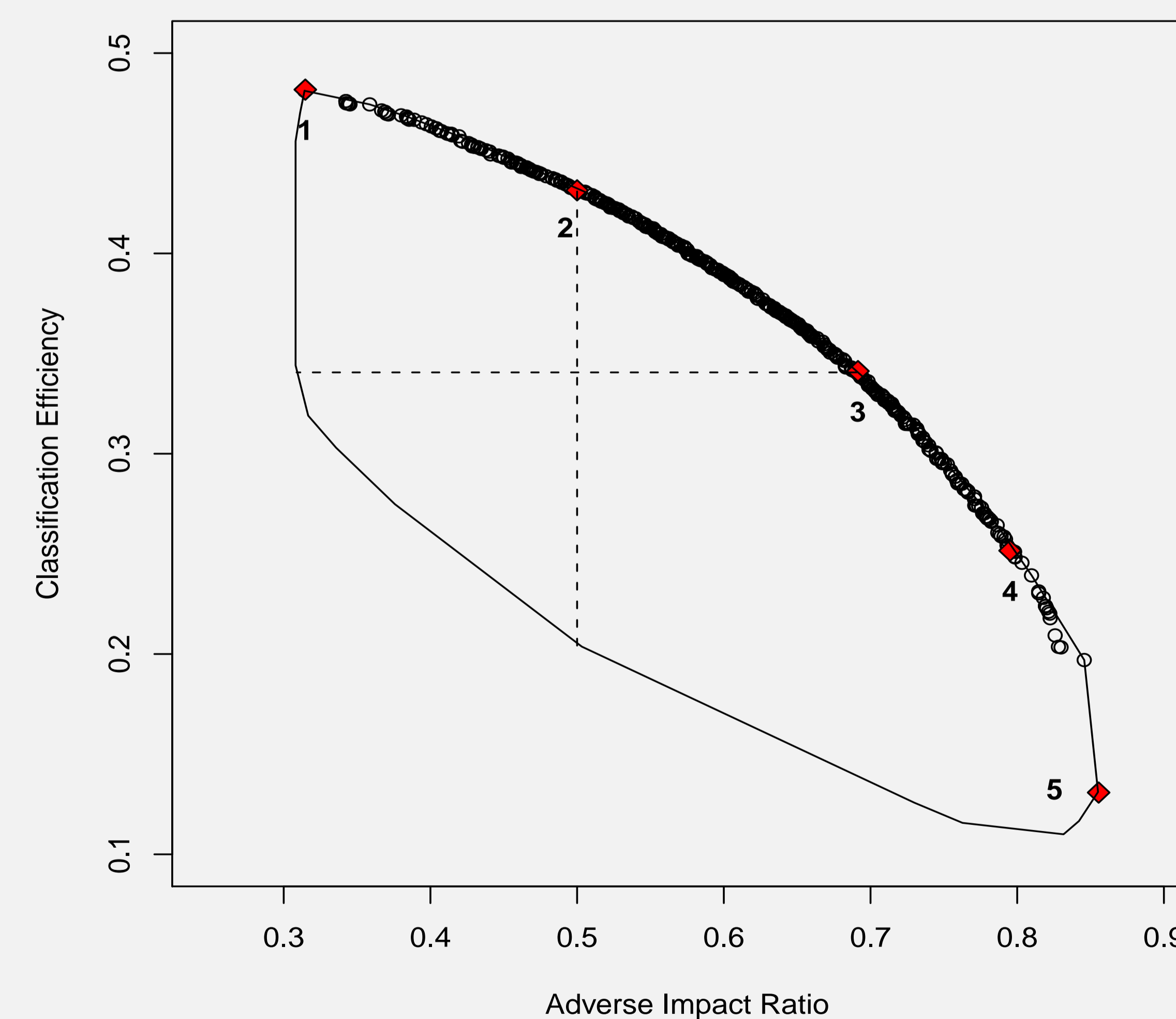


Figure 2. Gammut of attainable efficiency-AIR trade-offs and set of Pareto-optimal trade-offs.

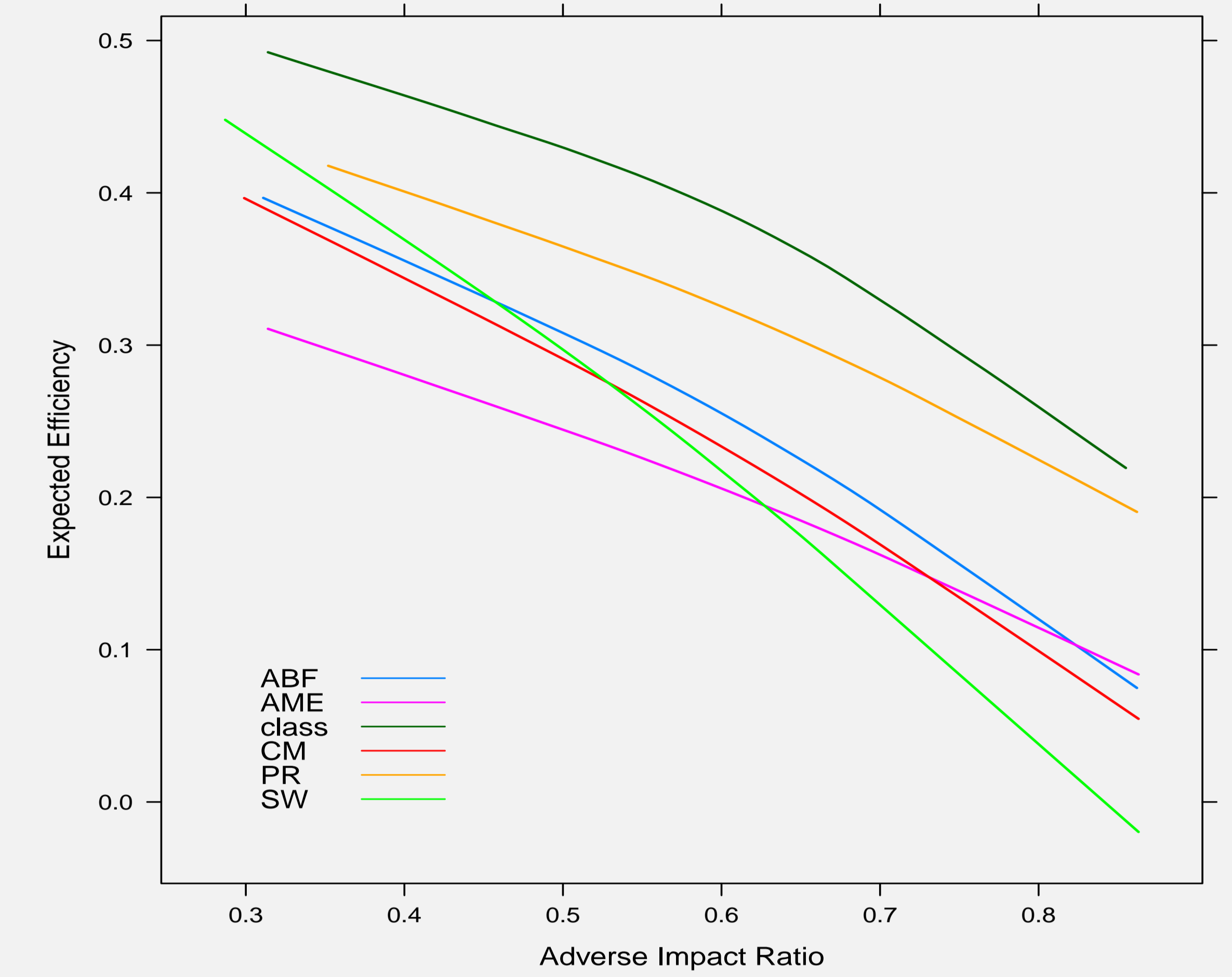


Figure 3. Comparison between one classification with five criteria, and five separate selection decisions, results in the following Pareto-fronts.

Conclusions

- First (analytic) method to estimate **classification efficiency as well as AIR** of classification decisions
- General criterion estimates, compared to regression weighted criterion estimates, yield **better balanced trade-offs** (Fig. 2)
- Classification decisions result in better expected efficiency and higher AIR than the corresponding selection decisions (Fig. 3)
- Method permits a **better informed design of composite predictors** to perform classification decisions for which efficiency as well as diversity are important goals

References

- Brogden, H. E. (1951). Increased efficiency of selection resulting from replacement of a single predictor with several differential predictors. *Educational and Psychological Measurement*, 11, pp. 173-196.
- De Corte, W. (2000). Estimating the classification efficiency of a test battery. *Educational and Psychological Measurement*, 60, pp. 73-85.
- De Corte, W., Lievens, F. & Sackett, P. (2006). Combining predictors to achieve optimal trade-offs between selection quality and adverse impact. *Journal of Applied Psychology*, 92, pp. 1380-1393.