

Computerized assessment of knowledge is one of the most promising applications of knowledge space theory. The first requirement is to map a picture as accurate as possible of the organization of the knowledge. So far, all the procedures designed for this purpose rely exclusively on the query of an expert. Several experiments have shown the limitations of that approach in realistic conditions. One source of difficulty is the very high sensitivity of the querying algorithms to an expert's mistakes. Another source of difficulty concerns the validity of the expert: his or her expertise can exhibit large discrepancies with the knowledge structure of the actual population. To solve these difficulties, the present paper proposes and simulates a two-step procedure. The first step implements a modification of an existing querying procedure. The modification lowers the incidence of wrong answers on the knowledge structure. The second step consists in a refinement mechanism which relies on the knowledge assessment of many subjects to refine the very structure used by these assessments. For each step, it is shown that the underlying knowledge space can be recovered.