



GUY MICHELAT'S ASTONISHING SCALOGRAM

As a researcher at the Centre de recherches politiques (CEVIPOF) (Center for Political Research) from 1961 until his death in 2021, Guy Michelat developed innovative qualitative and quantitative approaches to studying political attitudes and behaviour, and trained generations of researchers to use them. Preciously preserved at CEVIPOF, one of his inventions – the scalogram – harkens back to the days before computer calculations. Political scientist Nonna Mayer traces the history of this unique object and recalls the pioneering role of its designer.



By Nonna Mayer

Scalogram analysis was developed after the war by the American psychologist Louis Guttman to process data from questionnaire surveys. The idea was to capture the structure and intensity of opinions using attitude scales. Many variants of these scales exist today. The best known, and undoubtedly the most widely used, particularly in marketing, is the Likert scale. The Guttman scale has the specificity of being hierarchical: regardless of the ideological universe explored, it checks that the answers to the questions used to build it fall within the same attitude, and can be ranked hierarchically, from the lowest to the highest level, with adherence to the higher items implying adherence to the lower ones. If the scale were perfect, we would obtain the structure shown

in the table opposite. In this table, individuals with a maximum score of 5 have approved all five of the proposed items, those with a score of 4 have approved only the first four; those with a score of 3, the first three; those with a score of 2, the first two; those with a score of 1 have only approved the first; and those with a score of 0 have approved none. In reality, however, this is never quite the case: individuals may tick the first two items, then the fifth, and so on. Various statistical coefficients, in particular the Loevinger coefficient, can then be used to measure the difference between the expected structure (which we hope to be perfect) and the observed structure.

In the years before research was computerised, Guy Michelat came up with the idea of an original device for manually creating the scales. He made

a grid of removable plastic slats inside a wooden frame (see photo). Moving the rows (the individuals) and columns (the items) enabled him to visualise the structure of the responses (represented by crosses) in the sample and to choose the items forming the best hierarchical scale, that is, the closest to the ideal structure above. The exercise was all the more laborious as the questions generally proposed several response modes and each of them required testing against all the possible dichotomies ('completely agree' versus 'somewhat agree', 'somewhat disagree' and 'completely disagree', 'completely or somewhat agree' versus 'somewhat disagree' and 'completely disagree', etc.) to find the one that worked best.

The scalogram working on a calculation.



STRUCTURE OF A PERFECT HIERARCHICAL LADDER

Item 1	Item 2	Item 3	Item 4	Item 5	Scores
+	+	+	+	+	5
+	+	+	+	-	4
+	+	+	-	-	3
+	+	-	-	-	2
+	-	-	-	-	1
-	-	-	-	-	0

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Guy Michelat used the instrument to develop dozens of attitude scales, notably on nationalism and religious beliefs. With the advent of computer programming, Michelat, with the help of mathematician Pierre-Olivier Flavigny, designed software to perform all the statistical operations required, and put his scalogram away.

The handcrafted yet playful nature of this unique object made me aware very early on of the need for rigorous measurement of attitudes, and of the advantages of hierarchical scales over other, less restrictive ones, such as reliability analyses measured by Cronbach's alpha. For example, the anti-Semitism scale constructed by Guy Michelat on the basis of data from the Racism Barometer of the Commission Nationale Consultative des Droits de l'Homme (CNCDH) (National Consultative Commission on Human Rights), which is more topical than ever, shows

that the hard core of anti-Jewish sentiment in France still consists of five stereotypes associating Jews with money, power, communitarianism and a lack of loyalty to France. Of the five items chosen for the scale, the one that indicates the highest level of antisemitism is total agreement with the idea that 'Jews have too much power in France'. A minority of the sample were convinced of this (6 per cent in 2023), while the most widespread item (61 per cent), but the least discriminating one, was not completely rejecting the idea that 'Jews have a special relationship with money' (answers included 'completely', 'somewhat', and 'somewhat disagree').

Today, a variety of statistical techniques, such as Item Response Theory and Mokken Response Theory, enable highly refined attitude scales. But they should not obscure the pioneering role of Guy Michelat's scalogram.

Guy Michelat in his office at CEVIPOF, November 1999.