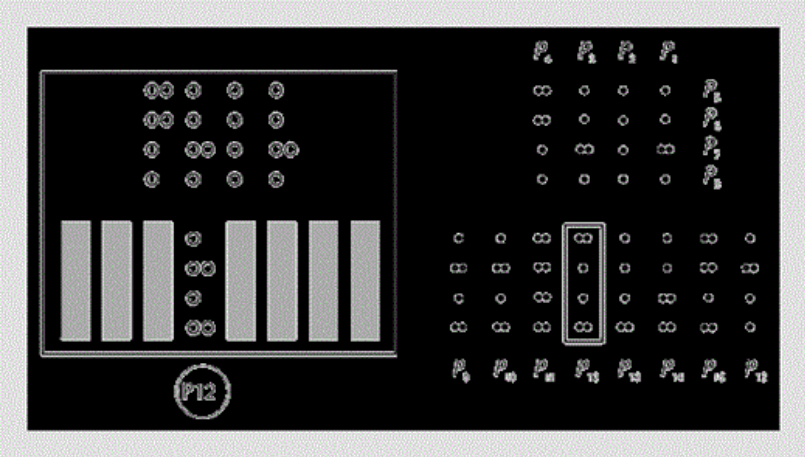
During fieldwork we discovered that diviners are able to compute the whole series of eight daughters in a strictly mental way, that is to say by saying the name of the corresponding figures without laying out the seeds. In order to study this mathematical skill we designed a computerized experiment similar to the ones previously described among the Munduruku of Amazonia. A few series of screen displays were prepared showing *sikidy* tableaux where all the daughters were hidden but one. The participant had to check if the visible daughter was correct according to the mother-*sikidy* displayed above it and to press a specific key to answer yes or no (Chemillier 2007; Chemillier et al. 2007). To achieve this unusual task, the diviner began to talk to himself by mentioning all the intermediate operations he was doing in his mind. Fig. 14.7 shows a screen display taken from this experiment with seven hidden figures among the eight daughters, and the corresponding full tableau (further examples are given in Chemillier 2009). The question was whether or not figure one, two, one, two was correct as the third-generation daughter P_{12}. The answer is no, since the
p. 338 correct figure is two, ↳ one, one, two as shown Fig. 14.8. In proceeding with the task the diviner first pronounced the following words: '*Alibiavo safary, alasady saily, karija asorità...*'. According to the name of the figures (see Fig. 14.5) and the position in the tableau (see Fig. 14.6), this could be translated into: 'figure two, two, one, two at position P_{15}, figure one, one, two, two at position P_{14}, figure one, one, one, two at position P_{13}...'.

Figure 14.7.



Screen display of an experimental task about the mental computation of daughters (on the left). The displayed daughter P_{12} (one, two, one, two) is wrong, since the third-generation daughter should be (two, one, one, two) as shown on the right.

The diviner's comment proves that in order to check the proposed daughter, he had to compute in his mind some daughters of the older generation as intermediate results. The amazing fact is that he mentioned a second-generation daughter (*saily*, P_{14}) before the first-generation one from which it derives (*asorità*, P_{13}). This is evidence of the fact that the second-generation daughter is computed by the diviner not as the addition of two first-generation daughters but directly from the mother-*sikidy*. Diviners are probably aware of a particular mathematical property. Since P_{15} and P_{13} are obtained by adding respectively the two rightmost and the two leftmost columns of the mother-*sikidy*, then P_{14} is obtained as the sum of the four mother-*sikidy* columns. Thus its four elements are determined by the parity of the mother-*sikidy* rows, which in this case are odd, odd, even, even (or slave, slave, prince, prince in the language of diviners), so that P_{14} contains figure one, one, two, two. The point that must be stressed is that when the diviners were asked about the way they compute the daughter columns, they always answered by referring to the formal definition of the daughters indicated in Fig. 14.6, that is to say P_{14} obtained by the addition of P_{13} and P_{15}, not
p. 339 to the actual computation they achieved in their ↳

p. 340 ↳