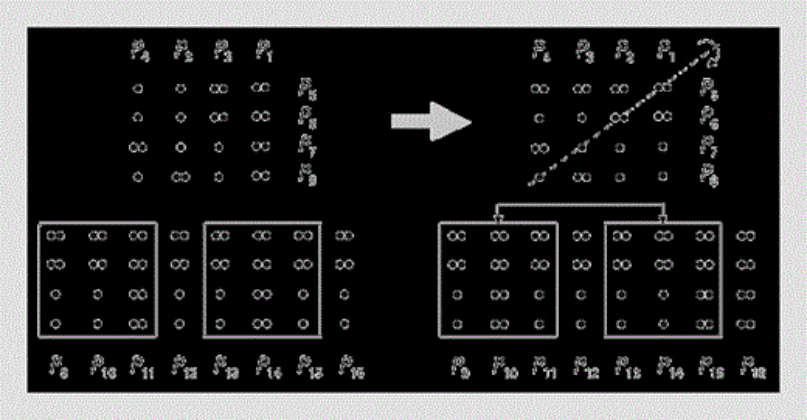
Generally speaking, the *fohatse* property applies to tableaux where the repeated figure occurs at least seven times. It follows that tableaux with at least eight repetitions of the same figure always give a new *fohatse* when their mother-*sikidy* is transposed. Notice that in Fig. 14.9, the second column P_2 is equal to the second row P_6. More generally, as soon as a figure is repeated many times among the positions of a tableau, it is
p. 343 obvious that the rows of the mother-*sikidy* tend to be ↳ equal to the corresponding columns, so that the mother-*sikidy* becomes partly symmetrical. In most cases, when the number of repetitions of a figure in a tableau takes the greatest possible value, the mother-*sikidy* becomes fully symmetrical, that is to say equal to its transpose. Diviners are aware of these mathematical results, and the function of matrix transposition is clearly to preserve formal properties such as the *fohatse* property, and others of the same kind that are considered as strongly powerful at the symbolic level.

Figure 14.9.



The matrix transposition applied to the mother-*sikidy* preserves the daughters by permuting some of them. The *fohatse* tableau on the left with nine repetitions of figure two, two, one, one remains *fohatse* on the right with eight repetitions.

14.9 Conclusion

To sum up the ideas that we have developed in this chapter, it appears that linguistic fieldwork dealing with ethnomathematics has to cope with two kinds of relation between language and mathematical ideas. On the one hand, words for number and measurement are partly based on mathematical constructions more or less related to the theory of congruence, as we have seen in numeration systems with different bases, or measurement systems with various units. These specific lexicons may reflect mathematical ideas from people using them, but their consistency is limited in some way by the conjunction of historical transformations and practical constraints which are not of a mathematical nature. On the other hand, the development of mathematical ideas does not necessarily require a rich lexicon to express them. It also appears that gesture can play an important role in the creation of mathematical ideas, be they geometrical, algebraic, or simply logical. The relatively small size of the set of words involved in this process may be related to the fact that, as opposed to the scientific tradition of literate societies, mathematical activities of non-literate peoples need not be transmitted in a systematic, normalized, and exhaustive way. We have observed during fieldwork on *sikidy* divination that the exploration of their mathematical system by Malagasy diviners was carried out in a quite solitary way. Moreover, part of the knowledge that they develop during their activity is kept secret, as it contributes to their prestige.

How, then, to record ethnomathematical knowledge when doing linguistic fieldwork? The fact that gesture appears to be an essential dimension in the expression of mathematical ideas does not mean that no words are used in this context. On the contrary, we have described in this chapter many examples of already