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The string figures of cat's cradle provide a good example of a traditional activity that leads to interesting mathematical problems. In fact how can we characterize the string figures that can be derived from a given one by a combination of simple \hookleftarrow operations? Some mathematicians have attempted to do so by using elaborated tools called 'knot polynomials' (Stewart 1997; Yamada et al. 1997). From a linguistic point of view, it is possible that in societies where this game is played one can find specific terms used by native people to designate the operations involved in cat's cradle and their combinations into subroutines. For instance, among the Inuit of Pelly Bay in Canada there exist words used for naming different steps of the realization of a figure. The final position is called *ayarauseq*, and various initial positions are called *pauriicoq* or *paurealik*. Even more complex combinations of gestures are named. The word *anitidlugo* has the meaning of a particular subroutine that consists of passing one loop through the other (Vandendriessche 2007: 47).

For such topics involving mathematical ideas in traditional activities that go beyond everyday expertise, it is important to focus on the consistency of the data, as noted earlier, because if they are altered in some way or even incomplete, the formalization of their mathematical content becomes impossible. First of all, fieldworkers have to record the data with the use of appropriate devices such as diagrammatic records. Fortunately, the history of ethnology provides examples of fieldwork conducted by accurate researchers who recorded their data in such a way that their mathematical study has been made possible even a long time afterwards. It is the case for the sand drawings recorded by Bernard Deacon in Vanuatu, as Ascher (1991: 64) notes:

In the 1920s, A. Bernard Deacon studied among the Malekula. With an eye and insight that were especially rare, he collected material that he believed demonstrated mathematical ability and evidence of abstract thought. One of the things he saw as mathematical [...] was 'the amazingly intricate and ingenious' geometrical-figure drawings. He was meticulous in recording about ninety figures, including their exact tracing path.

Let us have a look at the drawing recorded by Deacon reproduced in Fig. 14.1. One can easily recognize the form of a turtle represented on this picture, but there is additional information included in the figure which is very important from our mathematical point of view. All the lines involved in the tracing path have been numbered by Deacon from 1 to 103. Thanks to this crucial information one can have access not only to the form of the drawing but also to the gesture of the native people who produced it. This information allows us to study a particular kind of consistency of the tracing path, which is expressed by the concept of 'Eulerian path'. It appears that most of the sand drawings from Vanuatu are traced in this way. The interest of native people in 'Eulerian path' seems to be shared by different traditions of sand drawing all over the world, not only in Vanuatu but also, for instance, among the Tshokwe of Angola, and it has been studied by various ethnomathematicians (Ascher 1991; Gerdes 1995; 2006).

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In Vanuatu an indigenous word is directly related to the tracing path. A figure is called *suon* when the drawing ends at the point from which it began (Ascher \hookleftarrow 1991: 45). The word *suon* may have a different meaning in another context, and we will encounter several examples of this type in this chapter. It must be stressed in such cases that the ethnomathematical context gives to the word a new meaning that can be fully understood only when one has a clear understanding of the underlying mathematical procedure. As pointed out by Ascher and Ascher (1986: 1 \hookleftarrow 26): 'If a word is adopted from an already existing word, it soon takes on a meaning appropriate to its new context. For example, when an English speaker says "a foot" in the context of measurement, no English hearer thinks he is thinking of a body part.'

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