particular with ↳ respect to the completeness of their data recording (as Pascal noticed, principles underlying mathematical ideas must be 'plain' and 'palpable').

One must distinguish a mathematical concept and its application. Words for number and for measurement of time, weight, and distance can be involved in mathematical ideas, but they can also be applied to activities not mathematical *per se*. Selling goods at the market place using a weighing machine is business, but it is not mathematics. Words for number and measure are not necessarily organized in a systematic fashion because they are partly determined by practical constraints. For example, traditional measuring methods for short distances took advantage of the practical use of the human body. This gave birth to widespread units such as the foot and the inch (representing the width of a thumb as it is explicit in French, where *pouce* is the translation for both 'inch' and 'thumb'), but these various units were not organized in a logical way. Number words can also have been altered by historical transformations. In French, integers 11–16 are named *onze, douze, treize, quatorze, quinze, seize,* sharing the same suffix *-ze*, whereas 17 is *dix-sept*, without this suffix. This difference is relevant when studying the evolution of the French language from a historical perspective, but it is not relevant from the point of view of mathematicians. In this chapter, we will describe basic mathematical constructions used for number words and measurement units, but we will also point out their practical and historical contingency, which is not relevant in the context of mathematical ideas.

The question of fieldwork in ethnomathematics raises another important issue concerning the relation between language and thought. A famous metaphor by Saussure quoted by Benveniste illustrates their intrinsic link: 'Language can also be compared with a sheet of paper: thought is the front and the sound the back; one cannot cut the front without cutting the back at the same time; likewise in language, one can neither divide sound from thought nor thought from sound' (Benveniste 1971: 45). Nevertheless, ethnomathematical fieldwork brings evidence of the fact that mathematical ideas are sometimes expressed without words and that gestures appear to be a fundamental feature in their development. While one may ask if this is not the case in the development of any ideas, the answer is that the possibility of expressing ideas by means of gestures seems to fit the particular features of what Pascal called the 'mathematical mind' (*esprit de géométrie*) as opposed to the 'intuitive mind' (*esprit de finesse*) (Pascal 2008[1660]: 23). For example, as we will see later in this chapter, it is possible to give a definition of the 'evenness' or the 'oddness' of an integer without saying a single word, by simply moving seeds on a mat. It is much more difficult to do so for holistic notions such as 'beauty' or 'love'. In many cultures all over the world, especially in Africa, a precise system of gestures accompanies the use of number words. It seems obvious in such cases that the recording of language by linguists could efficiently make use of new technological approaches involving more than the simple recording of example words or sentences. This point is dealt
p. 320 with elsewhere in this volume ↳ (see above, Seyfeddinipur (Chapter 6) on gesture and Margetts and Margetts (Chapter 1) on recording), but as we will see, it is worth highlighting it with respect to ethnomathematics.

From an ethnomathematical point of view it is useful to make a few observations on the best way to record annotated new media while visiting the field, whether video or computer experiment, in order to make possible afterwards the exploration of their mathematical content. Section two below will be devoted to the question of completeness of data collection during fieldwork, a crucial point in ethnomathematics for checking the consistency of mathematical knowledge embedded in the data. Sections three and four will tackle the question of vernacular lexicons used for numbers and measurement, and we will see that it only partly meet the general goals of an ethnomathematical approach. In section four I discuss the use of measurement terms. The fifth section addresses the question of mathematical operations on approximate quantities (addition, subtraction, comparison) carried out in a society where there are no number words above five. This section focuses on the basic numerical abilities of Munduruku people from Amazonia, and illustrates the use of computer-based fieldwork experiments. The last three sections refer to our research on