puzzles such as jigsaws and we can see a whole industry based on our need to solve puzzles.

The fact that we are prepared to put so much effort into solving puzzles which are pointless shows just how much satisfaction we can get from the process. In order to get this satisfaction, however, we seem to need to be able to recognise the right answer. The completed jigsaw or crossword offer just that characteristic. We can become quite obsessed with a particular clue to a crossword puzzle which for a while seems impossible and yet in one moment an obviously correct answer emerges. Such is the satisfaction at this moment that a colleague of mine who was a crossword enthusiast would frequently insist on reading me a particularly difficult clue after he had solved it and then tell me the answer apparently so that I could share the moment of satisfaction with him!

Design problems are not puzzles, but they often have puzzle-like components, and designers rely on this almost obsessional drive to achieve their goals. Planning problems can sometimes be almost like jigsaws. Sometimes predefined components must be arranged, perhaps tables in a restaurant or parking spaces in a car park. More often, however, the components of design problems are not as rigidly predefined as a car parking space and can themselves change size and shape to some extent. This then highlights the first of two aspects of the puzzle trap for a designer.

Designers treating a part of a design problem as a pseudo-puzzle can be trapped into thinking that the elements and rules of this pseudo-puzzle are as inviolate as a normal puzzle. In fact many brain-teasers also rely on our weakness for treating puzzles over-rigidly. The well known nine-dot four-line puzzle is a good example of this (Fig. 13.1). The puzzle is to find a way of connecting all the nine dots by drawing only four lines without lifting the pen from the paper. Most early attempts to solve this puzzle show the thinker implicitly adhering to an extra but not specified rule that no line may go beyond the perimeter of the square defined by the dots. In fact if this rule were to be imposed the puzzle would be impossible hence its brain-teasing quality.

In design, pseudo-puzzles can easily be created by fixing a limited number of constraints and then puzzling out the results. Thus an architect might try fixing the shape of the external envelope of a building in plan and then try to fit the required spaces inside. This is fine so long as the designer remembers later that the building envelope can also be challenged. I had a group of architectural students working on a housing project who were trapped by this for several days (Fig. 13.2). They were trying to decide how many

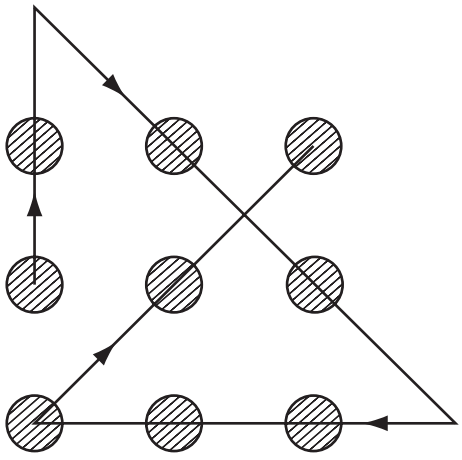

Figure 13.1
Join the dots with only four straight lines without lifting the pen – a simple puzzle that we usually make more difficult than necessary by assuming the lines cannot go beyond the dots

two-person homes would fit on a hillside site. They had decided to use a deck-access system following the contours and were trying to reduce the width of the flat to the minimum in order to fit in the maximum number along the length of the deck which was limited by the site boundary. They had resolved that the bathroom and bedroom would face away from the deck in a northerly direction

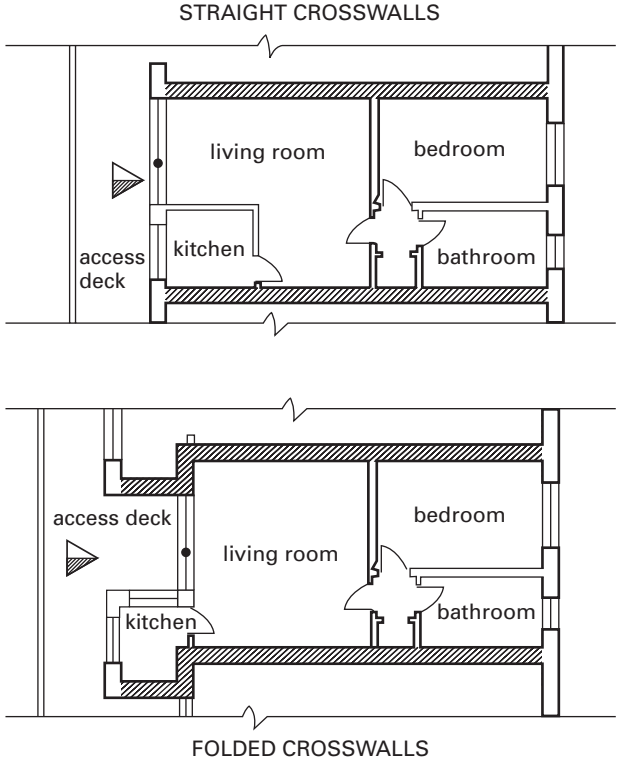

Figure 13.2
Architecture students fall into the puzzle trap