



4.10 Various levels of rules governing how dots might be arranged in an abstract image. The first pattern is entirely random. In the second case, all dots are kept a minimum distance apart. In the third case, they may only appear on the intersection points of an invisible grid. In the fourth case, every dot must have two neighbours on this grid. In looking at such patterns we find it hard to make the rules explicit, but we may still perceive their existence and degree of constraint

introducing probabilities of occurrence by making points next to a dot more likely to have another dot than points in open space. We are now getting quite close to the famous ‘game of life’ computer program for generating such images. At this point we might expect the human viewer of these patterns to be able to detect their ‘family likeness’. This is entirely due to our ability to recognize and appreciate the pattern rules without necessarily understanding them explicitly, and thus illustrates just how our perceptual system works in relation to redundancy. In fact, experiments have shown that our ability to recognize, discriminate and learn patterns of these kinds relates quite precisely to the mathematical theory describing their level of redundancy.

However, so far we have only considered what Garner would call internal structure or meaning. These dots could also have external reference. They might, for example, represent the location of aircraft on a radar screen. Here the order and structure is not between the dots themselves, but between them and some external reference. In order to be effective they now need to maintain relationships between themselves and the external reference as it moves, thus resulting in relationships between the dots, which are indications of the separation