(a)

(b)

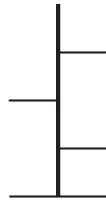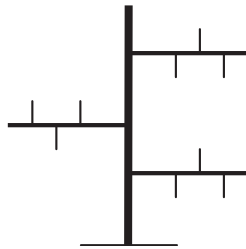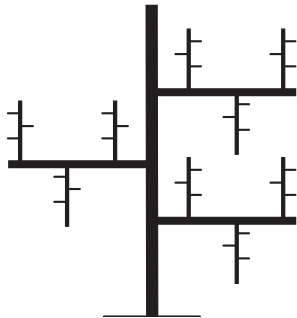**(c)**

7.7 • Distinction of elements in a self-similar system. To the extent that a tree structure is self-similar, elements at different scales cannot necessarily be distinguished by configuration alone. (a) Trunk and limbs. (b) Trunk, limbs and branches. (c) Trunk, limbs, branches and twigs.

This equates with arteriality. A trunk may be defined as 'the main stem' of a tree. Here, the word 'stem' is configurational; but 'the main' is constitutional, and based on arteriality. This is effectively the basis of trunk road designation: a 'trunk road' is therefore, in principle, a constitutional definition of road type. Hence, we can have route types defined by constitution just as we can have route types based on configuration or composition (Figure 7.8).

We can, of course, superimpose the 'multiple personalities' of constitution, configuration and configuration in a single street type. For example, an Arterial Connector Boulevard would have the form of a boulevard, configured as a connector (all four-way intersections) and constituting part of the arterial (strategic) network.

Relation to conventional hierarchy

Many kinds of route type applied in conventional hierarchy are effectively constitutional – rather than configurational or compositional. As it happens, Buchanan explicitly rejected the notion of road types based on composition and configuration, such as 'ring roads', 'tangential roads' and 'spine roads' which would presuppose the final layout of a road with respect to overall network structure:

> It is not being inferred here that a ring road is in no circumstances likely to form part of an urban network. The objection that is taken is against the slavish adoption of the ring as a standardised pattern . . . The pattern may eventually comprise a ring, but it must be allowed to 'work itself out'.[5]

Instead, Buchanan opted for route types that were almost purely constitutional – the route types could almost be defined independently of configuration, function or use, but purely in the sense of which route type must (or must not) connect to which other type. Indeed, the arterial, subarterial and local route types discussed in Chapter 3 (Figure 3.22) are defined and related to each other constitutionally.

In fact, rather than having any sort of fixed association with a particular kind of layout or network configuration, constitutionally defined street types do have an association with particular kinds of constitutional structure. In other words, constitutional types like arterials belong in constitutions possessing arteriality, in the way that connectors belong in networks possessing connectivity.