



3.14 • Patterns formed by top tier of roads.
 (a) If designated according to highest traffic flows. (b) If designated according to size of cities linked. (c) If designated by longest route length or trip length. (d) As actually designated, Great Britain (A1–A9).

Arteriality

The outstanding feature that the national road network possesses is that strategic routes all connect up contiguously.¹⁹ This is a property identified by the cartographer Alastair Morrison as ‘arteriality’, by which the ‘pattern of arterial roads is the only one which necessarily forms a complete network’ (Figure 3.15).²⁰

Arteriality is a property typical of road networks around the world – although it is not limited to the road network context. It is a pervasive property – but an almost invisible one, intuitively built into road systems without conscious prescription (Box 3). Arteriality is a key property of structure whose significance will resonate – and be revisited – in the rest of this book, as it can be used to spatially organise routes and structure hierarchies.

Overall, arteriality is an important underlying structural property – ‘underlying’ in the sense that it is not normally explicitly expressed, such as in design guidance. It is usually taken for granted that roads of one level connect at least with roads of the same level or the level above.²¹ Arteriality effectively underlies the kind of institutional hierarchies seen in Table 3.1 – but does not necessarily apply to those in Table 3.2 based on form or use.

We can conclude, then, that classification themes in conventional hierarchies may *appear* to be based on ‘functional’ criteria such as trip length, traffic flow or mobility function. But in fact, generally speaking, they only do so to the extent that such criteria fit the pattern of arteriality set out here. A hierarchy based on form or use *might* link up contiguously to some extent, but would not *necessarily* do so. Rather, it could end up with a non-contiguous ‘mosaic’ of route segments across the country. In other words, if designation were not based on arteriality, then road classification would not form the typical ‘road-pattern-shape’ of the road atlas.