MAIN LINE STABILITY

There is a trend for stability to require p=n. The Cordus explanation is that the nucleus consists of an assembly of alternating proton-neutron, forming the main frame of a (generally closed loop) NUCLEAR POLYMER, hence one neutron for every proton. For light elements the p=n nuclear polymer is stable, but heavier elements require BRIDGE neutrons to divide the polymer into COMPLETE SUBASSEMBLIES. These additional neutrons cause the deviation from the main line.

Horizontal runs

These are due to the structure having the ability to accept additional bridging neutrons. This is achieved by changing the shape of the polymer.

The run stops when there are no further stable bridge positions available, which is a function of the number of cubes. This also explains why lighter elements (which have fewer cubes) have shorter runs.

Aberration: 9F9 does not exist

This is explained as there being no stable layout that meets the morphological rules. Specifically, a 4-cube complete structure is not permitted.

Single Stability nuclides

These are from 9F10 upwards. These nuclides have COMPLETE cubes, being an expansion of the lamellar plate in the immediate lower nuclide.

That expansion consumes a bridge neutron along with the new proton, thereby converting a lamellar plate into a cube. The reason there is only a single stable nuclide is that addition of a further bridge neutron (e.g. an attempt to make a cis-phasic 9F11) would result in two 1-Cubes, and this is non-viable. So the neutron for 9F11 has to make other arrangements, which lead the polymer into trans-phasic joints and hence instability. Or to put it another way, the lower nuclide already had as many neutrons as were possible to fit into that number of cubes. These nuclides are all off the main line, because they already have a BRIDGE neutron(s).

No stable nuclides with n<p

(Except 2He1) This is a consequence of the synchronous interaction, which inter alia requires that stable assemblies of protons and neutrons must use cis-phasic bonds (as opposed to trans-phasic). This precludes closed-loop proton-to-proton bonds. The exceptions are the Open structures which are permitted to have n=p-1, (hence n,p), but have very little scope as they become closed after 2He1.

Vertical runs

These are due to the structure progressively gaining protons and thereby being able to remove bridge neutrons into the main loop. These runs follow for the next higher element after a SINGLE STABILITY NUCLIDE. This is because these nuclides commence a new CUBE (single stability nuclides have altogether complete cubes), and therefore have more options for BRIDGE neutrons. The multiple arrangements of the BRIDGE neutrons provides multiple stable nuclides. The shape changes in the process.

The progression stops when all the bridge neutrons have been extracted.

This also explains why the sizes of the horizontal and vertical runs are the same: three in each case (at this level).

Aberration: 4Be4 does not exist

This is explained as there being no stable layout that meets the morphological rules

Exception: Stable deviations from n=p LINE

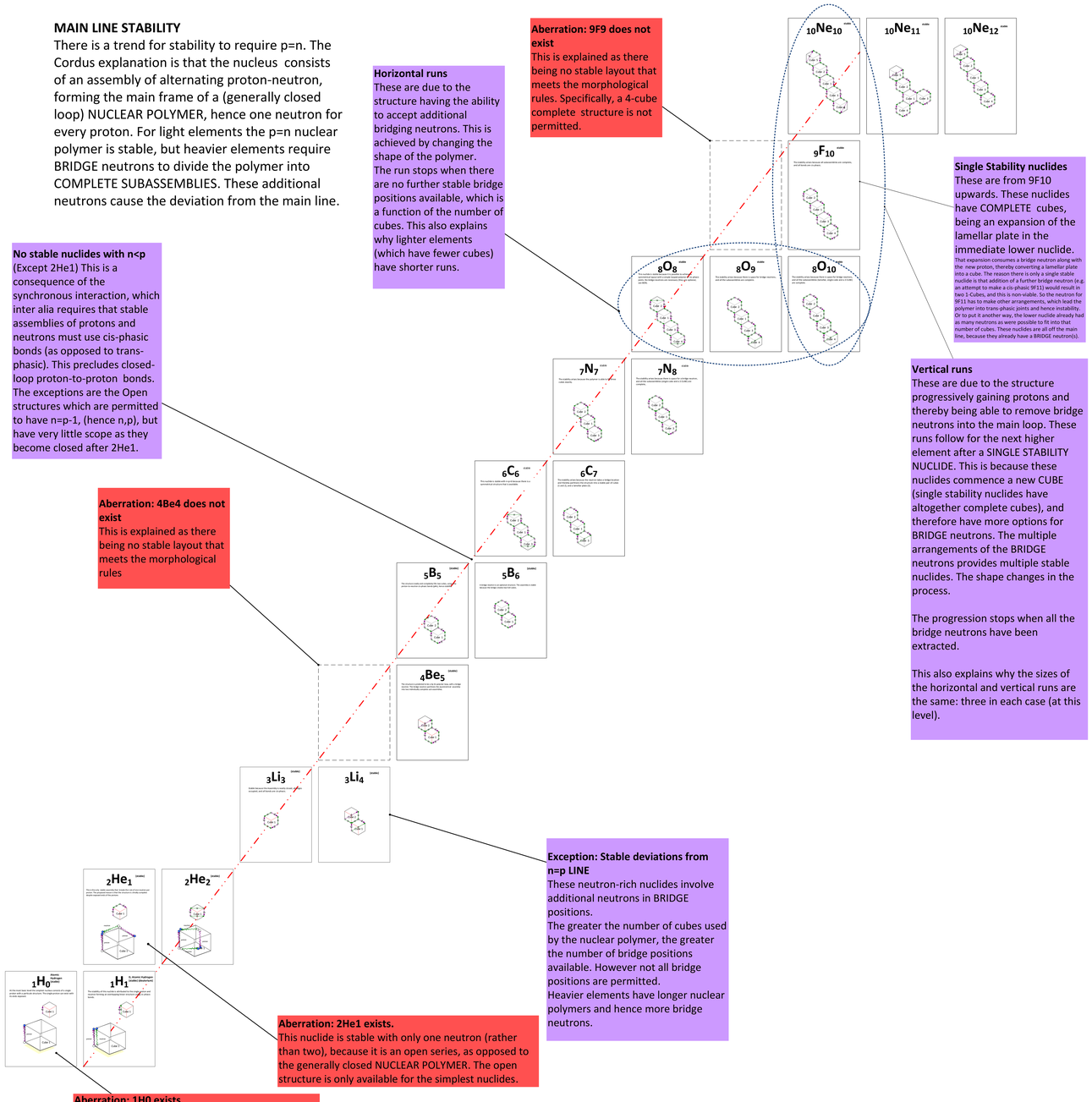
These neutron-rich nuclides involve additional neutrons in BRIDGE positions.

The greater the number of cubes used by the nuclear polymer, the greater the number of bridge positions available. However not all bridge positions are permitted.

Heavier elements have longer nuclear polymers and hence more bridge neutrons.

Aberration: 2He1 exists.

This nuclide is stable with only one neutron (rather than two), because it is an open series, as opposed to the generally closed NUCLEAR POLYMER. The open structure is only available for the simplest nuclides.

Aberration: 1H0 exists.

This nuclide is stable without any neutron, because the single proton is stable as an open structure. However multiple protons cannot be joined together without neutrons, hence the likes of 7N0 does not exist.