Upon reaction of HL$^1$ with cobalt(II) acetate under aerobic conditions or with copper(II) acetate, the mono-nuclear complex [Co$^{III}$L$_1^1$)$_3$]$_3$ and the di-nuclear complex [Cu$_2$L$_1^1$)$_4$]$_4$ were generated. In 3 and 4, (L$^1^-$) exclusively coordinates across its nitrogen donors. However, when HL$^2$ with copper- or nickel acetate, the di-nuclear cluster [Cu$_2$L$_2^2$)$_4$]$_6$ and the tetra-nuclear cluster [Ni$_4$L$_2^2$)$_8$]$_7$, respectively, were isolated. Contrary to 3 and 4, in 6 and 7, (L$_2^-$) also coordinates across sulfur.

**Key words:** Cluster Compounds, Self Assembly, Supramolecular Chemistry