## On the smoothness of the Hilbert scheme of smooth and connected space curves in low degree

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Since Mumford's article, "Further pathologies in algebraic geometry", we know that the Hilbert scheme of smooth and connected space curves can be singular; here an irreducible component is generically nonreduced. This example is an evidence supporting Murphy's law for Hilbert scheme as reported by Harris and Morrison: "There is no so horrible thing that cannot happen at the generic point of some Hilbert scheme". However, this situation realizes only gradually and the task to tell what can be said in low degree seems not to be achieved now.

Focussing on the smoothness property, and denoting by  $\mathcal{H}_{d,g}$  the Hilbert scheme of smooth and connected space curves of degree d and genus g, we will see that  $\mathcal{H}_{d,g}$  is smooth provided that  $d \leq 11$ ; and that (12, 15) is the lexicographically first pair such that  $\mathcal{H}_{d,g}$  is singular along a hypersurface.