The initial control polygon is \(b_0, \ldots, b_m\), we want to find a new set of points \(b'_0, \ldots, b'_{m+1}\) so that they describe the same Bezier curve.

To do that, let’s express \(B^m_i(t)\) via \(B^{m+1}_i(t)\):

\[
B^m_i(t) = (1 - t)B^m_i(t) + tB^m_i(t) = \frac{m+1 - i}{m+1}B^{m+1}_i(t) + \frac{i+1}{m+1}B^{m+1}_{i+1}(t). \quad (1)
\]

Then we can rewrite the equation of our curve using the Bernstein polynomials of higher order:

\[
F(t) = \sum_{i=0}^{m} B^m_i(t) \cdot b_i = \sum_{i=0}^{m} \frac{m+1 - i}{m+1} B^{m+1}_i(t) \cdot b_i + \sum_{i=0}^{m} \frac{i+1}{m+1} B^{m+1}_{i+1}(t) \cdot b_i = \quad (2)
\]

\[
= \sum_{i=0}^{m+1} \left( \frac{i}{m+1} b_{i-1} + (1 - \frac{i}{m+1}) b_i \right) B^{m+1}_i(t) = \sum_{i=0}^{m+1} b'_i B^{m+1}_i(t) \quad (3)
\]

Thus we have found an expression of the same curve via \(m + 1\) control points, so we have elevated the degree.