$r_i = (1-u) \cdot p_i + u P_{i+1}$

$s_i = (1-u) r_i + u r_{i+1}$

$t_0 = (1-u) s_0 + u \cdot s_1$

$$
\begin{aligned}
t_0 &= (1-u) s_0 + u s_1 \\
&= (1-u)\big((1-u) r_0 + u r_1\big) + u\big((1-u) r_1 + u r_2\big) \\
&= (1-u)^2 r_0 + u(1-u) r_1 + u(1-u) r_1 + u^2 r_2 \\
&= (1-u)^2 r_0 + 2u(1-u) r_1 + u^2 r_2 \\
&= (1-u)^2 \big((1-u) P_0 + u P_1\big) + 2u(1-u)\big((1-u) P_1 + u P_2\big) + u^2\big((1-u) P_2 + u P_3\big) \\
&= \underline{(1-u)^3 P_0} + \underline{u(1-u)^2 P_1} + \underline{2u(1-u)^2} P_1 + \underline{2u^2(1-u) P_2} + \underline{u^2(1-u) P_2} + u^3 P_3 \\
&= (1-u)^3 P_0 + 3u(1-u)^2 P_1 + 3u(1-u)^2 P_2 + u^3 P_3
\end{aligned}
$$

<u>Bezierov splajn</u>

· stupnja 3

$f(u) = B_0(u) P_0 + B_1(u) P_1 + B_2(u) P_2 + B_3(u) P_3$

Bernstein polinomi - baza f-je

$B_i(u) = \binom{3}{i} u^i (1-u)^{3-i}$

$$\binom{n}{m} = \frac{n!}{m!\,(n-m)!}$$

$B_0(u) = \binom{3}{0} u^0 (1-u)^3 = (1-u)^3$

$B_1(u) = \binom{3}{1} u^1 (1-u)^2 = 3u(1-u)^2$

$B_2(u) = \binom{3}{2} u^2 (1-u) = 3u^2(1-u)$

$B_3(u) = \binom{3}{3} u^3 (1-u)^0 = u^3$

$f(u) = (1-u)^3 P_0 + 3u(1-u)^2 P_1 + 3u^2(1-u) P_2 + u^3 P_3 = t_0$