must lie in a linear space of dimension $d+k-1$.

$\Rightarrow$ $f(L)$ must lie in a linear space of dim $2+1-1=2$. ⅃

Now $p \in \overline{f(u), f(u')} \subset V_2$, and any line through p in V_2 must intersect $f(L)$ twice, so that any point of $\mathbb{P}^5$ lying on a chord of S lies on infinitely many chords of S.

⌈ Any line l through p in V_2 must intersect $f(L)$ twice, maybe tangent to one point, since $l \cong \mathbb{P}^1$ and $f(L)$ has degree 2.

Let p be a point of $\mathbb{P}^5$ lying on a chord of S.
$\Rightarrow$ $\exists\ u, u' \in \mathbb{P}^2$ s.t $p \in \overline{f(u), f(u')}$. $\Rightarrow \exists\ V_2 > \overline{f(u), f(u')}$
$\Rightarrow$ Any line l through p lying V_2 must intersect $f(L)$, where $L = \overline{u, u'}$.

$\Rightarrow$ $\exists\ q_1, q_2 \in f(\overline{u, u'}) = f(L)$. s.t $\overline{q_1, q_2} \ni p$. and $q_1\ q_2 \in S$, i.e. p is in a chord $\overline{q_1, q_2}$ of S. ⅃

- In particular, if we let L_0 be the line $(s=0)$ in $\mathbb{P}^2$, and let $u_0 = L_0 \cap L$, then the line

$\overline{f(u_0), p} \subset \mathbb{P}^5$ is a chord of S.

⌈ $p \in \overline{q_1, q_2}$, $q_1, q_2 \in S$. $\Rightarrow$ By the previous result, (i.e. any line through p must intersect $f(L)$ twice, and the line is a chord of S). $\overline{f(u_0), p}$ is a chord