

We concluded, then, if  $l_x$  did not lie on any pair of confocal pencils, and if  $T_x(X) \cap X$  contained no multiple components, that  $l_x$  met  $S$  in four distinct points.

□ See P764

We have since seen that the degree of  $S$  is indeed four, and so we can now invert our argument to obtain the characterization:

For any  $x \in X$ , the line  $l_x$  will be tangent to  $S$  if and only if either

1.  $l_x$  is a singular line, i.e., it is held in common by two confocal pencils; or
2. the intersection  $T_x(X) \cap X$  contains a multiple component.

We have already seen that the locus  $\Sigma \subset X$  of singular lines is the smooth intersection of  $X$  with a quadric hypersurface in  $\mathbb{P}^5$ ; we turn our attention now to the second possibility.

□  $l_x$  is tangent to  $S \iff l_x$  is held in common by two confocal pencils. See P764 ~ P765