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Projective Duality, Unexpected Hypersurfaces and Hyperplane Arrangements.

We say a finite set of points Z in P^2 admits unexpected curves in degree d , if the intersection of the ideal $I(Z)$ with the ideal $I(Q)^{d-1}$ is larger than "expected". Surprisingly, it was shown that the degrees in which Z admits unexpected curve can be determined from combinatorial data of Z , and the Derivation bundle of the line arrangement dual to Z . We generalize this result to P^n , replacing Q with a general codimension 2 subspace. Connections to Terao's Freeness Conjecture are discussed as well. (Received September 17, 2019)