Jumping lines of logarithmic bundles

Jean Vallès

Abstract

To a line arrangement $\mathcal{A} \subset \mathbb{P}^2$ we associate its logarithmic tangent bundle denoted by $\mathcal{T}(\mathcal{A})$. If $\mathcal{T}(\mathcal{A})$ is neither free nor a shift of the tangent bundle of $\mathbb{P}^2$ then $\mathcal{T}(\mathcal{A})$ is not uniform (i.e. its splitting is not the same for all lines). It implies that there exists a closed subscheme $S(\mathcal{T}(\mathcal{A})) \subset \check{\mathbb{P}}^2$ of jumping lines, i.e. lines with a different splitting type.

I will describe explicitely this subscheme in the case of classical configurations of lines, like Pappus, Desargues, Pascal etc. I will also explain that such a subscheme appears if Terao's conjecture about freeness and combinatorics is not true.