



2. Übungsblatt zu Holographic Algorithms

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<http://www-cc.cs.uni-saarland.de/course/53/>

Second Assignment will be discussed: tba

Solving the assignments is voluntary.

Aufgabe 2.1 Prove the Grassmann-Plücker identities:

$$\sum_{\ell=1}^L (-1)^{\ell-1} \text{Pf}(j_\ell, i_1, \dots, i_K) \text{Pf}(j_1, \dots, \hat{j}_\ell, \dots, j_L) + \sum_{k=1}^K (-1)^{k-1} \text{Pf}(i_1, \dots, \hat{i}_k, \dots, i_K) \text{Pf}(i_k, j_1, \dots, j_L) = 0$$

for any skew-symmetric matrix and $i_1 < \dots < i_K$ and $j_1 < \dots < j_L$.

Aufgabe 2.2 Prove the following: If there is a recognizer (generator) with a certain signature over some basis $\{(n_0, n_1)^T, (p_0, p_1)^T\}$, then there is a recognizer (generator) with the same signature over the basis $\{(xn_0, yn_1)^T, (xp_0, yp_1)^T\}$ or $\{(xn_1, yn_0)^T, (xp_1, yp_0)^T\}$ for any x and y with $xy \neq 0$.