

# Approximation Algorithms, exercise sheet 10

January 15, 2014

**1.**

As a first step to transform a  $\text{qCSP}_2$  instance  $\phi$  into a nice  $2\text{CSP}_w$  instance  $\psi$ , the instance  $\phi$  is transformed into a  $2\text{CSP}_{2^q}$  instance  $\phi'$ . Which criteria should this reduction meet? Can you see how to construct it?

**2.**

Let  $k \in \mathbb{N}$  and let  $F$  be the field consisting of two elements. If  $f, g : F^k \rightarrow F$  are different linear functions, then on how many arguments can they agree at most?