Foundations of Cryptography
errors and comments on the Fragments

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All errors refer to the original version dated Feb. 23, 1998. Most (if not all) errors were already corrected in the currently revised version also available on-line. The rest will be corrected in the future revision.

1. The statement of Hoefding Inequality (page 22) is wrong. The correct statment is

$$\text{Prob}\left(\left|\frac{\sum_{i=1}^{n} X_i}{n} - \mu\right| > \delta\right) < 2 \cdot e^{-\frac{2\delta^2}{(b-a)^2} \cdot n}$$

   [Pointed out by Erez Petrank.]

2. Definition of polynomial-time enumerable sets (page 39) should require the output, $s_I(n)$ to be in unary so that $s_I(n) = \text{poly}(n)$ holds (as stated on page 41). [Pointed out by Daniele Micciancio.]

3. Exercises 10 and 11 in Chapter 2 are phrased in a careless manner. Firstly, one should quantify only on probabilistic polynomial-time algorithms. Secondly, in Exercise 10 some negations are missing: each algorithm fails with non-negligible probability (rather than negligible one) and the hint should be corrected accordingly.

4. Exercise 23 in Chapter 3 ("alternative definition of of pseudorandom functions") is wrong. Consider, for example, a pseudorandom function modified so that $f(0^n) = 0$. The resulting function ensemble will pass the test, but is not pseudorandom. A generalization, in which $f(f(0^n))$ is set to zero (instead of setting $f(0^n)$ to zero) can be used to kill attempts for amending the "alternative definition". [Pointed out by Omer Reingold.]

5. There was an error in the definition of a perfect bit commitment scheme (Definition 6.57 on page 220). When defining a feasible σ-opening (with respect to algorithm F^*) one only gives $(\overline{m}, s, \tilde{m}, \sigma)$ as input to F^* (rather than providing F^* also with r).

6. Definition 6.34 and Theorem 6.35, as stated, are not known to hold. The definition should be corrected so that it reads "for all sufficiently large n's" (rather than "for infinitely many n's"). [Pointed out by Salil Vadhan and Amit Sahai.]

7. The text on page 219 (Sec. 6.8.1) is at error and so is Exercise 21. This text is correct when applied to a semi-uniform formulation (where the cheating prover is not given a non-uniform auxiliary-input), but it is not valid for the stated non-uniform formulation (where error in sequential repetitions does decrease exponentially with the number of repeats). [Pointed out by Birgit Pfitzmann.]