Searching on/Testing Encrypted Data

Lecture 20

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- e.g. Application: delegating e-mail filtering
 - Sender attaches a list of (searchably) encrypted keywords to the (normally encrypted) mail. Receiver hands the mail-server test keys for keywords of its choice. Mail-server filters mails by checking for keywords and can forward them appropriately.

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- Compact keys, but ciphertext is still long

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 - Or add such "decryption recognition" directly to Anonymous IBE

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 - Can use IBE to shorten keys. Ciphertext still too long.

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 - Extends to range checking

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 - Or H a <u>CRHF</u> with range being indices of a "<u>cover free set</u> <u>system</u>"

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 - Ta defined as: $T_i^a = 1$ if $H(a)_i = 1$, else *

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 - For encrypting to identity id use attribute (1,id). Predicate used as SK_{id} is (-id,1). Anonymity since attribute remains hidden if no matching SK

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 - Can support * in both the pattern and the hidden vector

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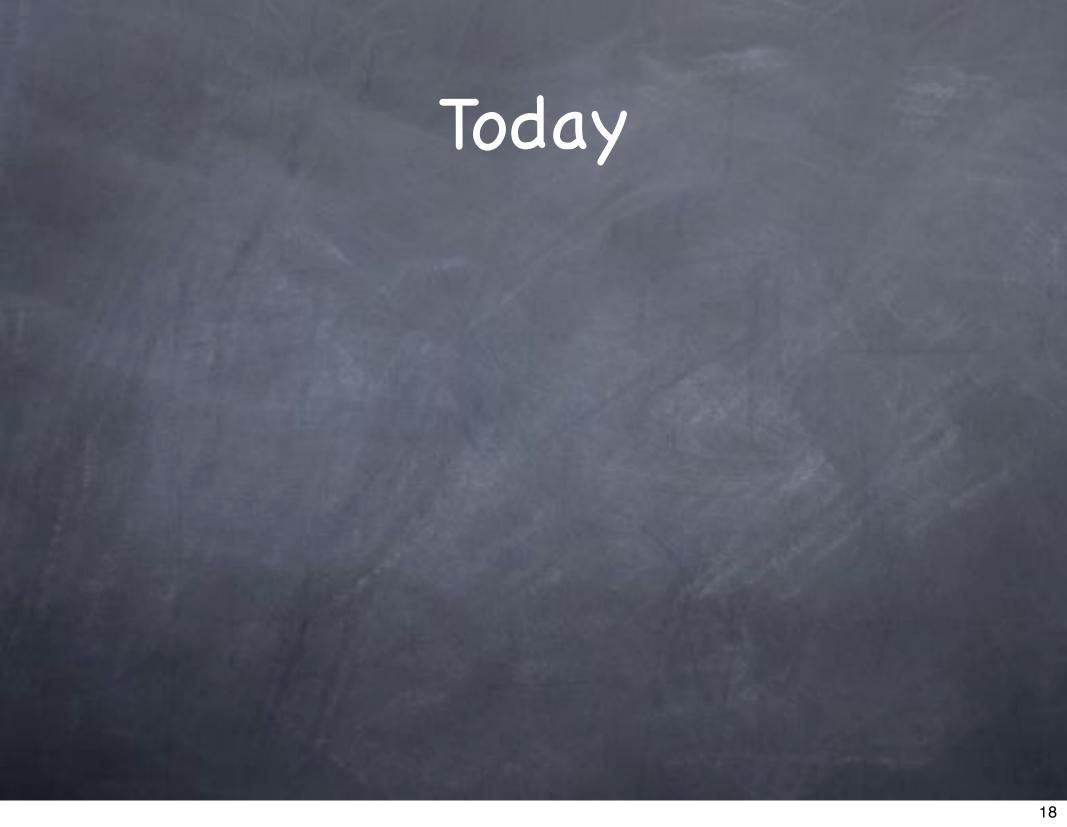
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 - Map V to v as v₀=1 and for i=1 to n, v_i = 1 iff i∈V. Map A to a vector a where a₀ = −t, for i=1 to n, a_i = 1 iff i∈A.

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