

Understanding Biometrics

2. Identification and Verification

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Identification methods



- Token-based
 - Something you *possess*
 - e.g. token, smart card, seal
- Knowledge-based
 - Something you *know*
 - e.g. password, pin, secret
- Physiology- or Behavior- based
 - Something you *are*
 - Biometrics



Identification methods



- Token-based
 - Can be lost, stolen, damaged or copied
- Knowledge-based
 - Forgotten, recorded, easily guessed, or shared
- Physiology- or Behavior- based
 - Always with you; never lost or forgotten

Benefits of Biometrics



- Increased security
 - Not lost, stolen or forgotten
- Increased convenience
 - c.f. passwords nightmare
- Increased accountability
 - Not shared
- Improved fraud detection
- Improved criminal investigation

e.g. Driver license fraud



- **Beaverton, Ore. – March 13, 2007** – Digimarc Corporation (NASDAQ: DMRC) today announced that its Digimarc facial recognition-based Biometric Identification solution is helping many States to prevent identity theft and fraud and enhance traffic safety
 - www.digimarc.com/media/release.asp?newsID=555
- **Kansas City Star reported in a Feb. 24, 2007** article ("Driver's Licenses Help Combat Fraud") that the Kansas Department of Revenue, another customer of the Digimarc facial recognition solution, has "identified more than 1,200 cases in which people tried to dupe the system and get another identity on another license" over the past two and a half years.
- **Kentucky, Apr. 1, 2005:** Before the move to the digitized license, searching for a single case of an individual with multiple identities in the driver's license system could take up to 47 days. FaceEXPLORER can search the entire 3.9 million images in just 15 seconds, www.techlines.ky.gov/2005/april/facial_recognition.htm

e.g. Fingerprint for lunch



- **Starting Jan. 2, 2006, Patrick Henry High School students** will use their thumbs for more than just handling food during lunch. The school has installed a biometric thumbprint reader in its new cafeteria ... to replace the current system, in which students punch in a six-digit identification number to pay for their lunch.
- **Benefits:**
 - Faster payment
 - Prevent bullying
 - Overcome lost cards/forgotten PIN
 - Parents can restrict type of food child eats
 - Money in account goes only to food
 - Poor kids don't get singled out

then school is to be approved by the school board. The school board is to be notified by the school board on 1/12.

Plans for the high school cafeteria's preliminary approval yesterday from the City Planning Commission for the school's new cafeteria, and an undisturbed view from every seat.

On the school menu are fries and fingerprints



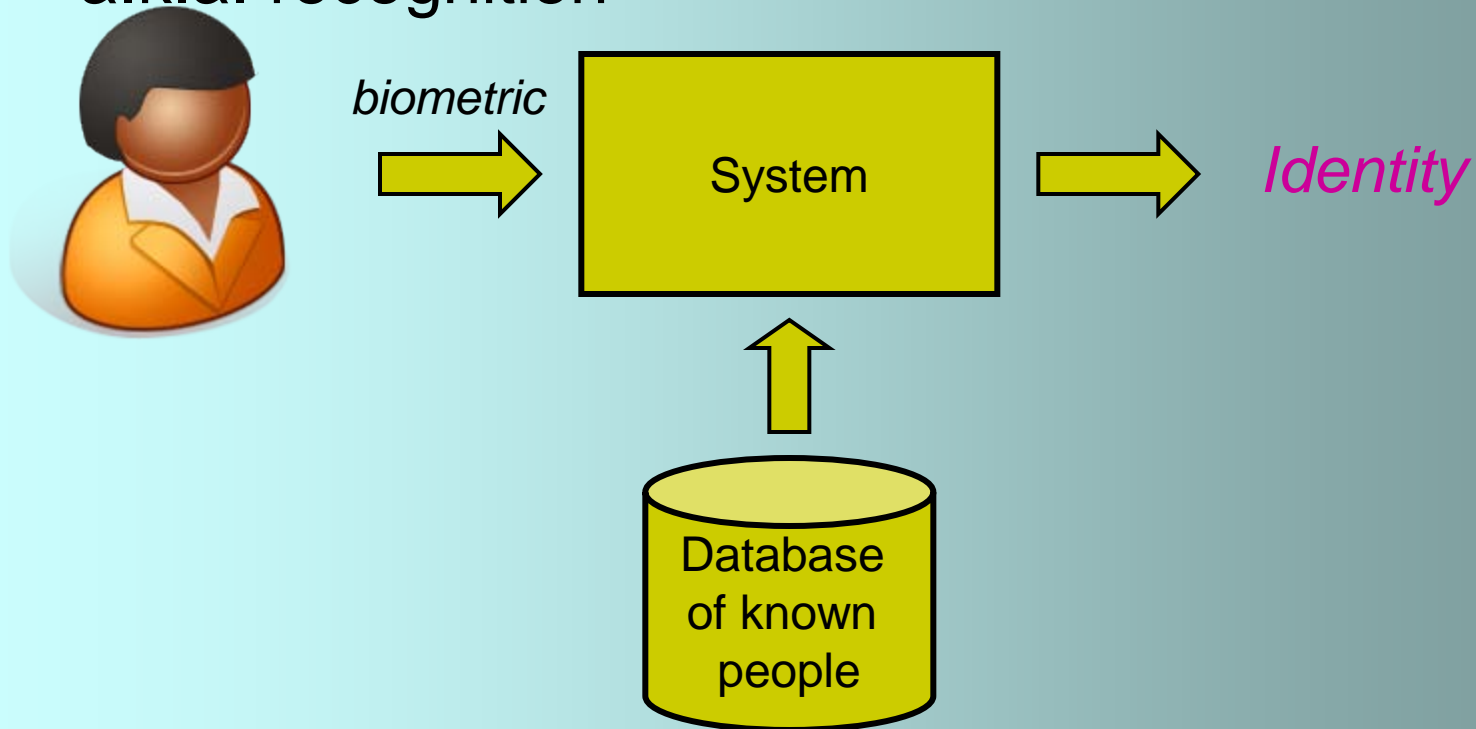
As school cafeteria staff their thumb, Julie the Fingerprint, a sixth grader at Patrick Henry High School in Lower Merion, is using a fingerprint scanner to pay for lunch. The school is using the scanner to replace the current system, in which students punch in a six-digit identification number to pay for lunch.

The Philadelphia Inquirer

Identification vs. Verification



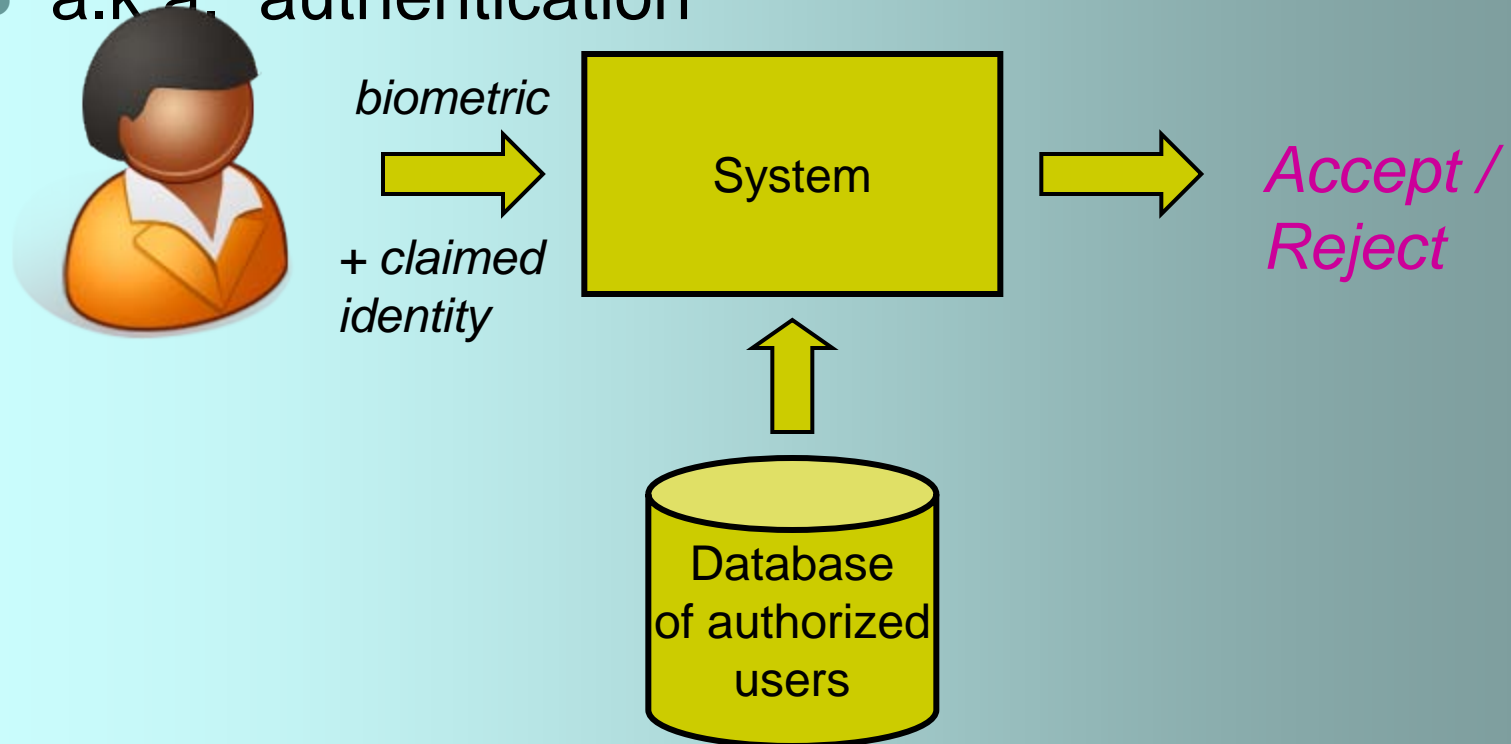
- Identification: *Who am I ?*
 - a.k.a. recognition



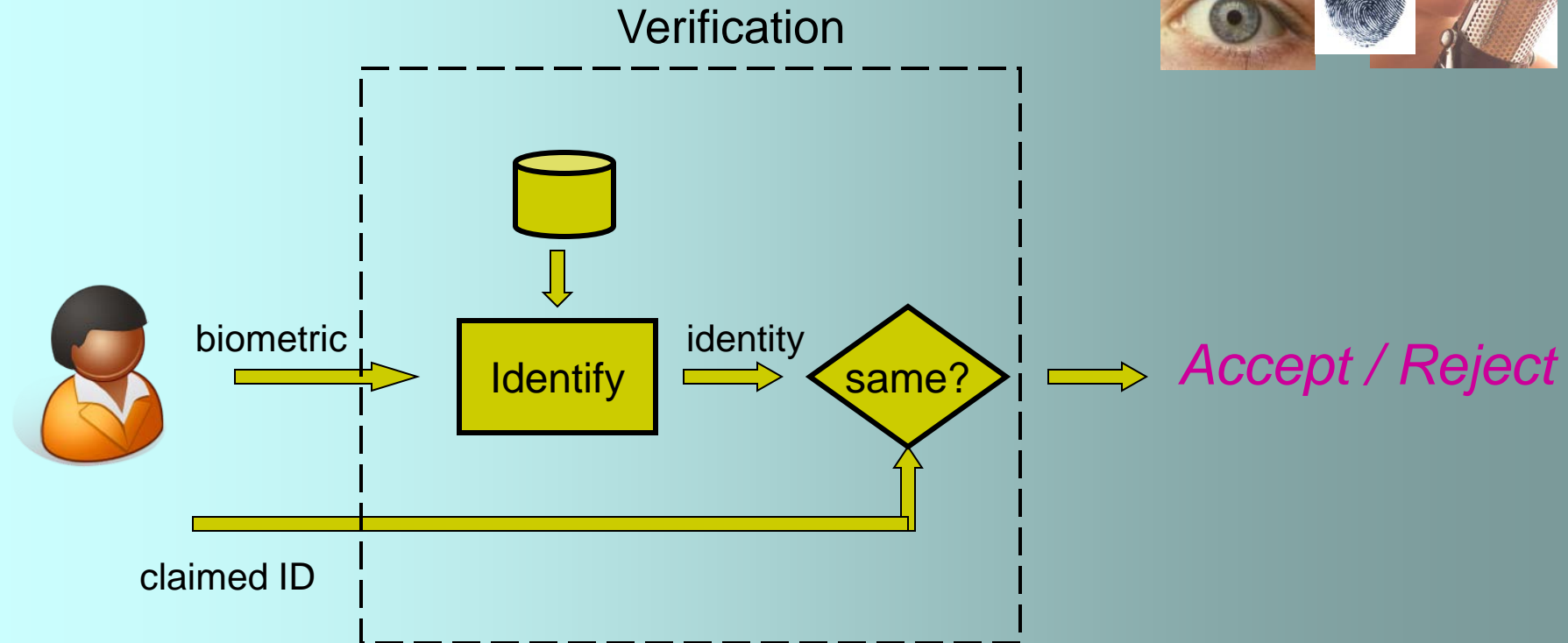
Identification vs. Verification



- Verification: *Am I who I claim to be ?*
 - a.k.a. authentication



Identification for Verification



Verification for Identification



Identification

