Terminology Services

Review of services & points to ponder

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The battle of the terminologies

Interface Terminology   Vs.   Standard Terminology

- Locally accepted language
- Users resist change
- Legacy data

- Nationally (& Internationally) accepted
- Required for gov't programs
- Critical for interoperability between disparate systems

**It's what we know
& It's what we like!**

**It's what we need
whether we like it or not!**

The Compromise

Mapping Tables

- Allows the user to continue to use their codes/terms
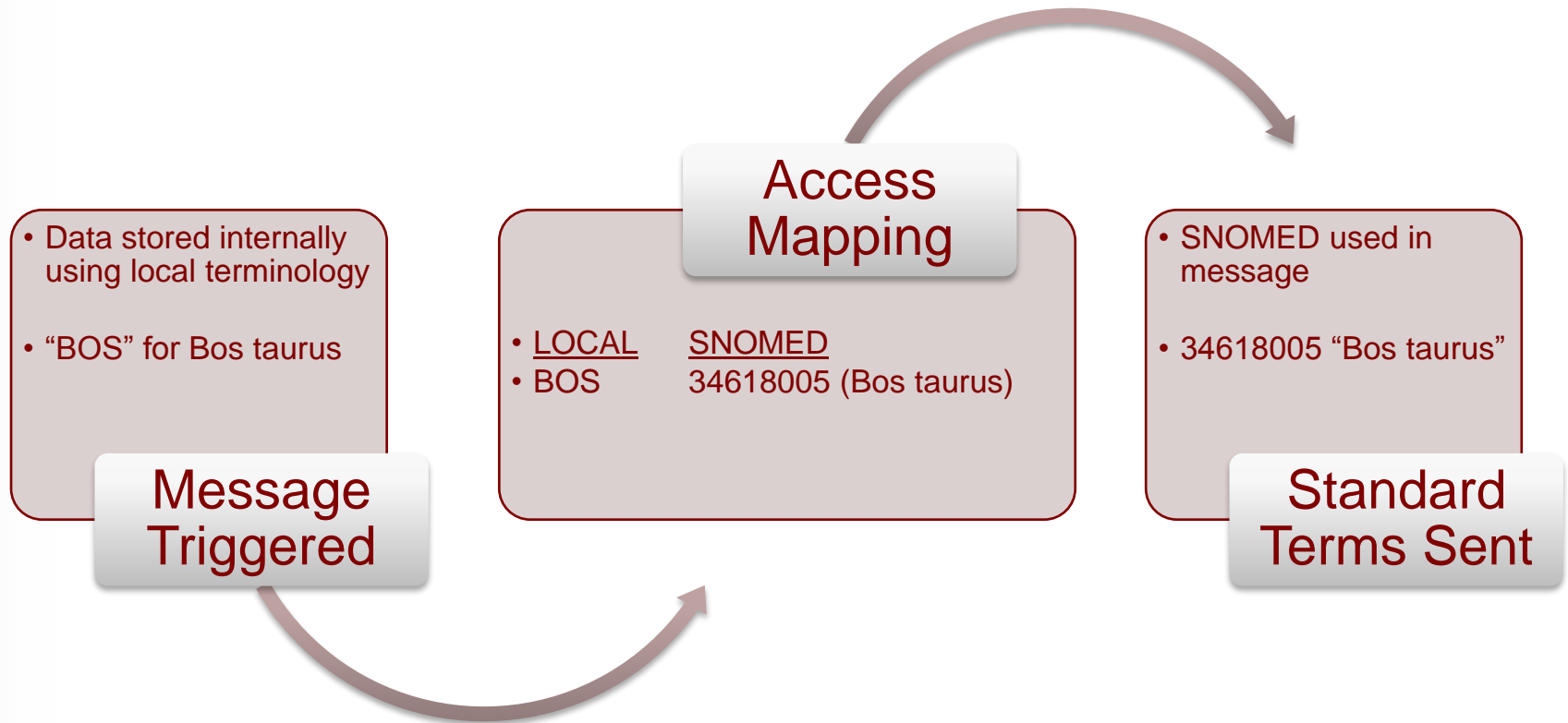- Transformation to (& from) the standard happens in the background

What needs to be mapped?

- Data structure
  - Map the data structure to the NAHLN message fields
  - Determines which dictionaries need to be mapped to standard terminology
- Message fields requiring standard terminology can be found online:
  - terminology.vetmed.vt.edu/nahln/main.htm

When are maps used?

Sending Messages

Message Triggered
- Data stored internally using local terminology
- "BOS" for Bos taurus

Access Mapping
- LOCAL   SNOMED
- BOS   34618005 (Bos taurus)

Standard Terms Sent
- SNOMED used in message
- 34618005 "Bos taurus"

When are maps used?

Receiving Messages (if/when)

Access Mapping

Message Received
- Data sent using Standard Terms
- 34618005 (Bos taurus)

- LOCAL   SNOMED
- BOS   34618005 (Bos taurus)

Local Terms Saved
- Data stored internally using local terminology
- BOS
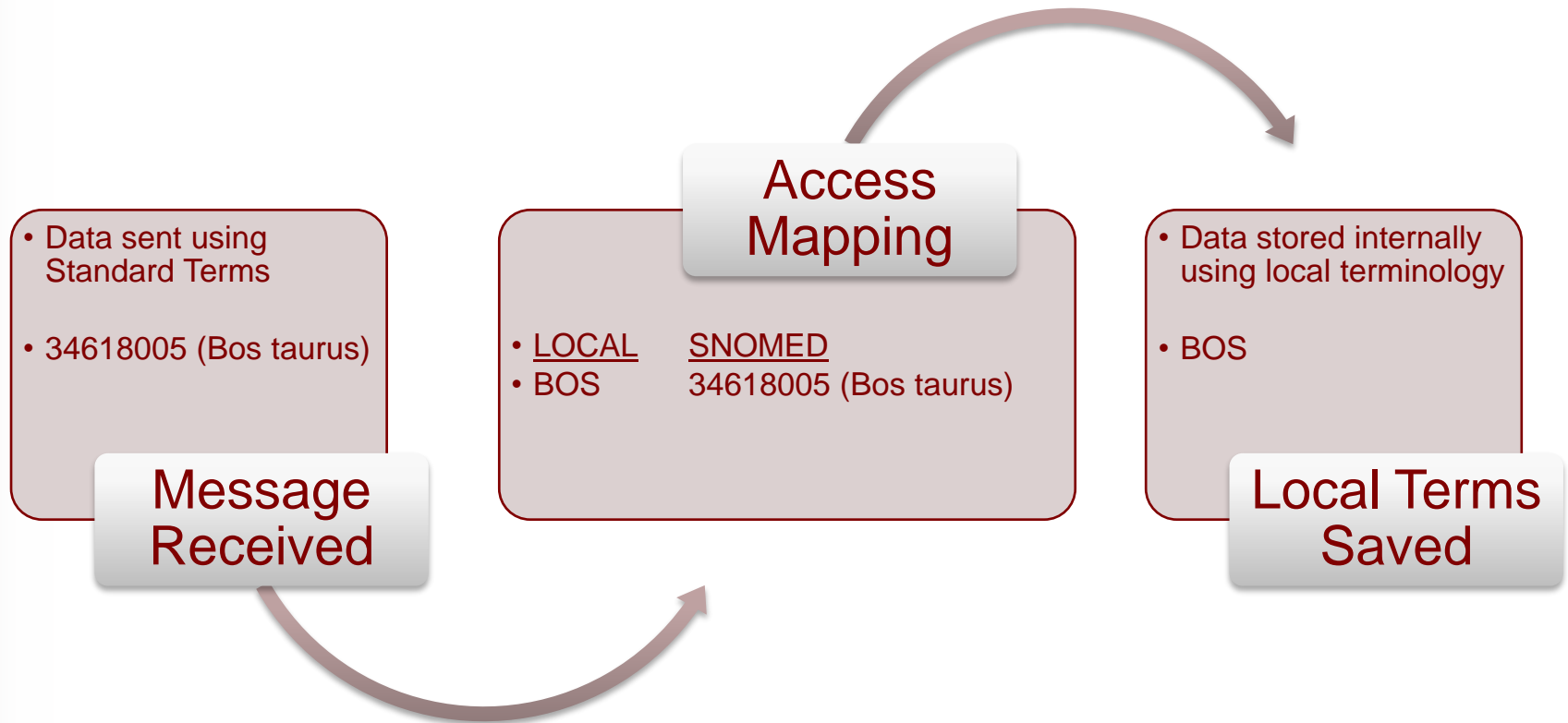
The Mapping Task

- Setup of mapping tables is time intensive
- Must be done by someone familiar with the terms (domain expert)

Determine Local Lists to Map	→	Determine Format for Mapping	→	Map Away
From Data Structure Mapping		Excel format works well for me		
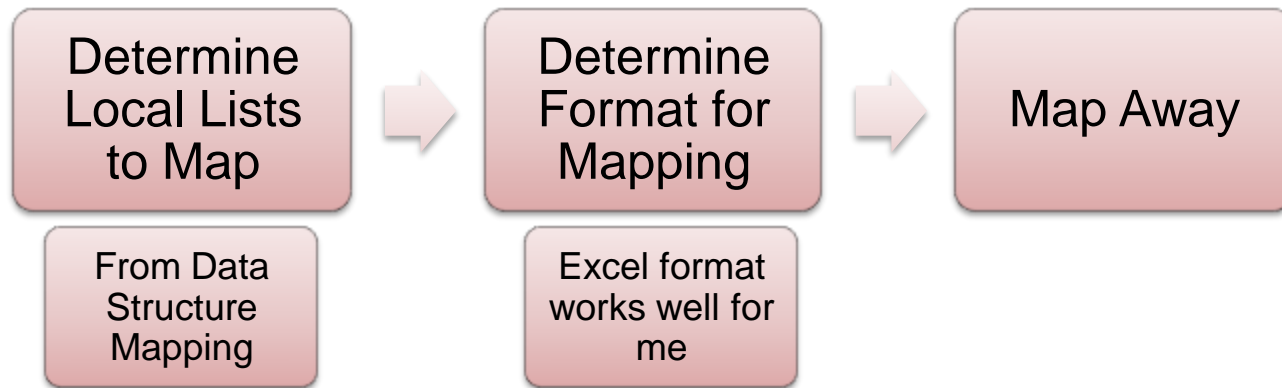
The Mapping Task - Tools

- **Primary Tool: The Terminology Service Website**

  – Ensures that you are using approved concepts

  http://terminology.vetmed.vt.edu/nahln/main.htm

- **Other "helpers"**

  – Local terminology users

    – Determine what a concept REALLY means in practice

  – Helpful websites:

    – USDA's ITIS: http://www.itis.usda.gov

    – See Resources tab of Terminology Services Website

Problem: Mixed Data

- Local data fields may contain a mix of information
  - Local 'breed': "Dairy cattle"
  - Message taxonomy: "Bos taurus"
  - Message production class: "Dairy"
- Single data fields may map to multiple message fields
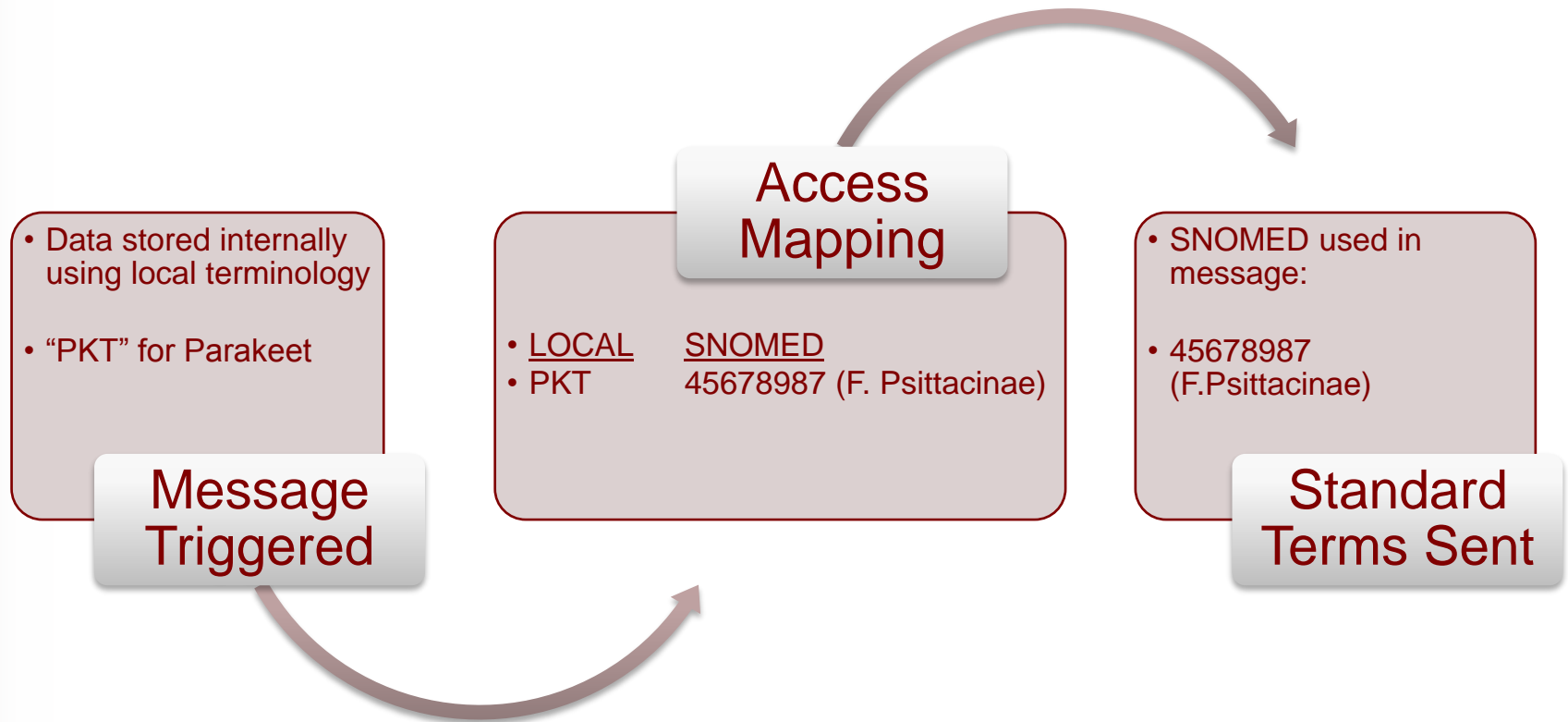 - Term mappings must follow suit.

Problem: Bidirectional Mapping

- For mappings to be "bidirectional" they must be one-to-one exact matches.
  - Bos taurus == Bos taurus
- Sometimes this isn't possible
  - For now, Parakeet maps to Family Psitticinae
  - BUT... Parakeet NOT== Family Psitticinae.
  - We lose detail by sending Family Psitticinae, but it is NOT untrue.
  - Problem comes when we receiving Family Psitticinae.

Problem: Bidirectional Mapping

Sending Messages

Message Triggered

- Data stored internally using local terminology
- "PKT" for Parakeet

Access Mapping

LOCAL	SNOMED
PKT	45678987 (F. Psittacinae)

Standard Terms Sent

- SNOMED used in message:
- 45678987 (F.Psittacinae)

Problem: Bidirectional Mapping

Receiving Messages

Message Received
- Data sent using SNOMED
- 45678987 (F.Psittacinae)

Access Mapping
- LOCAL   SNOMED
- PKT   45678987 (F. Psittacinae)

Local Terms Saved
- Mapping incorrect
- F. Psittacinae ≠ PKT
- SOME members of F.Psittacinae are parakeets, but not ALL.
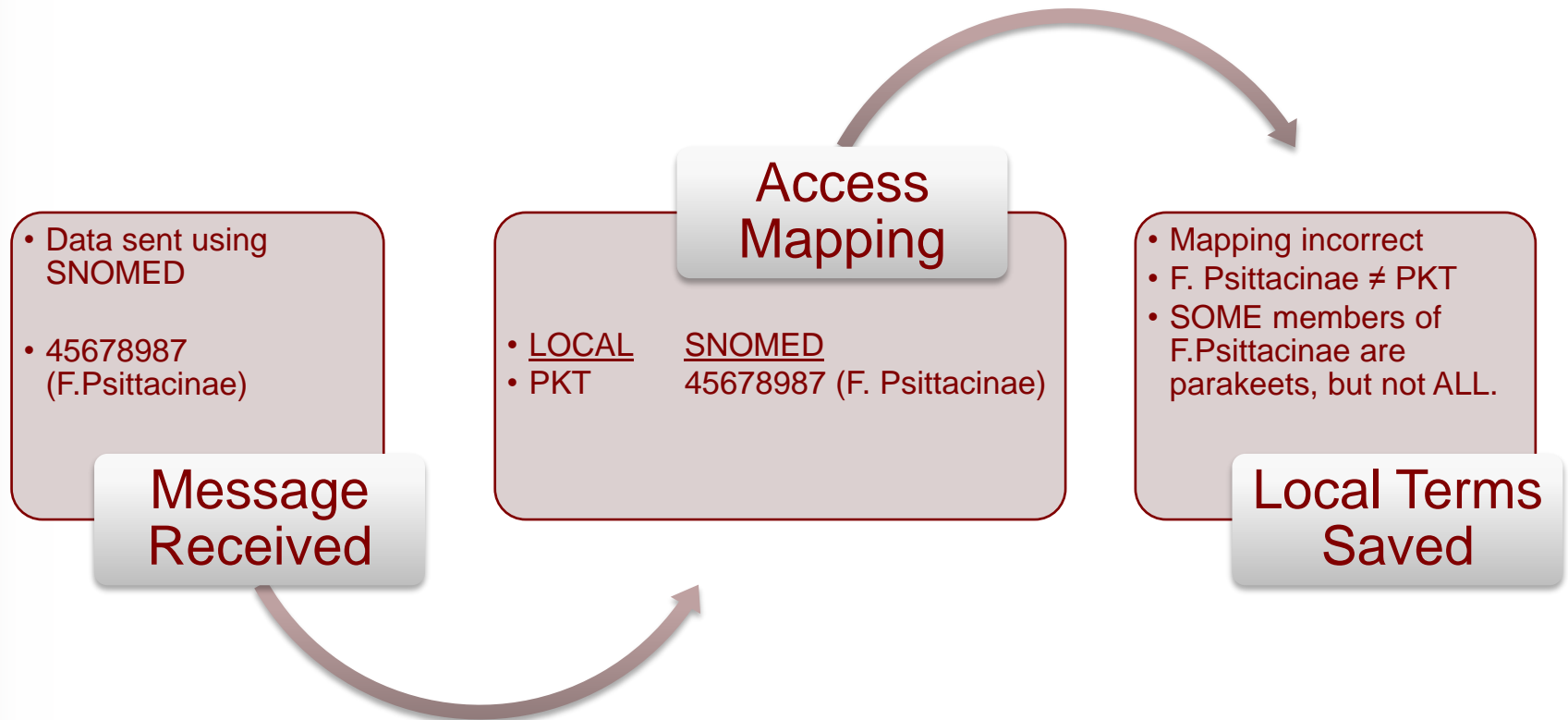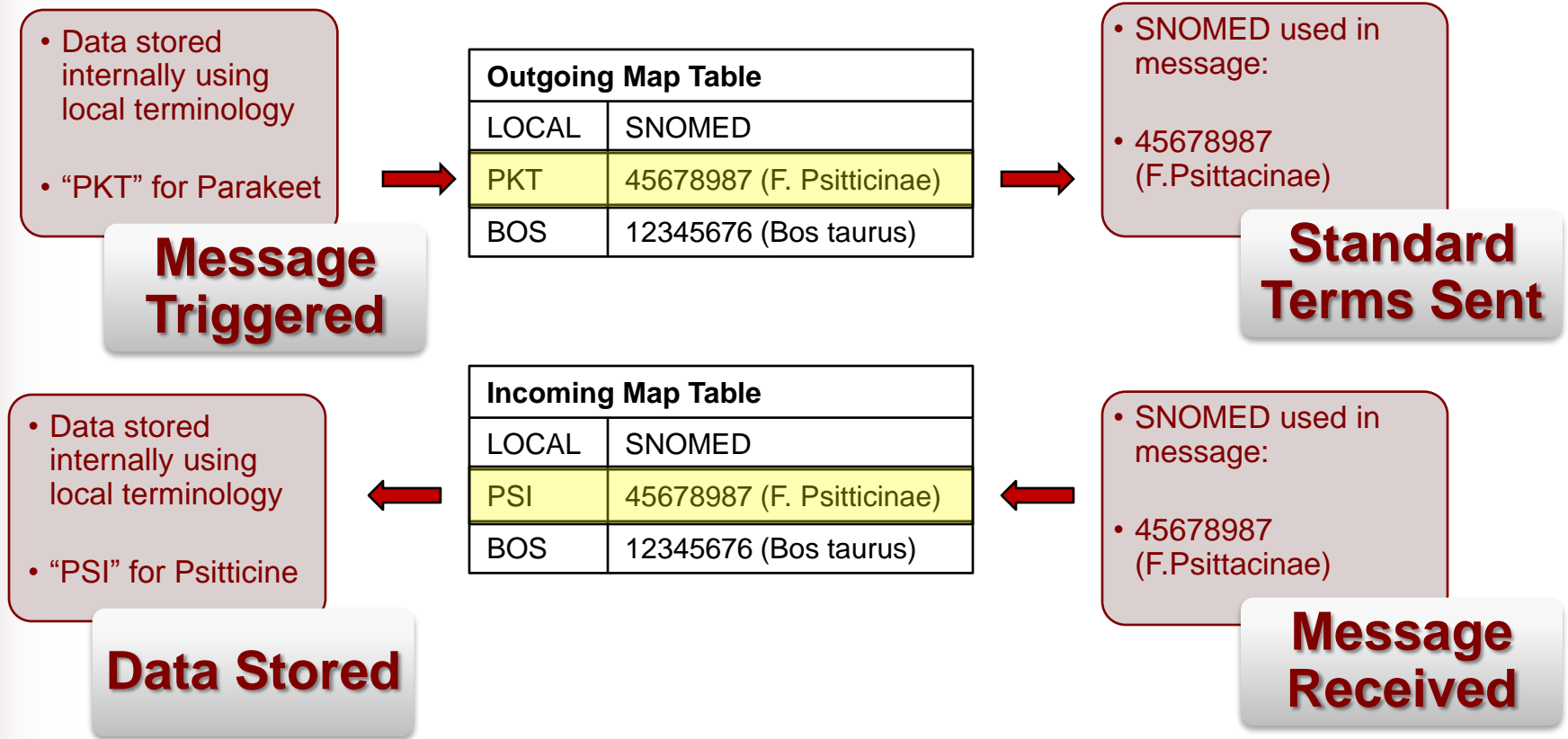
Problem: Bidirectional Mapping

Two Possible Solutions

- Outgoing & Incoming Maps
  - 2 map tables
- Single mapping with precision
  - Mark one-to-one map rows as "exact"
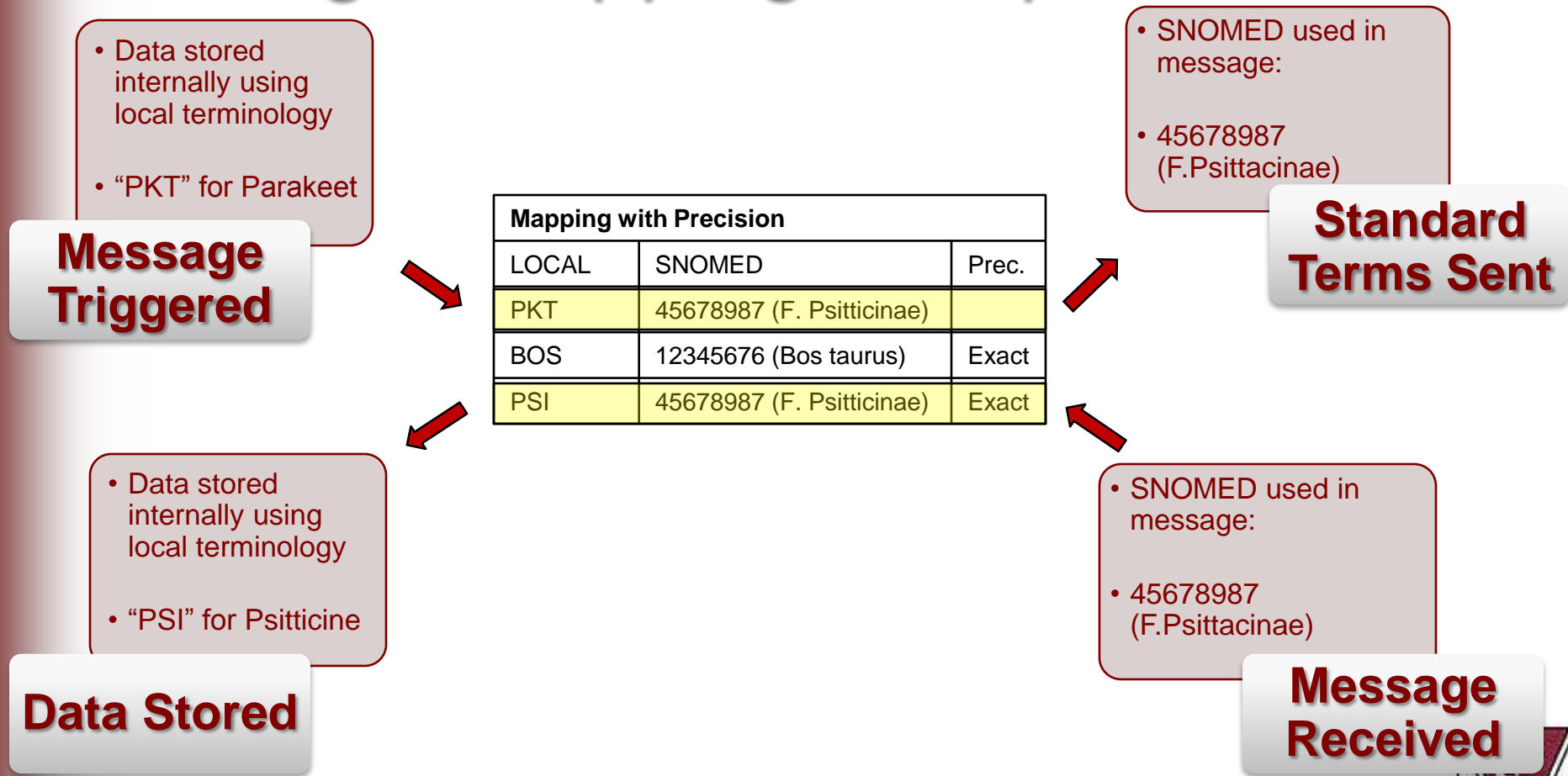 - "Exact" matches are bidirectional

Solutions: Bidirectional Mapping

Outgoing & Incoming Maps

- Data stored internally using local terminology

- "PKT" for Parakeet

Message Triggered

Outgoing Map Table	
LOCAL	SNOMED
PKT	45678987 (F. Psitticinae)
BOS	12345676 (Bos taurus)

- SNOMED used in message:

- 45678987 (F.Psittacinae)

Standard Terms Sent

- Data stored internally using local terminology

- "PSI" for Psitticine

Data Stored

Incoming Map Table	
LOCAL	SNOMED
PSI	45678987 (F. Psitticinae)
BOS	12345676 (Bos taurus)

- SNOMED used in message:

- 45678987 (F.Psittacinae)

Message Received

Solutions: Bidirectional Mapping

Single mapping with precision

- Data stored internally using local terminology

- "PKT" for Parakeet

Message Triggered

- SNOMED used in message:

- 45678987 (F.Psittacinae)

Standard Terms Sent

Mapping with Precision		
LOCAL	SNOMED	Prec.
PKT	45678987 (F. Psitticinae)	
BOS	12345676 (Bos taurus)	Exact
PSI	45678987 (F. Psitticinae)	Exact

- Data stored internally using local terminology

- "PSI" for Psitticine

Data Stored

- SNOMED used in message:

- 45678987 (F.Psittacinae)

Message Received

Don't Forget…

IF YOU **RECEIVE** MESSAGES:

- There will be times when you receive a message that has no appropriate map.

- May also need to be able to receive "plain text" that will need mapping.

- Make sure that the system has a way to track/handle these.

One more thing…

IF THE MAPPING IS NOT EXACT:

- Sending imperfectly matched SNOMED codes loses detail.

- To retain detail,SEND THE LOCAL CODE !!!

Ex: <PID.35> *Species field*

    <CWE.1>45678987</CWE.1> *SCT code*
    <CWE.2>Family Psitticinae</CWE.2> *SCT text*
    <CWE.3>SCT</CWE.3> *"SCT" Coding System*
    <CWE.4>PKT</CWE.4> *Local code*
    <CWE.5>Parakeet</CWE.5> *Local text*
    <CWE.6>L</CWE.6> *"L" for Local System*
</PID.35>

Then come the updates…

- Concepts may be added or retired
- Mapping tables must be updated.

Updates

- Right now…
    - notification/distribution is manual
    - Registered NAHLN labs receive an email with updates in excel spreadsheets

- Future plans…
    - Web services
    - There will be a published WSDL file
    - Systems will be able to request updates since X date.
    - Notifications will still be sent out to registered users.

Updates – Concepts added

- ## If all you do is send messages…
  - You only need to add the new concepts you need to map your list more accurately.
  - Ex. When "Parakeet" is added to SNOMED, you update.   "PKT" now mapped to "Parakeet" (Exact)

- ## If you receive messages…
  - Add the new content and map to your interface terminology

Updates – Concepts retired

- Must locate any map rows that use retired concepts.
  - These must be re-mapped

- Historical relationships will be provided
  - Makes **suggestions** for replacements
  - Some will be one-to-one replacements
    - 131842007 Egyptian goose breed REPLACED BY 68278005 Alopochen aegyptiacus
  - Some will have multiple possibilities
    - 43667003 (Splonis panayensis) MAY BE A 422334008 (Aplonis panayensis)
    - 43667003 (Splonis panayensis) MAY BE A 420457008 (Lamprotornis purpureus)