Retrieval of Speech in MPEG-7 Audio

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Why Speech?

- **Automatic Speech Recognition (ASR) has matured over the past 30 years**
  - Virtually all based on Hidden Markov Models
- **Several commercial packages available, e.g.**
  - IBM (ViaVoice)
  - Dragon (acquired by L&H)
  - Microsoft (Free SAPI engine)
- **Much other work . Behind The Scenes. :**
  - Most telephone companies
  - Most consumer electronics companies
  - Many universities

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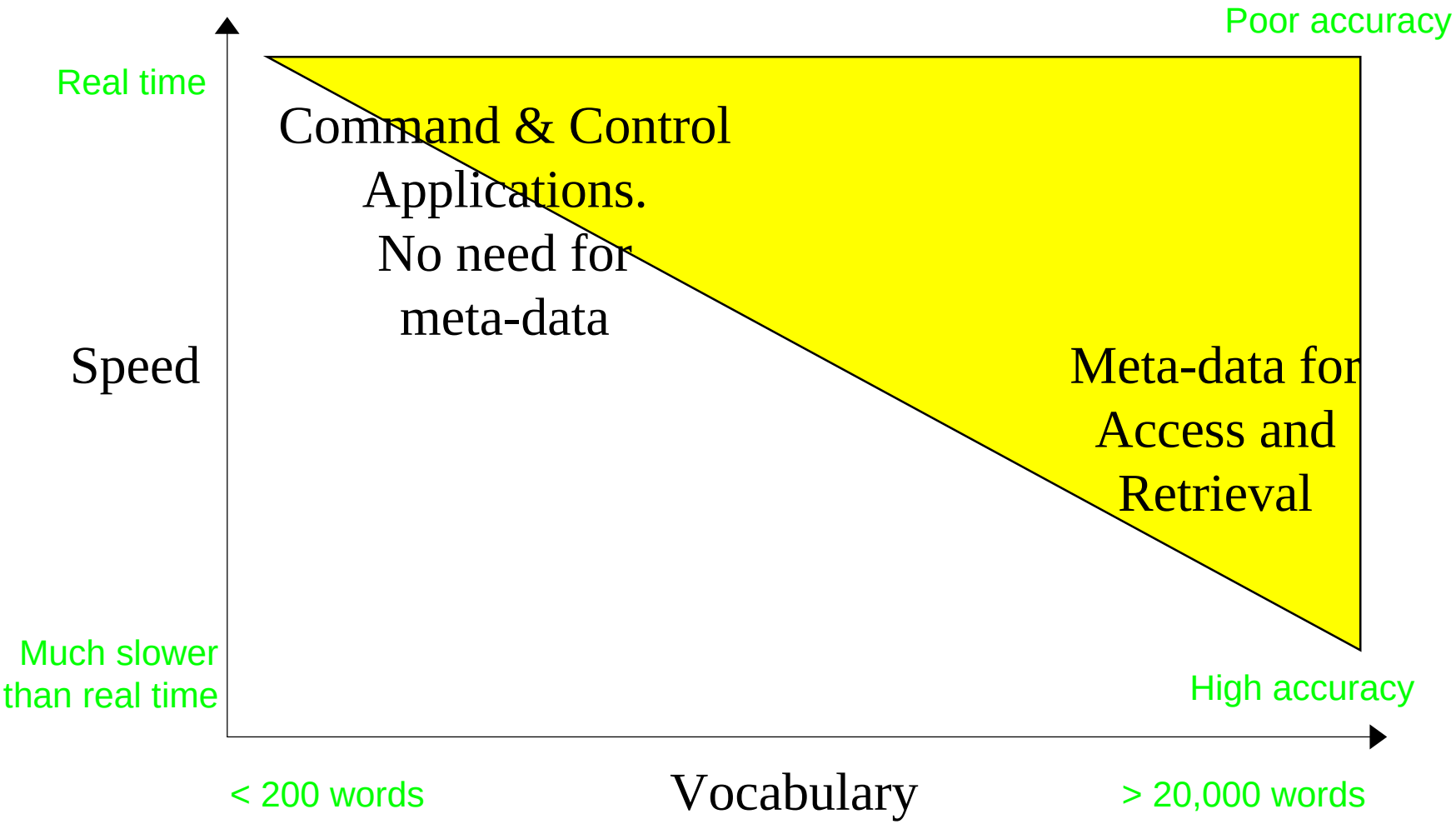
Speech recognition technology



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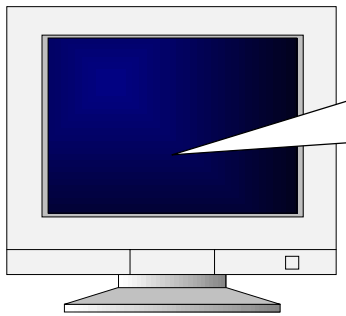
Accuracy is not enough

Recognise speech!



...wreck a nice beach...

Recognize speech!

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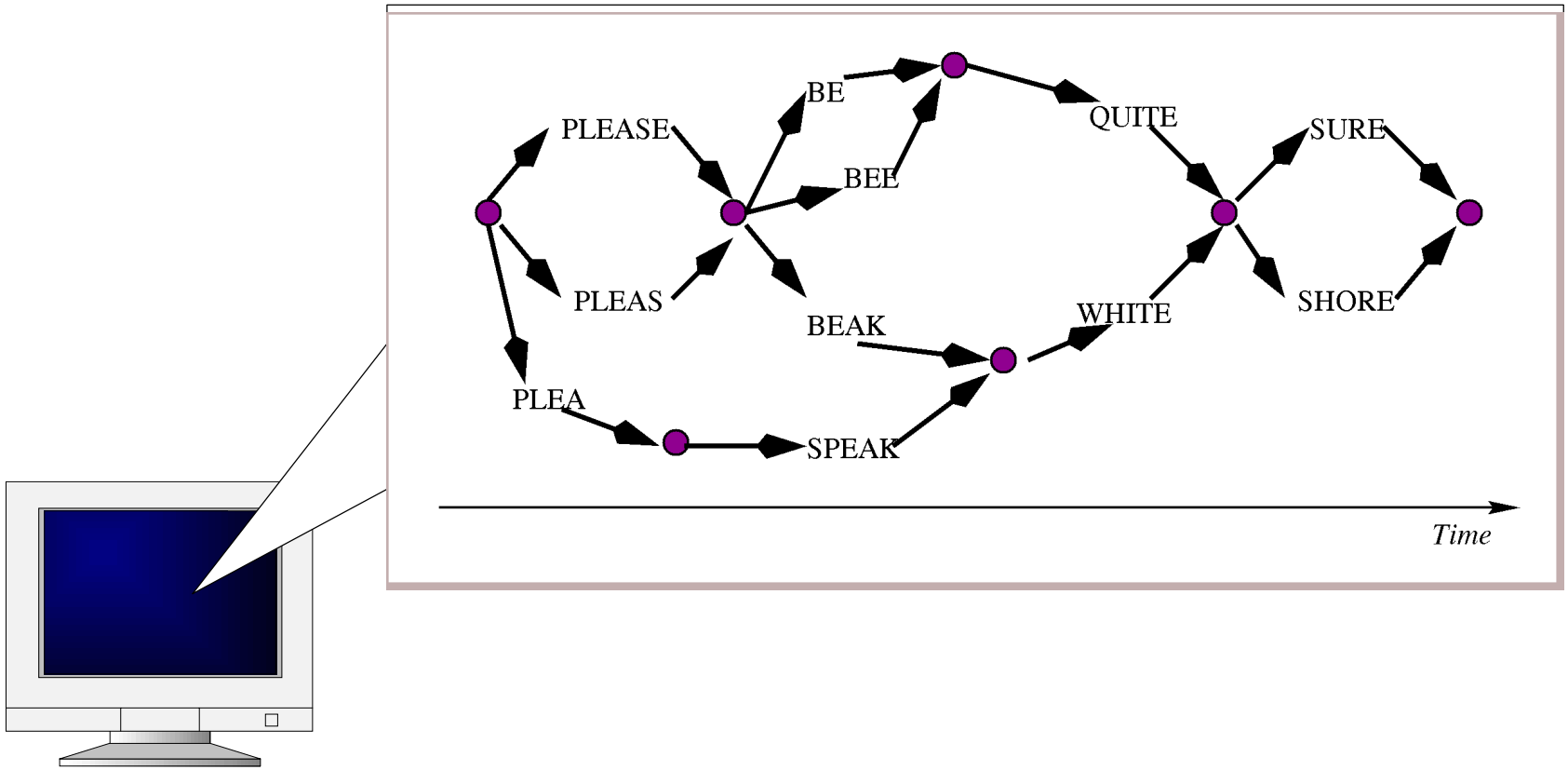
A common solution

Please be quite sure!



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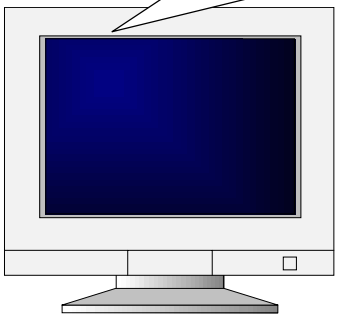
So, lattices are enough, right?

Let’s tell Juergen Herre

...your can hear her...



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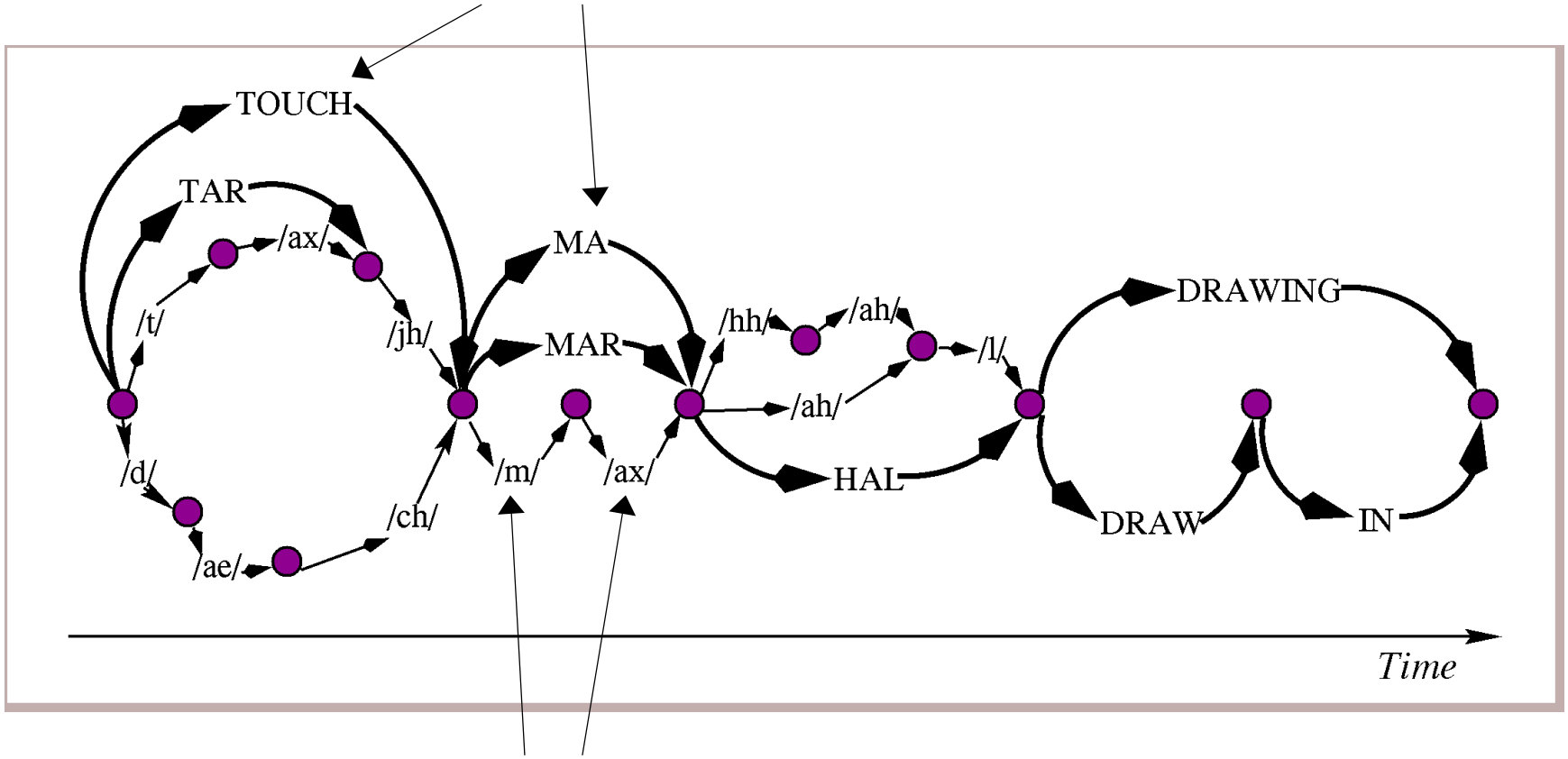
Proper names and places

Out Of Vocabulary words cannot be decoded correctly



Phones are always defined, but less reliable

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Spoken Content Summary

- **The MPEG-7 Spoken Content DS is designed around state of the art speech recogniser capabilities:**

- **Speech recognisers do not produce plain text**
  - They produce lattices
  - Spoken Content DS stores these lattices rather than plain text
  - Spoken Content DS hence allows retrieval of ambiguities

- **Speech recognisers do not have complete vocabularies**
  - They can decode phones, however
  - Spoken Content DS stores phones too
  - Allows retrieval of words which were unknown at the time of annotation

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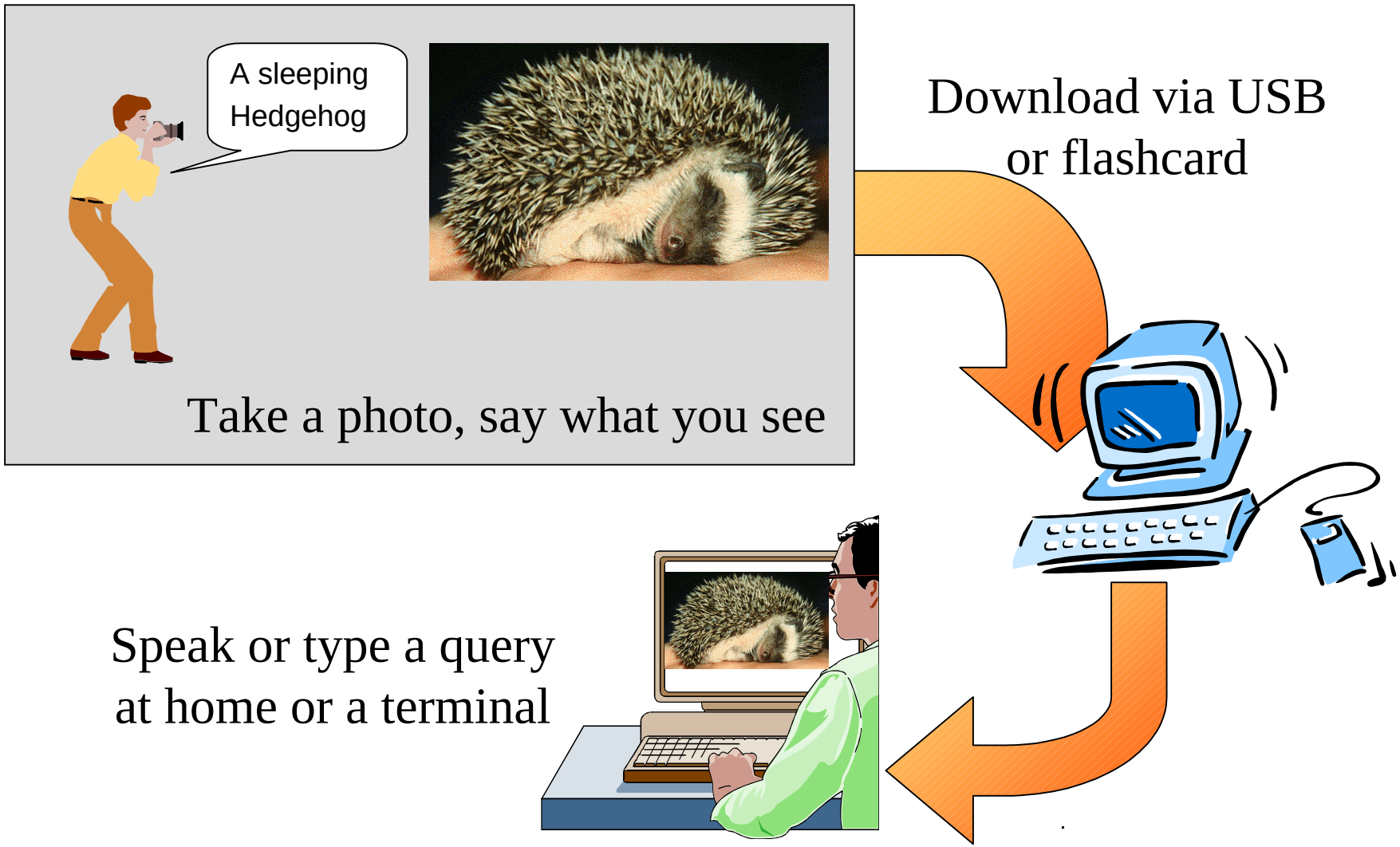
An image retrieval application



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