

# **AUDIO FEATURE INTERACTIONS**

## **IN VOICE-OVER-IP**

*Pamela Zave*

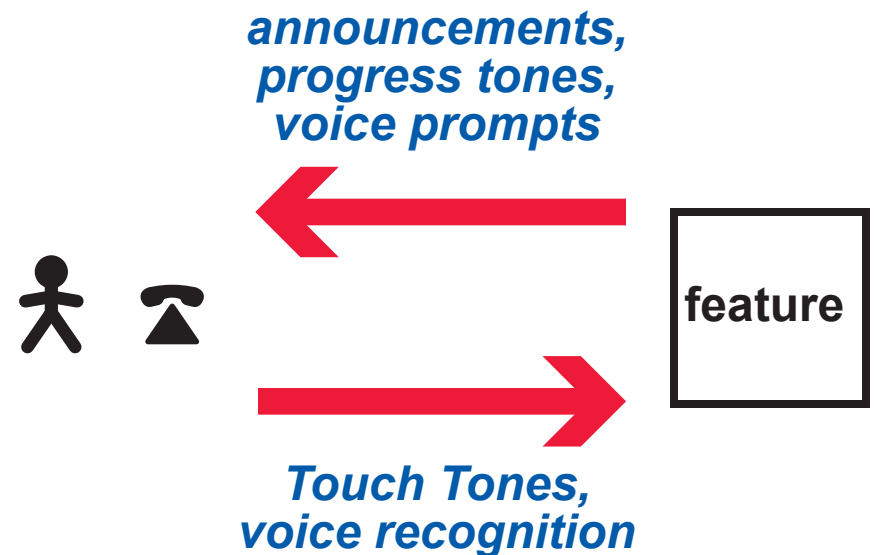
*AT&T Laboratories—Research*

*Florham Park, New Jersey, USA*

# AUDIO SIGNALING + FEATURE INTERACTION

## WHAT IS IT?

Audio signaling is the use of the audio channel for signaling and user-interface purposes.



## WHY DO WE (STILL) USE AUDIO SIGNALING?

- it is essential for interoperating with the circuit-switched telephone network, where there are no other extensible signaling capabilities
- audio user interfaces can be hands-free, eyes-free, very small, and user-friendly

*in AT&T Research,  
this is the predominant factor*

*they will always occupy  
an important niche*

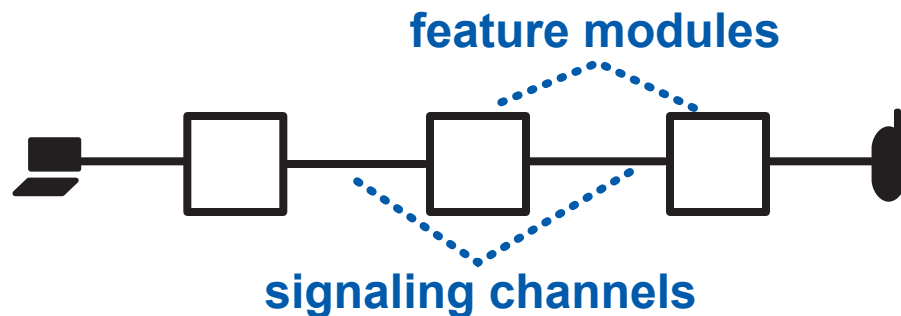
# AUDIO SIGNALING + FEATURE INTERACTION

A **feature** is an increment of functionality.

To manage software complexity, we encapsulate features in software **modules**.

The inevitable by-product of **feature modularity** is **feature interaction**, because telecommunication features cannot be completely independent.

*we assume a pipes-and-filters architecture that determines how features can interact*



## THE BEST WAY TO MANAGE FEATURE INTERACTION IS TO RELY ON COORDINATING PRINCIPLES

If every feature obeys the rules,

then the overall system behavior is . . .

- predictable
  - manageable
  - desirable
- with some managing*

## COORDINATING PRINCIPLES . . .

- are often applied locally
- are a cheap and easy solution to problems
- are a valuable source of domain knowledge
- help to simplify the software



# COORDINATING PRINCIPLE: USE REQUEST/OUTCOME SIGNALS AS TOKENS

