1 Fricatives (Chap 5, 127-137)
   • result from turbulence heard as audible friction
   • obstruents because there is obstruction, but not stoppage, of airstream

2 /f/
   • key word: fun, leaf, coffee
   • place: labiodental
   • manner: fricative
   • voicing: voiceless
   • acoustically weak sound

3 Production
   • v-p port closed
   • lower lip approximate upper central incisors
   • breath continuously emitted between the two
   • audible friction

4 Orthography
   • most commonly the letter f
   • others:
     – ff - coffee
     – gh - tough
     – ph - phone
     – lf - half

5 Characteristics
   • occurs in initial middle and final positions
   • 90% mastery by 4 years
   • 15th in consonant frequency
   • not a problem sound

6 /v/
   • key words: vine, have, ever
   • place: labiodental
   • manner: fricative
   • voicing: voiced cognate of /f/
   • 14th in frequency

7 Characteristics
   • v is only spelling
   • exception: -f in of and -ph in Stephen
   • appears in initial, middle and final positions
   • mastered late by kids: 90% by 8 years
   • misarticulated with moderate frequency
• difficult for Spanish speakers

8 /h/
• key word: he, ahead
• place: glottal (linguavelar; linguapalatal)
• manner: fricative
• voicing: voiceless
• only fricative without a voiced cognate

9 Production
• results form friction produced with relatively unrestricted airflow thru glottis and oral cavity
• no fixed mouth position
• always followed by vowel; mouth usually shaped for vowel
• 13th in frequency

10 Characteristics
• h is primary spelling
• others: wh/who; gh/hugh/
• silent in many words: honor, oh
• does not occur in final position
• 90% mastery by 3 years
• not a problem sound

11 /s/
• key word: see, makes, upset
• place: (lingua) alveolar
• manner: fricative
• voicing: voiceless
• very frequent: 5th of all consonants

12 Production
• tongue raised to approximate ridge
• front of tongue slightly grooved
• creates small opening; airstream along groove creates turbulence
• 90% by 8 years

13 Orthography
• extremely variable; 17 different spellings
• most common: s or ss as in cats or kiss
• others
  – c - city, excite, fence
  – ps - silent p in psychology, psalm
  – sc - science

fricatives
– st - silent t as in hasten
– x - forms a derived fricative as in taxi, box

14 Uniquenesses
• one of the most useful but also most troublesome
• important grammatical function
  – indicates plural
  – as plural morpheme, voicing characteristic determined by final sound of root word
  – indicates possessive
  – indicated 3rd person

15 Trouble
• among the most frequently misarticulated consonant
• lisping -
  – voiceless frontal lisp - /s/ approximates “th”
  – voiceless lateral lisp - /s/ approximate “sh”
• substituted by /t/ or /d/
• degraded by dentition or with dentures
• degraded by hearing loss
• most affected by speech mechanism problems

16 /z/
• key words: zip, size, lazy
• place: (lingua)alveolar
• manner: fricative
• voicing: voiced
• voiced cognate of /s/

17 Orthography
• 13 different spellings
• most common
  – s - has
  – z - zone
  – es - washes
  – ss - scissors
  – x - xylophone
  – zz - puzzle

18 Characteristics
• appears in initial, middle and final: zipper, easy, buzz
• performs grammatical functions of plural, possessive, 3rd person
• not as frequent as /s/: 7th
• 90% by 8 years
• frequently in error
19  / /

- key word: thin, tooth, nothing
- Greek symbol for theta
- place: interdental/dental
- manner: fricative
- voicing: _____________

20  Production

- vp port closed
- sides of tongue against molars
- tip of tongue wide and thin
- tip approximates edge or inner surface of central incisors
- breath continuously emitted between teeth and tongue

21  Characteristics

- -th is the only spelling
- acoustically one of the weakest sounds
- 90% mastered by 7 years
- 20th in frequency
- appears in initial, middle and final: thank, pathetic, oath
- a problem sound

22  /ð/

- key words: the, bathe, bother
- place: interdental/dental
- manner: fricative
- voicing: voiced
- voiced cognate of voiced cognate of / /

23  Voiced or Voiceless

- this theme throw though either thin
- booth booths thigh teeth tooth teeth
- booths ether thy these father than

24  Characteristics

- 9th in frequency
- occurs in initial, middle and final positions
- one of last mastered: 90% by 8
- common spelling: -th
- problems similar to / /