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Articulation Test

As you probably know, as a child learns to talk, they "acquire" the sound system of their language bit by bit, with some speech sounds appearing later than others. All children do this at a different rate, and if they seem especially late, they may be referred to a speech therapist. One of the first things a therapist does is try to assess the state of the child's sound "system", and they sometimes do this by administering an "articulation test" in which the child is asked to name pictures and in this way pronounce a set of words specifically chosen to test a good variety of sounds and sound combinations.

Here are the results of an articulation test with Joe, a 4-year old boy who has some articulation issues. The words are shown in standard spelling (S), the target pronunciation (T) and Joe's pronunciation (J). Note that in this particular case, we are not interested in the vowels, which are all "correctly" pronounced. Hyphens indicate syllable boundaries (where appropriate).

Spelling (S)	Target (T)	Joe (J)	Spelling (S)	Target (T)	Joe (J)
tent	tent	den	sneeze	sni:z	ni:d
fish	fiʃ	bit	very	very:	bewi:
train	trein	dein	glove	gluv	dub
stamps	stamps	dam	watch	wotʃ	wot
queen	kwi:n	gi:n	teeth	ti:θ	di:t
clouds	klaudz	gaud	(aero)plane	plein	bein
soldier	souldʒə(r)	douda	spoon	spu:n	bu:n
thumb	θum	dum	toothbrush	tu:θbruʃ	du:t-but
three	θri:	di:	matches	matʃiz	ma-did
sugar	ʃugə(r)	dugə	birthday	bɜ(r)tdei	bɜ:t-dei
Christmas	krisməs	git-mət	loose	lu:s	wu:t
bridge	bridʒ	bid	feather	feðə(r)	bedə
flower	flauwə(r)	bauwə	elephant	elifənt	ewi-bən
church	tʃɜ(r)tʃ	dɜ:t	scissors	sizə(r)z	didəd
smoke	smouk	mouk	rainbow	reinbou	wein-bou
sneeze	sni:z	ni:d	watch	wotʃ	wot
very	very:	bewi:	teeth	ti:θ	di:t
glove	gluv	dub			

How would you predict the little boy would pronounce the following words? They are shown in ordinary spelling and phonetics. You have to pay attention to the pronunciation, as shown in the phonetic transcription, rather than the spelling, which can be misleading (for example, look how sometimes 's' is pronounced [z])

(a) flies   flaiz   (b) chipshop   tʃip-ʃop   (c) please   pli:z   (d) smash   smaʃ

(e) quiz   kwiz   (f) this   ðis   (g) story   sto:ri: (h) shrimp   ʃrimp

Source: These data were collected in 1979 for the author's Masters thesis. Joe underwent speech therapy and was soon pronouncing sounds much as expected.

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Solution and explanation

(a) baid   (b) dipdop   (c) bi:d   (d) mat

(e) gid   (f) dit   (g)do:wi: (h) dim

Mostly you can just look for a similar word and copy the pattern:

(a) flies = baid,   fl=b as in *flower*, final z=d as in *sneeze*, *scissors*

(b) chipshop = dipdop, ʧ=d as in *church*, *matches*, ʃ=d at the start of a word/syllable as in *sugar*

(c) please = bi:d, pl=b as in *plane*, final z see (a)

(d) smash = mat, sm=m as in *smoke*, ʃ=t at the end of a word as in *fish*, *toothbrush*

(e) quiz = gid, kw=g as in *queen*, final z see (a)

(f) this = dit, ð=d as in *feather* (and see below for "generalisations"), s=t as in *loose*

(g) story = do:wi:,st=d as in *stamp*, r=w as in *very*

(h) shrimp = dim, we have not seen a word beginning with ʃr, but in all the words beginning with a consonant + r (*train*, *three*, *Christmas*, *bridge*, *-brush*) the r is not pronounced; and we have seen that a ʃ at the start of a word becomes d (as in *sugar*). Similarly, although we haven't see a word ending in mp we can see in *tent*, *stamps* and *elephant*, that the sequence of consonants will be simplified and just the nasal sound will remain.

We can get to the right answers by looking for similar words, but actually there are some "generalisations" that we can make if we know a little bit of phonetics, as follows:

1. "Consonant clusters" are always simplified: in s- clusters, the s is dropped, otherwise the second consonant (l, r or w, known as "liquids") is dropped. Word-final clusters nasal+consonant, just the nasal (m or n) remains.

2. Fricatives are replaced by stops f=p; v=b;θ,s,ʃ,ʧ, = t; ð,z,ʤ=d … Notice how the fricative is replaced by its "homorganic" stop, ie the sound made with the tongue in the same place.

3. Voiceless stops at the start of a word or syllable become voiced: p=b, t=d, k=g. This includes sounds that result from either of the previous rules.

4. Liquids r and l are replaced by w if not in a consonant cluster

The example of *shrimp* illustrates the first three rules, applied in order: ʃr=ʃ (rule 1), ʃ=t (rule 2), t=d (rule 3), and mp=m (rule 1)

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