

**Chirping Birds and Budging Beads:
Diagnosis of a Japanese Problem
in Learning English**

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Abstract

In this article it is suggested that the analysis of phonological problems encountered by students cannot proceed just from comparisons of source and target language phonemes. In the specific case of Japanese students learning English, it is shown that several resources fail to predict a certain area of difficulty, perhaps because they give more attention to phonemes and phonemic contrasts than to phonetic details. The latter, far from being negligible, can serve as clues for discovering underlying rules which are carried over from language to the next.

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It can be a great advantage to FL and ESL teachers to know the linguistic systems of both target and source language. Teachers with such information are able to rank the various units, categories, rules, and constructions of the target language according to the degree that they differ from those of the source language, and concentrate on the ones which may cause the most trouble. Unfortunately, the teacher does not always have a personal command of the students' native language. As a partial remedy, linguistics and applied linguistics have made available numerous resources for reference. In lieu of a native command of, say, Japanese, the English teacher can consult a linguistic description of the language, and use a text whose author approaches English from the standpoint of a careful, point-by-point contrast with Japanese.

But a caveat is in order before linguistic resources can be used in this way. Linguists, when carrying out an analysis, do not paint the complete picture, but bring out the basic, distinctive features of the linguistic system; they may not explicitly state those phonetic details which are found to be "redundant" or nondistinctive. Redundancies are resolutely factored out of the description because they do not contribute to the sets of contrasts which are held to characterize the system.

For example, an English phonologist, if asked to talk about English /r/, may observe its contrast with /l/ and cite minimal pairs such as *reap/leap* for illustration; he or she may even go on to offer a phonotactic description (e.g., /r/ can occur in initial clusters), an account of morphophonemic alternations (e.g., *er ~ r* as in *cylinder ~ cylindrical*), and possibly some notes on dialectal variations (e.g., "r-dropping").

Is this all the ESL teacher and students need to know about Eng. /r/? No, not unless the students use a similar /r/ in their native language(s), which is seldom the case. Beyond the phonological properties of /r/ mentioned above are certain phonetic ones factored out by the analysis. /r/ (in most of the U.S.¹) is a vowel-like sound pronounced with the tongue curled back, typically quite rounded before stressed vowels (*rock*, *around*, but not *car*, *card*), and devoiced after voiceless consonants (*pray*, but not *bray*). More technically, Eng. /r/ is [ɹ], [ɹʷ], [ɹ̥] -- a retroflex approximant often rounded and/or devoiced. Of course, the English phonologist could supply this information, but often does not; it is ignored, for example, in that elaborate study of English phonology, Chomsky and Halle (1968). As a result, the phonetic details of /r/ might not filter down into ESL pedagogy, where the student must acquire a retroflex approximant, instead of the uvular trill, alveolar flap, or whatever, of his or her native language, if a strong "accent" is to be avoided.

Similar cases could be cited from any other language treated phonologically. Spanish *b d g* are phonemicized /b d g/, which makes excellent sense phonemically although phonetically they are more often fricatives than stops. Russian *o* is /o/, although phonetically it resembles Eng. /ɔ/ more than Eng. /o/; and French *r* is often a uvular fricative, but is symbolized /r/, like Eng. /r/. Phonemic symbols of course represent abstract units of a particular phonological system, not actual pronunciations, and ordinarily one

¹In some dialects it is produced instead by a medial contraction of the tongue towards the alveopalatal area, but this yields an acoustically similar sound.

takes this into account in contrastive analysis. Nevertheless, it is occasionally concluded that, because language A has an /X/ and language B has an /X/, there will be less difficulty with /X/ when their speakers study each other's language than with a /Y/ that one has and the other does not have.

As an illustration, let us examine a recent text by Harriette Gordon Grate (1974), *English Pronunciation Exercises for Japanese Students*. This book is pedagogically sound in many ways; it uses a diagnostic test (with each entry cross-referenced to the relevant lesson), and, despite a rather thorough account of English phonology, it presupposes little prior linguistic training. It accurately pinpoints most problems Japanese students have, taking up phonemes lacking in Japanese, sounds contrasting as separate phonemes in English but not in Japanese, phonological rules applied in English but not in Japanese, phonotactics, and intonation patterns.

One of the problems Grate takes up is the Eng. /z/ vs. /dz/ (=ʒ/) contrast. Any analysis of Japanese will show that the language lacks such a contrast, and that /z/ vs. /dz/ should pose a problem. In fact, my Japanese students have had a good deal of trouble with it, consistently rendering /z/ as [dz] and confusing *version* with *virgin*, *lesion* with *legion*, etc. Grate carefully describes the articulation of the two sounds and demonstrates their contrast with minimal pairs.

But just as Japanese students pronounce /z/ as [dz], they further render Eng. /z/ as [dz], /ð/ as [dð], and /v/ as [bv], as shown in the following transcriptions of actual pronunciations:

[dzu]	zoo	[ædz]	as
[badza]	buzzer	[ridzan]	reason
[dðɛn]	then	[idða]	either
[bvɛst]	vest	[flɛbva, frɛbva]	flavor

These last three substitutions are not attended to in Grate's text, nor are they predicted by many phonological descriptions of Japanese. Like [dʒ] for /ʒ/, they can cause an audible accent and are thus comparable to English speakers' aspiration of /p t k/ or diphthongization of /e o/ in Japanese--that is, not grave errors, but impediments nevertheless to native-like command. The teacher can improvise with phonetic descriptions, articulatory diagrams, and minimal contrasts (*size/sides*), but is bound to wonder what the source of difficulty is and why it has been missed in an otherwise fine contrastive study, and indeed in other resources available to ESL.

The answer lies in a factored-out detail of the sort mentioned earlier. Consider the following chart of obstruent (stop and fricative) phonemes of Japanese, which synthesizes various linguistic descriptions and underlies Grates' phonemic-contrast approach to English.

/p/	/t/	/k/	
/b/	/d/	/g/ = [g, ŋ]	
	/s/		/h/ = [h, ɸ, ç]
	/z/		

By a rule called Palatalization, the alveolars in this system become alveopalatals before the vowel

/i/ or the glide /j/²:

t → tʃ	}	/ <u> </u> i, j
d → dʒ		
s → ʃ		
z → dʒ		

Note that Japanese, like English, has a /z/ phoneme; apparently, no more attention would be needed for Eng. /z/ than for /b/, /k/, or any other phoneme shared by the two languages. But here we are merely comparing phonemic symbols. What is analyzed as /z/ in Japanese is actually (phonetically) an affricate, [dz]. Instead of producing continuous friction, as in English, the Japanese speaker briefly stops the airflow at the alveolar ridge before articulating friction there. Still, as the voiced equivalent of /s/, the sound is rightly phonemicized as /z/, written *z* in Romanization, and treated as voiced *s* in the Japanese syllabary, just as Eng. [ɹ] is phonemicized as /r/ and written *r*. The slightly plosive start of Jap. /z/ is an insignificant detail, like the rounding and retroflexion of Eng. /r/; it is voiced sibilance which contrasts it with other phonemes in the system, and that is its distinctive property. Consequently, its affrication is passed over in phonological analysis and in

²Alveopalatals are thus allophones of the alveolar phonemes; this is the analysis reflected in the Japanese syllabary and implicitly in Grate's approach. But Bloch (1950), using an argument (biuniqueness) no longer accepted in phonology, phonemicizes the alveopalatals.

pedagogical resources,³ and Grate follows suit.

Yet the affrication of /z/ and also of its palatalized allophone [dʒ] is not insignificant, but leads to a fundamental principle of Japanese phonology and its possible interference in the acquisition of English: the language, either phonemically or phonetically, has no real voiced fricatives at all. Alternatively, one can state that voiced fricatives are automatically affricated in Japanese, just as voiceless stops are aspirated in English. It is now clear why the Japanese speaker says *buds* for *buzz*, *feeds* for *fees*, *ads* for *as*, *ledger* for *leisure*, *virgin* for *version*: a regular rule of Japanese is being carried over. Moreover, a concomitant transfer of Palatalization will produce a five-way merger of /z ʒ dz dʒ d/ before /i ʌ/: *zip* = *gyp* = *dip*, *buzzing* = *budging*,

³It is ignored in Vaccari (1957) and Niwa (1964), and relegated to footnotes by Jorden (1963) and Bloch (1950). For Jorden, [dz] is an "alternate" pronunciation of *z*, and just before *u*; for Bloch, it is "rare" and limited to non-standard dialects. (Neither is correct for the speakers--educated, and from Tokyo--I have heard.) Miller (1967) recognizes a *dʒ* for Middle Japanese, but not for the modern language. Kimizuka (1968), in a list of "substitutions" in Japanese-English transference, merely observes a "less fricative quality" (p. 53) for Jap. /z/; and Kimura ignores the problem. The major ESL resource of Nilsen and Nilsen (1971) includes Japanese among the languages whose speakers may have trouble with Eng. /ð/ vs. /z/ and /d/ vs. /z/, but /dz/ vs. /z/ is not mentioned, even though my students found this last distinction harder than the other two. Of all the works consulted, only Hisano (1976) correctly notes that Jap. /z/ is [dz]; and none of them predicts [dð], [bv] for /ð/, /v/.

and (because [ʌ] and [əɾ] are merged, too) *sudsing* = *surging*.

Even more interesting is the fate of English /v/ and /ð/. The Affrication Rule is so general that Japanese students apply it not only to English /z/ and /ʒ/, whose positions of articulation are familiar from Japanese, but to the voiced labiodental and interdental, whose positions of articulation are quite alien. As it turned out, students in my classes found it less difficult to master the labiodental and interdental articulations per se, because they are visible and easily modeled, than to eliminate accompanying affrication, which was subtle and unconsciously applied. That a general rule was at work, rather than mere confusion of phonemes or substitution of one sound for another, was clear from the facts that (1) [bv] and [dð] are as un-Japanese as they are un-English, and (2) /v/ and /ð/ stayed [bv] and [dð] as long as /z/ was [dz] and /ʒ/ was [dʒ].

The logical solution was to use voiceless fricatives as a point of departure, for the students never at any time affricated Eng. /s/, /ʃ/, /h/, and (once their positions of articulation were learned) /f/ and /θ/. (Likewise, in Japanese voiceless fricatives are never affected by affrication.) Therefore, the nature of voicing was discussed, and then drills such as the following were introduced:

/pa/ → /ba/		/sa/ → /za/
/ta/ → /da/	likewise,	/ʃa/ → /ʒa/
/ka/ → /ga/		/fa/ → /va/
		/θa/ → /ða/

But despite great effort from both sides, the

results remained for a long time:

/sa/ → [dza]

/ʃa/ → [dʒa]

/fa/ → [bva]

/θa/ → [dθa]

In fact, from both the linguistic and the pedagogical viewpoints, it is interesting that affrication of voiced fricatives, even of two Japanese lacks, persisted a longer time, and caused more perceptual confusion, than the infamous *r/l* distinction. When the students finally learned to control affrication, it disappeared for all four English fricatives.

In summary, then an "accented" pronunciation such as *budging beads* for *buzzing bees* turns out to be the key both to understanding the linguistic system as a whole and to tracing its interference in ESL. Not only is /z/ actually [dz] in Japanese, but all voiced fricatives will be affricated, including ones which are quite un-Japanese in place of articulation. Despite the generality and pervasiveness of this rule, its effect on English cannot be predicted in a contrastive analysis based on comparison of English and Japanese phonemes alone, which was the approach used by Grate. To detect it requires attention to what seems an insignificant phonetic detail.

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