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**ON TEACHING THE PRONUNCIATION OF ALLOPHONES:
THE CASE OF FLAPPING IN NORTH AMERICAN ENGLISH**

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ABSTRACT

This study is primarily concerned with the issue of determining whether it is worthwhile to try to teach the correct pronunciation of subphonemic segments in ESL courses. It focuses specifically on the allophones [ɾ ɾ̥] produced by the Flapping (or Tapping) of medial and final alveolar stops in North American English. Through an exhaustive examination of the ESL and TESL pronunciation manuals that have been published in the last thirty years or so, an assessment is first made of the manner and extent to which this widespread phonological process has been dealt with by the authors of such books. These findings are then compared with the opinions expressed by researchers in the field of second language education in order to determine what sort of consensus currently exists on this issue. The general conclusion is that since flaps are demonstrably the most salient of all NAE allophones and occur as phonemes in the first language of many ESL learners, these segments should be given due consideration in any pronunciation curriculum.

RÉSUMÉ

Le but premier de cette étude est de tenter de déterminer s'il est profitable d'enseigner la prononciation des segments sous-phonémiques dans les cours d'anglais langue seconde. Elle porte spécifiquement sur les allophones [r̥ f̥] produits par la vibration des occlusives médiales et finales en anglais nord-américain, un phénomène connu sous le nom de *Flapping* (ou *Tapping*). À la suite d'un examen exhaustif des manuels de prononciation anglaise destinés aux étudiants (*ESL*) ainsi qu'aux enseignants (*TESL*) qui ont été publiés au cours des trente dernières années, la présente analyse se livre d'abord à une évaluation de l'importance que les auteurs de ces genres de bouquins ont accordée à ce processus phonologique si répandu. Ces résultats sont alors comparés aux opinions exprimées par les chercheurs dans le domaine de l'éducation en langue seconde afin de déterminer quel sorte de consensus existe sur cette question à l'heure actuelle. La conclusion générale est que puisque ces vibrantes constituent manifestement les allophones les plus saillants de l'anglais nord-américain et qu'elles se retrouvent dans la langue première de plusieurs apprenants, tout programme de prononciation devrait en tenir compte.

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Marc Picard, 1969-2001. When all is said and done, this is what the record will show with regard to my association with McGill University, one that will have spanned five decades and two centuries. First as a qualifying student in the Linguistics Department in 1969, then as a Ph.D. candidate, a post-doctoral fellow and a linguistics instructor in the 70s and 80s, and finally as a student once more in the Department of Second Language Education starting in 1997, it has been a challenging but very rewarding sojourn for me in this venerable institution.

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CHAPTER 1

INTRODUCTION

1.1 Teaching pronunciation: the question of *how*

There seems to be a broad consensus among researchers involved in Second Language Acquisition (SLA) in general and Teaching English as a Second Language (TESL) in particular that not enough heed is being paid to the teaching of pronunciation, and that this is disadvantageous and even detrimental to ESL students. Numerous attestations to this effect can be found in the recent literature on foreign-language instruction and research. Here are some typical comments:

Pronunciation has sometimes been referred to as the 'poor relation' of the English language teaching (ELT) world. It is an aspect of language which is often given little attention, if not completely ignored, by the teacher in the classroom . . . No one, though, would deny the importance of pronunciation as a contributor towards a learner's proficiency of English (Brown 1991:1).

[W]hile practice in pronunciation may not make perfect, ignoring pronunciation totally can be a great disservice to ESL students (Avery and Ehrlich 1992:xiii).

[P]ronunciation is often not considered a 'regular' part of the ESL/EFL curriculum but as an additional item to be taught when time and syllabus considerations permit (Goodwin et al. 1994:14).

Pronunciation has been something of an orphan in English programs around the world. Yet thoughtful teachers have been well aware that this neglect has been unwise (Gilbert 1994:38).

[P]ronunciation has been relatively neglected in recent years — many courses do not deal with it specifically at all, preferring to leave it to a process of osmosis — yet most learners attach great importance to it (Maley 1995:3).

This disregard for pronunciation is far from new. In order to understand how it came about, it is instructive to briefly examine the most important methodological trends that

have governed the teaching of foreign languages over the years (cf. Rivers 1981, Celce-Murcia 1987). First, there was the *grammar-translation* approach, according to which a language is acquired by memorizing grammatical rules and paradigms as well as long lists of vocabulary. This method, which is now defunct in its "pure" form, at least in North America, was essentially practiced by the application of acquired knowledge to exercises of direct and inverse translations, and it viewed pronunciation as irrelevant.

At some point, it was realized that, when learning a foreign language, the main objective should be the ability to communicate with speakers of that language, rather than just being able to read literary works, and so the grammar-translation approach was held by some to be without much purpose. Thus, in the 1920s and 1930s a series of methodological initiatives arose which were later to be known collectively as the *direct method*. Since the common denominator was the idea that learners should be placed in direct contact with the language they were trying to acquire through the simulation of concrete situations, pronunciation was considered to be very important.

Next came the structural or *audio-lingual approach*, which was the first to be consciously and intentionally based on a determined theory of language and its acquisition. It arose in the United States at the end of the 1930s due, on the one hand, to the increasing disenchantment of teachers and experts with the results obtained with the direct method and, on the other hand, to the need to communicate in 'exotic' languages which were little known to the American military and diplomatic corps.

The use of this method, which had been influenced by behaviorist learning theory as well as structuralist linguistics, spread to the teaching of European languages in the United States, and then to TESL/TEFL in Europe in the 1950s. Moreover, it began to pervade the education system at all levels: university faculties, technical schools, secondary schools, etc. Needless to say, this was a method where pronunciation played a dominant role.

At the end of the 1960s and the beginning of the 1970s, as a reaction against the defects of the audio-lingual method, the so-called *cognitive-code approach* became popular.

According to this method, which had as its theoretical base the transformational-generative grammar of Chomsky, the learning of a language was deemed to consist in acquiring a conscious control of its structures. It de-emphasized pronunciation in favor of grammar and vocabulary to the point where it was argued by many that it should not be taught at all.

These days, the methodological trend dominating language teaching is the *communicative approach*. Rather than being a new methodology, it is a general philosophy which has been at the forefront of foreign language learning for the last fifteen years or so. Its basic tenet is that the learning of a foreign language should be directed towards students acquiring communicative competence, that is to say, the implicit or inductive acquisition of a series of skills which allow them to communicate with native speakers of the target language in the most common situations of daily life. However, the advent of the communicative approach has had the adverse effect of perpetuating the vacuum in the ways and means of teaching pronunciation.

There appears to be a general agreement that the reason why "[p]ronunciation is no longer taken to be an indispensable component of second- or foreign-language . . . teaching programmes . . . is the shift in pedagogical principle from concern with linguistic form to concern with communicative function" (Leather 1985:94). But although "[s]ome teacher-training programs have developed a new-style communicative pronunciation component in their curriculum . . . sadly many programs continue to give very short shrift to the teaching of the pronunciation aspect of oral communication" (Morley 1994b:68); in other words, "[p]ronunciation . . . has come to be regarded as of limited importance in a communicatively oriented curriculum" (Pennington and Richards 1986:207). As a result, then, "[p]ronunciation teaching has lagged far behind the remainder of ESL teaching in its communicative focus" (Naiman 1992:163). This is echoed by Wong, who states categorically that "[t]he teaching of pronunciation has fallen far behind that of other skill areas in meeting the communicative criteria that now guide second language instruction" (1987:1).

The disregard for pronunciation in foreign-language teaching is not only a classroom-based phenomenon. As noted by Brown, “[a]nother measure of the neglect which pronunciation has suffered is given by the amount of literature on the subject” (1991:2). To prove his case, he checked the number of articles on pronunciation which were published between 1975 and 1988 in four leading journals, namely the *International Review of Applied Linguistics*, *Language Learning*, *TESOL Quarterly* and the *ELT Journal* and he found the average to range between 4.6% and 11.9% of the total.

1.2 Teaching pronunciation: the question of *what*

In the area of pronunciation instruction, a lot of attention has traditionally been directed towards how best to impart prosodic and segmental information to students, but there has been considerably less discussion on the content of an ideal pronunciation curriculum or program. Yet the issue of *what* should be taught in pronunciation classes is far from trivial in view of the limited time and resources foreign-language teachers usually have to devote to this particular concern. For instance, MacCarthy states that “[t]he teaching of pronunciation can occupy only a portion of class time for the teacher of a foreign language, whose time overall naturally has to be divided among the different areas of language study” (1976:212). Similarly, in referring specifically to pronunciation instruction, Brown points out that “[t]he ELT teacher . . . must often decide which features of language, on the one hand, are important and therefore merit precious class time and which, on the other hand, are relatively unimportant and may be overlooked until a more advanced stage” (1988:593).

Traditionally, the phonological aspect of ESL has involved an almost exclusive preoccupation with phonemes, as Dickerson has so rightly noted: “[P]ronunciation instruction for years . . . consisted of a heavy emphasis on segmentals — the vowel and consonant sounds of English — and a somewhat lighter emphasis on suprasegmentals — stress and intonation . . . The content and presentation were so well defined that the myriad pro-

nunciation textbooks on the market seemed to be cut from the same pattern . . . [I]t was not until recently that the crucial importance of rhythm for intelligibility began to be widely reflected in our textbooks" (1987:11, 12).

Although the prosodic features of English have been gradually receiving much more emphasis in the past few years (cf., for example, Gutknecht 1978, Chela de Rodriguez 1983, Dickerson 1987, Haycraft 1992, McNerney and Mendelsohn 1992, Gilbert 1994), another area of phonological instruction, viz., that of allophonic variation, has continued to be almost totally neglected. Yet, over the years, a few researchers in applied linguistics and TESL have occasionally tried to bring attention to the potentialities, and even the necessities, of providing students with instruction in this area.

In Standwell's view, for instance, "far from the phoneme being of any assistance to the language teacher, it is rather a red herring" since "in pronunciation teaching one does not teach *phonemes*, one teaches *phones*" (1973:119). Although few have espoused such an extreme position, opinions have been clearly expressed to the effect that that allophones should be given some consideration. For one, Shen has claimed that "[a]llophones provide acoustical clues to the recognition of phonemes" so that "[b]y careful utilization, they can constitute an aid to a more satisfactory production of the foreign language" (1959:18). In the same vein, Prator has opined that "[e]ven in a short course, if ability to speak English is an important objective, we should probably include attention to a few of the most important allophones that are in complementary distribution" (1971:71).

More recently, Celce-Murcia et al. (1996)) have made some interesting observations in this regard. Concerning the aspiration of /p t k/, for instance, they have seen fit to apprise ESL instructors of the following potential difficulties:

In many languages, initial voiceless stops are less strongly aspirated than in English, or are even unaspirated. Speakers of these languages may therefore tend to confuse initial /b, d, g/ in English with their own language's unaspirated /p, t, k/ in this position. These learners may be misperceived by English native speakers as producing *back* instead of *pack*, or *die* instead of *tie*. In fact what they may be producing is an unaspirated /p/ or /t/ in place of the English aspirated counterparts. They may, of course, also have difficulty in differenti-

ating such minimal word pairs. For these learners, aspiration can provide a valuable clue to perceiving and producing these words (1996:63).

Celce-Murcia et al. are clearly of the opinion that even though the aspiration of voiceless stops is not phonemic in English, failure to make ESL learners aware of it can lead to confusion. Native speakers may misinterpret some of their voiceless stops as voiced stops, and they themselves may have difficulty in discriminating between these two types of obstruents when they hear them.

There appears to be sound evidence, then, that there is more to teaching the pronunciation of segmentals than simply concentrating on phonemes to the exclusion of their contextual phonetic variants, some of which may be articulatorily contrastive enough to cause confusion. Moreover, some of the variants, individually or as a group, may be significantly more frequent and prominent than the exact phonetic counterparts of the phonemes. But on what basis can one choose which allophones to teach? According to Catford, "it is perfectly possible to make a deliberate selection of items to be taught" since "[t]he *principle of frequency* often used in vocabulary selection can also be applied to pronunciation" (1987:88). If this principle is valid, and there is no reason to doubt that it is, then the flapped allophones of /t d n/, namely [ɾ ɾ̃], are prime candidates since they occur so frequently in North American English (NAE).

1.3 The frequency of alveolars

Given the fact that "[a]s a class, the alveolar phonemes emerge as those which occur most frequently in English" (Gimson 1989:219), the voiceless oral stop /t/, the voiced oral stop /d/ and the voiced nasal stop /n/ are usually at or near the top of any list of English phoneme frequency, vowels and consonants included. In British English (BE), for instance, Fry's (1947) investigation of the frequency of phonemes in RP reveals that after /ə/ and /ɪ/, the three most frequent segments are /n/, /t/ and /d/ respectively. A simi-

lar study by Denes (1963) shows that /n/ is first, /t/ is second and /d/ is fourth.

For NAE, a number of such investigations have been conducted, ranging all the way back to the 19th century. More recently, Mines et al., for example, present “some basic statistics on the rank order and frequency of occurrence of phonemes in conversational American English . . . which uses a data base . . . composed exclusively of casual, connected speech transcribed as actually pronounced” (1978:221-222), and the results thereof are then compared to those of an earlier study of the same type by Carterette and Jones (1974). Most enlightening in this regard is Gerber and Vertin’s (1969) comparison of the rank correlations of six different studies on the relative frequency of occurrence of the sounds of spoken English, five of which were on NAE, viz., Whitney (1874), Dewey (1927), French et al. (1930), Voelkner (1934) and Tobias (1959).

Table 1.1 summarizes the frequency rankings of the alveolar stops vis-à-vis the other consonants of NAE which were obtained in these various studies:

<u>Studies</u>	/t/	/d/	/n/
MINES ET AL.	2	6	1
CARTERETTE AND JONES	4	6	1
WHITNEY	3	4	2
DEWEY	1	4	3
FRENCH ET AL.	1	5	2
TOBIAS	1	3	2
VOELKNER	2	4	1
Average frequency rank	2	4.6	1.7

TABLE 1.1 *Frequency ranks of the alveolar stops in NAE*

The fact that the *phonemes* /t d n/ are so frequent does not mean that the *phones* [t d n] are equally numerous, however. This is because in most if not all varieties of En-

glish, /t/ and /n/ have other allophones. Thus, like the other voiceless stops /p/ and /k/, /t/ is often aspirated, notably in the onset of word-initial syllables and of stressed word-internal syllables except when preceded by /s/ in both instances, e.g., [t^h]ill, un[t^h]il but s[t]ill, ins[t]ill. Similarly, because shwa (/ə/) is usually deleted between /t/ or /d/ and /n/, and because it can also be dropped between /nt/ (but not /nd/) and /n/, the alveolar nasal has a post-consonantal allophone [ɳ] in syllable codas, e.g., cert[ɳ]ly, Swed[ɳ], mount[ɳ]. In addition, the alveolar stops are unreleased before most consonants, e.g., a[t̚]mo- sphere, Ro[d̚]ney, a[n̚]tics, and /t/ is very often unreleased in prepausal position, e.g., overcoa[t̚].

Last but certainly not least, in certain varieties of English, and most notably in NAE generally, the oral and nasal alveolar stops have a flapped allophone. More specifically, both /t d/ are changed to [ɾ] — though some speakers may have [ɽ] for /t/ — and /n/ is changed to [ɹ̃] in certain environments (which will be described in detail in section 2.5), e.g., deba[ɾ]ing, i[ɾ]iotic, orga[ɹ̃]ic. Since /t d n/ are so prevalent in this environment and since, moreover, Flapping occurs in the equally frequent environment of word junctures, e.g., ge[ɾ] it, di[ɾ] again, ma[ɹ̃] overboard, the segments [ɾ ɹ̃] are probably the most numerous allophones of the phonemes /t d n/. In sum, then, the allophonic distribution of the alveolar stops in NAE is as follows:

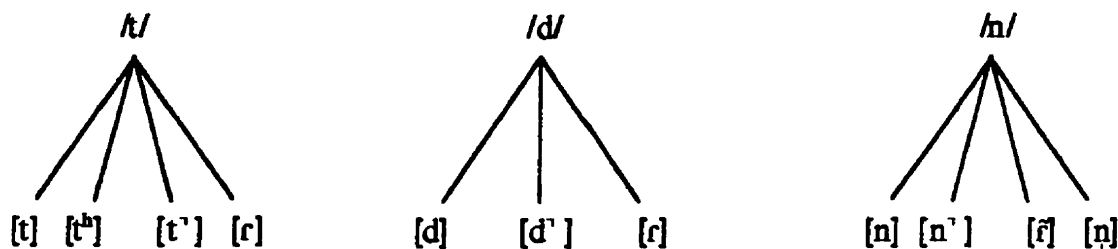


FIGURE 1.1 *Allophones of the alveolar stops in NAE*

Now, on the one hand, it is clear that the phonemes /t d n/ are among the most frequently recurring segments in English. On the other hand, it is also a fact that they do not evince any sort of articulatory uniformity, especially in NAE. The question thus arises as to what exactly should be taught in the way of pronunciation. In other words, should foreign students of this major dialect group be given instruction on how to articulate the various allophones of /t d n/ since the principal contextual variants [t^h t' d' r r̃ ñ] are seemingly as prevalent as [t d n]? If not, should these students at least be made aware of their existence so they can interpret them consistently as variants of /t d n/, keeping in mind that aspirates, syllabic consonants and flaps may very well be phonemic in their native language(s) and thus fully discernible by them? Or, finally, should no attention whatsoever be paid to any sort of allophonic variation under the assumption that phonemic distinctions are all that really matter in terms of lexical differentiation?

1.4 Overview of this study on Flapping

This study is an attempt to examine the status of allophones in general and Flapping in particular in ESL pronunciation instruction in a North American context by reviewing not only the research literature on the subject, such as it is, but also by surveying virtually all the ESL and TESL pronunciation manuals — some fifty in total — that have been published on NAE in the last thirty years or so. A major goal is to try to gauge what sort of importance or prominence has been given to allophonic variation during this period and whether there have been any noticeable trends either towards or away from describing this phenomenon.

Such tendencies could be potentially revealing of the current status of pronunciation teaching since, as we have seen, “[o]ne of the major movements within ELT in the 1980s was away from teaching language as a formal system towards using language as a means of communicating in realistic tasks”, and since there has been an obvious “failure to teach

pronunciation communicatively, in meaningful exchange and problem-solving tasks” (Brown 1992:14). In other words, has the advent of the communicative approach seen a corresponding decline in the presentation of allophones in pronunciation manuals? Or is it the case that since “there has been a resurgence over the last few years in the attention that has been devoted to the teaching of pronunciation in second language instruction” (Eckman and Iverson 1997:183), allophonic variation has gained more prominence in this type of pedagogical material?

Since the kind of detailed investigation that is envisaged here precludes an analysis of the entire inventory of NAE allophones, it will focus exclusively on Flapping. Apart from the frequency of occurrence of [ɾ ɾ̥], as mentioned above, one reason for paying particular attention to these allophones is that the oral variant is arguably the most salient and widely recognized NAE subphonemic segment, since it is a full-fledged phoneme (usually written <ɾ> in the Roman alphabet, <ϣ> in Greek and <ѣ> in Cyrillic, for example) in so many of the native languages of ESL students. This is in line with one of Catford’s principles of pronunciation instruction, namely “the utilization of all sounds known to the students”, and the fact that “[t]eachers should . . . take advantage of articulatory possibilities of their students (1987:97)”. Another reason is quite simply that “the voiced tap [ɾ] [is] the most interesting and the most characteristically [North] American of /t/ allophones” (Kahn 1980:94), something which obviously also applies to those flaps derived from /d/ and /n/.

In sum, this study will begin with a detailed phonological description of the phonetics and phonology of Flapping. More specifically, I will first examine what contemporary phoneticians and phonologists have had to say about Flapping in an attempt to show the extent to which it has been generally misinterpreted and misanalyzed. I will then provide a systematic structural description of this phonological rule so that we may later be in a position to properly assess the treatment it has received in ESL pedagogical materials. In

the following section, I will examine two different types of handbooks which deal with English sound structure, viz., those designed for ESL students and those meant for ESL teachers, and I will evaluate them in terms of the thoroughness and accuracy of their coverage of Flapping. Finally, I will evaluate the pros and cons of teaching allophones in general and flaps in particular in light of the results obtained in the previous section and the comments of various researchers in the field of applied linguistics on the subject of introducing non-contrastive segments in pronunciation instruction.

CHAPTER 2

ON THE STATUS OF FLAPPING IN NORTH AMERICAN ENGLISH

2.1 The phonetics and phonology of Flapping

Flapping, which is also known as Tapping, especially outside North American linguistics circles, is one of the most widely discussed phonological processes of English, especially since the advent of Lexical Phonology, wherein it has come to serve as the prototypical postlexical rule. Yet it is truly remarkable just how inconsistent and divergent its description has been both in terms of its geographical distribution and its phonological actuality. This was noted by Kahn in his claim that “[t]he literature on the phenomenon of ‘flapped’ /t/ reveals a large degree of confusion as to the phonetic nature of this segment and its dialectal variation” (1976:57), and over twenty years later it is obvious that not much has changed.

What is also notable is that this sound, which has obviously been around for a long time since it can be found in every corner of English-speaking North America, was so commonly misperceived as some sort of /d/ and/or symbolized in rather peculiar ways until well into the 1960s. For example, Trager and Smith had it that “[i]n *butter* we find a voiced fortis [t] in most American speech” (1957:34) while Harris represented it as [r¹], though he did refer to it as an “alveolar flap” (cf. 1951:70). Chomsky (1964) appears to have been the first to symbolize it as [D], a practice which was adopted by a number of other phonologists. Only in the last fifteen years or so has this segment begun to be more accurately represented by [ɾ] in the literature, though one still encounters references to it as when Avery and Ehrlich state that “[t]he phonetic symbol we use for a flap is a capital D: /D/” (1992:41).

In this chapter, I will first examine what contemporary phoneticians and phonologists have had to say about Flapping in an attempt to show the extent to which it has been generally misinterpreted and misanalyzed. I will then provide a systematic structural description of this phonological rule so that we may later be in a position to properly assess the treatment it has received in ESL pedagogical materials.

2.2 The geographical distribution of Flapping

First of all, where exactly does this phenomenon occur? Consider the following (non-exhaustive) list of estimations found in contemporary linguistics textbooks and reference materials, ranging from the most specific to the most inclusive:

A — UNITED STATES

“accents of American English” (Durand 1990:9-10)

“many forms of American English” (Ladefoged 1993:11, 168)

“many American English pronunciations” (Crystal 1997:382)

“many speakers of American English” (Matthews 1997:372)

“most speakers of American (but not British) English” (Akmajian et al. 1995:84)

“most dialects of General American” (Tiffany and Carrell 1977:281)

“American English” (Carr 1993:178, 294, Gussenhoven and Jacobs 1998:122, Katamba 1989:276, Ladefoged and Maddieson 1996:231, Nespor and Vogel 1986: 23, 46, 90, 223, Wolfram and Johnson 1982:19):

“U.S. English” (Lass 1984:31, 123)

B — NORTH AMERICA

“most North American dialects of English” (Rogers 1991:41)

“North American English” (Jensen 1993:147, Laver 1994:225)

C — NORTH AMERICA AND ELSEWHERE

“North America especially, and to a lesser extent in other parts of the world” (Kreidler 1989:109)

“most varieties of (US) American English as well as in Ulster English” (Giegerich 1992:226)

“some varieties of English, especially Americans but also younger Australians” (Clark and Yallop 1995:48)

“many American and Northern Irish speakers” (Davenport and Hannahs 1998:26)

“in the western part of England, in North America, Australia, and sporadically elsewhere” (Kreidler 1997:59)

“General American, certain Irish accents, some varieties of Southern British English, and Australian English” (Spencer 1996:231)

“[m]any speakers, especially in North America, Australia, New Zealand and younger speakers in Britain” (Hawkins 1984:107)

“all over the United States, as well as in Canada, Australia, and some areas of England and Ireland” (Harris 1994:195)

“American English” and “[s]ome accents in Canada, England, Northern Ireland, Australia, and New Zealand” (Trask 1996b:56-7)

“certain varieties of English” (Wardhaugh 1995:202)

“English” (Kenstowicz 1993:195)

Despite the obvious disagreements among phoneticians and phonologists as to the exact geographical distribution of Flapping, it is clear from these descriptions that it is generally recognized as a quasi-universal feature of North American pronunciation. It is strictly in terms of this major variety of English that it will be analyzed here.

2.3 The input of Flapping

2.3.1 Voiceless alveolar stops

As was mentioned a number of times in Chapter 1, Flapping affects the natural class of alveolar stops, both oral /t d/ and nasal /n/, in NAE. Yet it is remarkable just how many descriptions fail to account for this simple fact. Some, for example, mention only /t/ as an input to the process, the input of a phonological rule being defined as “the representation to which the rule applies in a particular instance” (Trask 1996a:180), i.e., /t d n/ in the case at hand. Thus, Katamba states “the flapping rule of American English” (1989:276) as:

$$/t/ \rightarrow [ɾ] / V \text{ — } \left[\begin{array}{c} V \\ \text{-stress} \end{array} \right]$$

Other such restrictive formulations have been put forth, inter alia, by Wardhaugh (1995:203):

$$[t] \rightarrow \left[\begin{array}{c} +\text{voice} \\ +\text{flap} \end{array} \right] / [+stress] \text{ — } [-stress]$$

and even by a prominent phonologist like Kiparsky (1979:437):

$$\left[\begin{array}{c} t \\ +\text{lax} \end{array} \right] \rightarrow [+voiced] / \triangle_S$$

2.3.2 Oral alveolar stops

Then there are those who limit the input of the Flapping rule to /t d/, e.g.:

Akmajian et al. (1995:318)

$$\begin{bmatrix} t \\ d \end{bmatrix} \rightarrow D / \acute{V} __ V$$

Durand (1990:10)

$$\left\{ \begin{matrix} t \\ d \end{matrix} \right\} \rightarrow r / \begin{bmatrix} V \\ \text{stressed} \end{bmatrix} __ \begin{bmatrix} V \\ \text{unstressed} \end{bmatrix}$$

Hawkins (1984:140)

$$t, d \rightarrow [ɾ] / 'V_ V$$

2.3.3 Oral and nasal alveolar stops

What this means, of course, is that /n/ is ignored by most phoneticians and phonologists as an input to the Flapping rule. Yet, as noted by Laver, “[t]here is no articulatory reason why flapped and tapped stops should not be produced with a nasal aspect of articulation” (1994:226). Among the few who have clearly pointed out the existence of [ɾ̃] in NAE, we find Ladefoged, who states that “taps occur in many forms of American English as the regular pronunciation of /t, d, n/ in words such as ‘latter, ladder, tanner’” (1993:168), Wolfram and Johnson, who mention that “nasals may also be produced with a flap-like quality [ɾ̃]” (1982:19), and Fujimura and Lovins, who note that in forms such as *bunny* and *buddy*, “/n/ is flapped as well as /d/” (1982:34). (Note that the variable use of the terms *tap* and *flap*, which is prevalent among phoneticians and phonologists of all stripes, will be discussed in detail in section 2.4.1 below.)

2.3.4 /nt/ as an input to Flapping

Moreover, the fact that [ɾ̃] may be the surface representation not only of /n/ but also of /nt/ has also been a general source of confusion among those who have acknowledged the existence of nasal flapping. On the one hand, there are those who simply have /nt/ going to [ɾ̃] in one fell swoop. Kreidler, for example, states that “[s]ome North Americans have a nasalized tap, [ɾ̃], as the articulation of the sequence /nt/ . . . between a stressed vowel and an unstressed vowel” (1989:110) while Rogers claims that “in words such as *winter* [ˈwɪɾ̃əɪ] . . . the consonants form a sequence /nt/ at the phonemic level, but a single segment [ɾ̃] at the phonetic level” (1991:42). The fact that provisions have never been made for formalizing rules like /nt/ → [ɾ̃] wherein two segments simultaneously shift to a third segment is a good indication that such a change must be viewed as highly suspect.

On the other hand, many generative phonologists, apparently starting with Kahn, have assumed that what makes forms such as *winner* and *winter*, *paining* and *painting*, or *Johnny* and *jaunty* homophonous for a number of speakers is the fact that syllable-final “/n/ nasalizes the preceding vowel and then may be deleted” whereupon “/t/ finds itself in the environment for (obligatory) flapping” (1976:58).

Jensen proposes a similar analysis. Starting with the two following rules drawn from Chomsky (1964:82):

Vowel Nasalization

$$V \rightarrow [+nasal] / \text{ — } \left[\begin{array}{c} C \\ +nasal \end{array} \right]$$

Nasal Consonant Deletion

$$\left[\begin{array}{c} \text{C} \\ + \text{nasal} \end{array} \right] \rightarrow / \left[\begin{array}{c} \text{V} \\ - \text{tense} \end{array} \right] - \left[\begin{array}{c} \text{C} \\ - \text{voiced} \end{array} \right]$$

he compares the derivations of *winter* and *winner* as follows:

LEXICAL REPRESENTATIONS	/wɪntər/	/wɪn+ər/
NASALIZATION	ĩ	ĩ
NASAL CONSONANT DELETION	Ø	—
FLAPPING	r	r
OUTPUT	[wĩrər]	[wĩrər]
NASAL SPREADING	[wĩ̃rər]	[wĩ̃rər]

Although Jensen acknowledges that “the Flapping rule affects nasals as well as obstruent stops” (1993:150), he fails to recognize that the /n/ of *winner* becomes [ĩ] directly, and instead effectively posits a highly unnatural process of denasalization /n/ → [r] which then has to be followed by renasalization via nasal spreading to yield [ĩ̃]. All this can easily be avoided by assuming that there is a rule of post-nasal /t/-deletion before unstressed vowels (compare to *i*[ĩ̃]erview with to *i*[nt]erpret). Thus, as noted by Harris, “[i]n tapping dialects, *r* is either retained after *n* or lost altogether; in the event of the latter, a form such as <plenty> rhymes with <penny>” (1994:218). As a result, the derivation of *winter* and *winner* becomes:

LEXICAL REPRESENTATIONS	/wɪntər/	/wɪnər/
/t/-DELETION	Ø	—
FLAPPING	ɾ	ɾ
OUTPUT	[wɪɾər]	[wɪɾər]

That this analysis is still alive and well is shown by Hammond's (1997) comment that "[f]lapping is possible in *winter* if the nasal consonant deletes leaving residual nasalization on the preceding vowels, e.g. [wɪɾər]" (12).

2.4 The output of Flapping

2.4.1 Taps or flaps?

The exact articulatory difference between a *tap* and a *flap* has been the subject of a longstanding debate among phoneticians and phonologists. In terms of the case at hand, what it boils down to is whether the process that turns alveolar stops to /ɾ/ and /ɾ̃/ in NAE should properly be called Tapping or Flapping. On the one hand, there are those who seem to use these terms interchangeably. For instance, Pullum and Ladusaw describe what they call *fish-hook r* as a "voiced alveolar flap", to which they add the following comment: "As in Spanish *pero* 'but': a single apical tap" (1996:161). Carr states that "the rule of Flapping in American English causes intervocalic /t/ and /d/ to be realised as a voiced alveolar tap ([ɾ])" (1993:178) while Wardhaugh describes the sound in question as "a quick tap of the tongue on the alveolar ridge — technically a **flap**" (1995:203).

In one instance, Rogers says that "[m]any speakers also have a nasal tap in words such as *winter* [ˈwɪɾ̃ər]" (1991:42) but further on, we are told that "[i]n English words such as *winter*, many North Americans have a nasal flap" (1991:54). Even the IPA, which used to refer to "the flapped sound r" (*The Principles of the International Phon-*

etic Association, 1984 [1949]:13), now categorizes it as an alveolar tap or flap in its latest (1993) sound chart. In sum, as noted by Ladefoged and Maddieson, “a considerable proportion of the linguistic literature does not make the distinction between tap and flap” (1996:232).

On the other hand, there are others who have sought to establish a clear distinction between the two, though they can be found to disagree significantly on which is which. For Ladefoged and Maddieson, “flaps are most typically made by retracting the tongue tip behind the alveolar ridge and moving it forward so that it strikes the ridge in passing” while taps involve “a direct movement of the tongue tip to a contact location in the dental or alveolar region”, to which they add that “a tap [is] usually described as dental” (1996:231). In their view, English [ɾ] is an alveolar flap which x-ray films have clearly shown to be different from the dental tap of Spanish, for example, but no suggestion is made as to how this difference should be symbolized.

Laver also establishes a clearcut distinction between flapping and tapping. In the former, “the active articulator hits the passive articulator in passing”, whereas in the latter, “the active articulator is thrown very rapidly against the passive articulator in a ballistic action” (1994:142). These transitional processes characteristically involve different points of articulation but these are deemed to be retroflex and alveolar rather than dental and alveolar. Thus, the segment [ɽ], which is found notably in Hausa and in such Indo-Aryan languages as Hindi, Panjabi and Sindhi, is described as a *voiced retroflex alveolar flapped stop*, while [ɾ] is a *voiced alveolar tapped stop* which exists, *inter alia*, in European Spanish and Portuguese, and which is “extremely common in North American English . . . as the pronunciation of /t/ between vowels . . . with /d/ [having] the same phonetic manifestation in this position” (1994:225).

This last viewpoint is defended with vigor by Trask, who qualifies *tapping* as “the phenomenon . . . in which /t/ or /d/ in intervocalic position is realized as a tap [ɾ] . . . as

in Spanish *pero* 'but' and in a typical American pronunciation of *Betty*"; he adds that "though widespread, the use of 'flapping' in this sense is inaccurate and should be avoided" (1996a:350-1). Indeed, this appears to be the majority opinion among phoneticians; namely, that [ɾ], whether dental or alveolar, is a *tap*, i.e., a segment in which "the active articulator returns to its point of origin", which differs from a *flap* wherein "the active articulator starts in one position, strikes the place of articulation in passing, and ends the movement in a position different from which it began" (Rogers 1991:228).

Interestingly enough, this is essentially the distinction which was previously drawn by Ladefoged himself (1993:168-9) when he stated that taps occur "in the dental or alveolar region" whereas "[f]laps are retroflex articulations" so that, for example, [ɾ] symbolizes the taps of English and Spanish, and [ɽ] represents "the post-alveolar (retroflex) flap" of Hausa. In sum, it seems clear that Tapping is a more appropriate description for what NAE speakers do to alveolar stops in certain environments, but I will nevertheless continue to refer to the process as Flapping (and to the segments as flaps) since this still seems to be the more widely recognized appellation, especially among North Americans.

One of the few points phoneticians do seem to agree on is that the most salient characteristic of taps and flaps in comparison with stops is speed or quickness of execution. For example, Ladefoged states that "[a] **tap** or **flap** . . . is often just a very rapid articulation of a stop" (1993:168), while Rogers notes that "[t]aps are faster than stops" in that "the tongue strikes against the alveolar ridge only momentarily" (1991:42), adding that "[a] tap feels quick as opposed to the more careful [t]" (1991:51). Laver opines that the difference between [d] and [ɾ], for example, "may therefore be chiefly speed" since "[i]n the case of a tapped stop, the tongue moves very fast through the onset phase, the closure is extremely brief and the tongue then retreats from closure in a very fast off set phase" (1994:224).

2.4.2 *The change in terms of distinctive features*

Ever since the emergence of generative phonology some forty years ago, it has been customary to state phonological rules in terms of distinctive features. Yet, when it comes to Flapping, one cannot fail to notice how many of the phonologists who have dealt with this process have failed to give it any kind of complete formal description (as can be seen in sections 2.3.1 and 2.3.2). Even when the input and context of the rule have been fully formalized, more often than not the output has either been left unspecified in terms of distinctive features, e.g.:

Giegerich (1991:242)

$$\begin{bmatrix} -\text{cont} \\ -\text{son} \\ +\text{cor} \end{bmatrix} \rightarrow [r] / [+son] \overset{\text{On}}{______} [+son] \text{ (non-foot initially)}$$

Nespor and Vogel (1986:224), Jensen (1993:148)

$$\begin{bmatrix} +\text{cor} \\ -\text{strid} \\ -\text{cont} \\ -\text{tense} \end{bmatrix} \rightarrow r / [\dots [-\text{consonantal}] ______ V \dots]U$$

or has been marked with a makeshift and ad hoc feature like [+flap], e.g.:

Wardhaugh (1995:203)

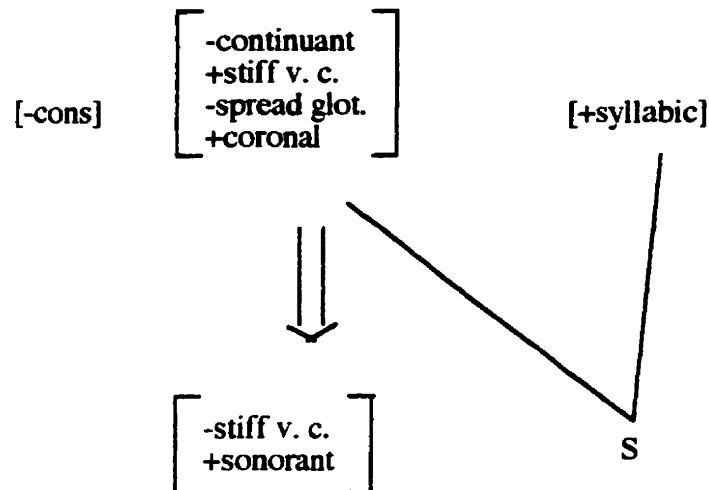
$$[t] \rightarrow \begin{bmatrix} +\text{voice} \\ +\text{flap} \end{bmatrix} / [+stress] ______ [-stress]$$

Wolfram and Johnson (1982:128)

$$\begin{bmatrix} +\text{cor} \\ -\text{d. r.} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{vd} \\ +\text{flap} \end{bmatrix} / \begin{bmatrix} +\text{syl} \\ +\text{stress} \end{bmatrix} ______ [+syl]$$

In order to see the structural change of this rule expressed in terms of features, one has to go back in time. In what has arguably been the most detailed study of Flapping

within the generative framework, Kahn (1976:61) put forth the following statement:



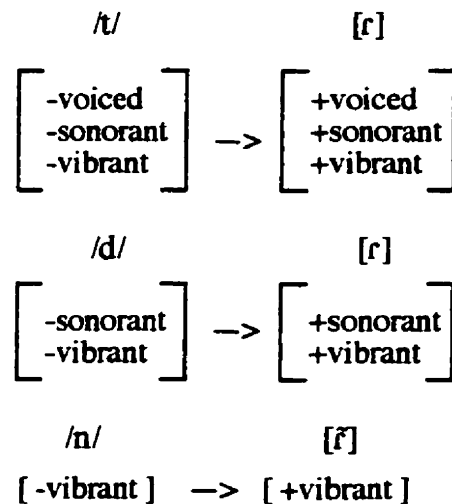
Although the change of /t/ to [r] had previously been seen as a voicing process, as evidenced by Chomsky's comment that "the [D] of 'delighted' is phonetically voiced" (1964:91), Kahn chose [\pm stiff vocal cords] to characterize it. However, the use of this feature was shortlived in generative phonology, and the main reason for its demise, according to Keating, is that "claims . . . about vocal cord control for voicing have not been supported by experimental evidence [since] there is no difference in vocal cord stiffness for voiced vs. voiceless consonants" (1988:18).

Because /d/ is also affected by Flapping, the feature [voice] alone is obviously insufficient to capture this process, hence Kahn's inclusion of [+sonorant] in the output. Since then, others have also seen this as a crucial part of the change. For example, Jensen states that "Flapping adds [+sonorant] (and [+voice]) to an alveolar stop" (1993:221) while Kenstowicz notes that "flapping . . . converts intervocalic dental stops to a sonorant [D] (IPA [r])" (1994:195).

It is clear, however, that as soon as we recognize that a nasal consonant is also involved in the process, we can no longer maintain that [sonorant] is the operative feature

since the consonants [n] and [ɾ] both manifest a positive value of this feature. In fact, no feature currently exists to differentiate these two segments: they are both [+consonantal, -syllabic, +sonorant, -approximant, +voiced, -continuant, +nasal, -lateral, -strident, -delayed release, -spread glottis, -constricted glottis, -labial, +anterior, +coronal, -dorsal, -guttural, -high, -back, -low, +distributed, -round].

In order to set [n] and [ɾ] apart from each other, the best solution would appear to be one that was apparently first proposed by Ladefoged (1971) (cf. also Lass 1984:108-9). Given that “trills, taps, and flaps . . . must be distinguished . . . from stops, fricatives, and approximants . . . it is appropriate to set up an additional feature, which we will call VIBRATION, and to classify trills and taps as having a positive value of this feature” (1971:55-6). Thus, with the addition of the feature [vibrant], we can now properly describe *all* the changes that are involved in Flapping:



2.5 The phonological contexts of Flapping

2.5.1 Word internally

Descriptions of the context or environment of Flapping vary widely from one author to another, and all have been found to be deficient in one way or another. There are three basic types of problems: incompleteness, inconsistency and inexactitude. First of all,

there are those who do not specify any environment as such but simply give a few examples of its application. Thus, Clark and Yallop state that speakers of “some varieties of English . . . pronounce the medial [t] in words such as *better* and *matter* as a tap” (1995:48-9). Others, like Tiffany and Carrell (1977), refer vaguely to “reduced syllables” (281) or “unstressed syllables” (284) as the domain of application of the rule.

Secondly, we find textbooks which contain contradictory descriptions of the environment of Flapping. Thus, in one instance, Carr (1993) states that the rule will “apply to *any* intervocalic /t/ or /d/” (178) while in another he claims that it operates “intervocalically where the first vowel is stressed” (295). Similarly, Rogers (1991) says that the context is simply “intervocalic” (226) in one place while in another he maintains that the rule applies “at the beginning of an unstressed syllable” (51).

Finally, virtually every characterization of the environment is inaccurate in some way. Statements such as Trask’s that “/t/ and /d/ between vowels develop into the tap [ɾ]” (1996:56) fail to account for the fact that Flapping will not take place if the following vowel is stressed, e.g., *a*[t^h]*one*, *i*[d]*entify*, *a*[n]*onymous*. Most commonly, however, Flapping is described as occurring between a stressed vowel and an unstressed vowel. Typical is Kenstowicz’s assertion that “the context in which the flapping rule applies can be stated in purely phonological terms as \acute{V}_v ” (1994:195), and this same basic description can also be found, *inter alia*, in Akmajian (1995:318), Durand (1992:10), Wardhaugh (1995:203), Ladefoged and Maddieson (1996:231), Hawkins (1984:140, 272) and Wolfram and Johnson (1982:128). The problem, of course, is that it is not necessary that the preceding vowel be stressed in order for Flapping to occur, as shown by forms like *quali*[ɾ]y, *melo*[ɾ]y, *felo*[ɾ]y. Despite Kahn’s admonition over twenty years ago that “the [+stress] specification . . . appears to be simply in error, the result of looking at too small a sample” (1976:57), this erroneous requirement has been constantly repeated.

A statement such as Katamba's that "/t/ is realised as [ɾ] . . . whenever it occurs intervocalically at the beginning of an unstressed syllable" (1989:276) is more accurate than those above, at least as far as the environment is concerned. However, it brings out another problem which they all share, namely that there is no need for the preceding segment to be a vowel since the change will also take place generally after a central approximant, e.g., [pʰɔːɾɪ] *porter*, [ɹaɪɾɪ] *rider*, [owɹɪ] *owner*, and for some speakers, also after a lateral approximant, e.g., [wɑːɾɪ] *Walter*.

There is a danger of overgeneralizing this, however, as shown by Giegerich's assertion that /t/ and /d/ "are both realised as [ɾ] in the same context, that is, between sonorants (vowels or sonorant consonants) where the following syllable is unstressed" (1992:242). This is patently false, since no one flaps before or after nasals which are also sonorants, or before anything but a vowel, and only a minority of speakers do so after laterals, as mentioned above (cf. Kahn 1976:58, Bailey 1985:93). In this regard, it is interesting to observe the contradiction between Spencer's assertion that Flapping applies "when any sonorant precedes the /t d/" (1996:231), and Harris' claim that "[t]he presence of a preceding lateral . . . exerts an inhibiting influence" as does that of a preceding nasal where "tapping [is] blocked" (1994:218).

2.5.2 Word finally

Without question, the most widespread preterition regarding the phonological contexts of Flapping involves the operation of the rule in word-final position, that is to say, across word boundaries. One has to search long and hard to find descriptions of the rule that illustrate its application in cases such as *forgɛ[r] it*, *outbi[r] everybody*, *entertai[r̩] again*. A partial description of this phenomenon is found in Carr, who mentions that Flapping applies "regardless of whether the segment in question is in a morphologically simple word like *putty*, a morphologically complex word like *witty* or at the end of a word as in *hit it*" (1993:178), and in Davenport and Hannahs, who state that "Flapping

occurs . . . between two vowels, both within words . . . and across word boundaries as in ‘ge[r] away’ (‘get away’) or ‘hi[r] it’ (‘hit it’)” (1998:26).

One also finds references to cross-boundary Flapping in Jensen (1993:48) and Spencer (1996:231-2), who both refer to Nespor and Vogel’s observation that this is a “phonological rule that applies in the domain of the phonological utterance” (1986:223); in other words, “Flapping . . . may apply across any type of constituent, syntactic or phonological, regardless of the length of the constituents [and] [i]t is blocked only when a pause or other interruption is introduced within the segmental context of the rule” (225). However, none of the aforementioned sources actually specify that in this environment the conditions are not the same as in word-medial position in that the rule applies even if the following vowel is stressed, e.g., *go ge[r] Ann, wante[r] all of them, ra[f] off*.

The only handbook which has been found to contain this information is Harris’, in which he states that word finally the process operates “irrespective of whether the following vowel is unstressed . . . or stressed” so that “tapping before a stressed vowel may take place across a word boundary but not word-internally” (1994:197). This is more than a little surprising in view of the fact that in his doctoral dissertation Kahn (1976) had already alluded to the fact that “across word-boundary [*sic*], /t/ can be flapped if pre-vocalic even if the following vowel is stressed” (1976:59).

2.6 A complete description of Flapping

2.6.1 Oral flapping

When we say that a language has the consonant <ɾ>, what we are usually referring to is a tap, flap or trill of some sort such as the ones we find in Italian, Spanish, Polish, Hungarian, etc. In this sense, English /ɹ/ is not really an <ɾ> but rather a central approximant which is more akin to the glides /y w/ than to anything else. Yet despite the fact that English does not possess a *phonemic* tap, flap or trill, it does have a *phonetic* one oc-

curing as an allophone of both /t/ and /d/ in certain environments. The news that the phonological inventory of English contains an alveolar flap [ɾ] which is absolutely identical to the *r* of Italian, Spanish and Portuguese *aroma*, is usually greeted with skepticism, if not utter disbelief, by native speakers of English. When informed that this is precisely the sound that occurs in (phonetically identical) words like *atom* and *Adam*, they usually protest that what they are actually pronouncing (or hearing) is a [d].

However, when made to listen carefully to the difference in the *d* in pairs like *be-deck/ medic*, *ado/meadow* and *redeem/leader*, they will gradually come to acknowledge the fact that the first member of each pair is the voiced alveolar stop [d], whereas the second is the alveolar flap [ɾ], a segment whose articulation involves a stricture of intermittent closure whereby the tongue is held in a position such that, when the airstream passes by it, a vibration is produced. This is quite contradistinctive to [d] which has no such vibration. A flap, then, is really just a more rapid articulation of a stop closure as was mentioned previously.

Obviously, the reason why it is so difficult for English speakers to recognize the fact that they are pronouncing something other than /t/ or /d/ in (phonetically identical) pairs such as *writer/rider*, *latter/ladder*, *fought (h)er/fodder* is because those are the phonemes they intend to produce. It so happens, however, that whenever /t d/ are preceded by a vowel or central approximant (a lateral approximant too in certain dialects), and followed by (1) an unstressed vowel, or (2) a word boundary and a vowel, they are predictably and automatically changed to [ɾ]. Compare the following forms:

STOPS

[tʰáyɪ] *tight*[gɹéydéy] *grey day*[fáythæt] *fight Hal*[ékspədàyrɪŋ] *expediting*[ətʰést] *attest*[ðɔɹdéyn] *ordain*

FLAPS

[tʰáyɹəɪ] *tighter*[gɹéyɹéy] *grade A*[fáyɹæt] *fight Al*[dɪskɹèrərɪŋ] *discrediting*[fæɹəst] *fattest*[ɔɹɹəɪ] *order*

2.6.2 Nasal Flapping

Given that /d/ and /n/ are both voiced alveolar stops and that /d/ becomes a flap in certain environments, as we have just seen, it should not be too surprising to discover that its nasal counterpart undergoes the same type of change in the same context, i.e., it becomes a nasal flap [ɾ]. Compare the following forms:

NASAL STOP

[ɹɹn] *run*[bə.máɪd] *Bernard*[ɹənég] *renee*

NASAL FLAP

[ɹɹɾəɪ] *runner*[bəɹɾɪ] *Bernie*[ɹéɾəgèyd] *renegade*

Moreover, the numerous speakers who regularly simplify the sequence /nt/ to /n/ before unstressed vowels, and for whom pairs such as *winner/winter*, *banner/banter* and *paining/painting* are completely homophonous, will have contrasts such as:

NASAL STOP + STOP

[ənt^hft] *until*[ənt^hæɡənàyz] (*to*) *antagonize*[k^hənt^héyn] *contain*

NASAL FLAP

[t^hwéřɪ] *twenty*[æřidòwt] *antidote*[k^háwřɪŋ] *counting*

In sum, forms like *patting* and *padding* will be pronounced [p^hæřɪŋ] by all speakers, whereas forms like *panning* and *panting* will both be [p^hæřɪŋ] for some speakers, and [p^hæřɪŋ] and [p^hæntɪŋ] for others. (Note that the pronunciation of [ř] for /nt/ is much more general and widespread in the United States than in Canada, where it is perceived as sloppy in many quarters. However, I know of no systematic study of the frequency of this phenomenon in terms of its geographical distribution.)

2.6.3 Syllabic consonants

According to what we have observed about the behavior of /t/ and /d/, we would expect forms such as *sweeten* and *Sweden* to contain a medial [r]. However, when these alveolar stops are followed by a schwa and an alveolar nasal as they are in the forms above, the schwa is not pronounced. This has the effect of precluding the change of /t d/ to [r] since one of the conditioning factors, namely a following unstressed vowel, is missing. This can easily be verified by comparing the pronunciation of the medial stop in *sweeten* and *sweeter*.

In spite of the fact that the syllable-final schwa in *sweeten* and *Sweden* is deleted phonetically, these words nevertheless contain *two* syllables. This indicates that the nucleus of the second syllable is the nasal consonant which, after the disappearance of /ə/ between the homorganic consonants /t/ or /d/, on one side, and /n/, on the other, becomes syllabic [ŋ]. Phonetically, then, *sweeten* is [swéřɪŋ] and *Sweden* is [swéřdŋ]. Here are a

few additional examples:

AFTER /t/

[bʌt̪n̩] *button*

[ɪmp̪ɪˈt̪ɪnt̪] *important*

[kʰɪˈt̪ɪn̩] *curtain*

[læ̃t̪n̩] *Latin*

[mɪ̃t̪n̩] *mitten*

AFTER /d/

[gɔːd̪n̩] *Gordon*

[dɪd̪n̩] *didn't*

[ʃɛ̃rəd̪n̩] *Sheridan*

[hɑːd̪n̩] *Hardin*

[sæ̃d̪n̩] *sadden*

There are further conditions and constraints on this process, however. One is that the syllable preceding the alveolar stop must be stressed so that a syllabic nasal will appear in forms such as [p̪ɪˈnɪd̪n̩] *prudent* and [p̪ɪˈt̪ɪnt̪] *patent* but not in [p̪ɪˈzɪzərɪnt̪] *president* and [k̪ɪˈt̪ɪmpərɪnt̪] *competent*. Another is that in addition to an intervening central approximant between the stressed vowel and /t d/, some speakers will have syllabic nasals when the *voiceless* alveolar stop is preceded by /n/, e.g., [máwn̩t̪n̩] *mountain* (but [lándən] *London*), while others will have syllabic nasals when /t d/ are preceded by a lateral approximant, e.g. [ɛ̃l̩t̪n̩] *Elton*, [gówɪ̃d̪n̩] *golden*.

In sum, since the operation of Flapping obligatorily requires the presence of a following vowel, and since forms such as [móːrɪ̃t̪] *model*, [bóːrɪ̃m̩] *bottom* and [klɪ̃fə̃] *cleaner* have a medial flap, the frequent representation of their final syllable as [l m̩ ɹ̩] is unwarranted and inaccurate. The only syllabic consonant in the dialects that have Flapping is /ŋ̩/.

The phonological process of Flapping can be stated as follows:

- (a) they are preceded by a vowel or a central approximant (and a lateral approximant in some dialects) and followed by an unstressed vowel;
- (b) they are preceded by a vowel or a central approximant (and a lateral approximant in some dialects) and followed by a word boundary and any vowel.

STRUCTURAL CHANGE

$$\text{Nasal} \quad V(\{l, y, w\}) n \# V \quad \Rightarrow \quad V(\{l, y, w\}) \bar{r} \# V$$

CHAPTER 3

FLAPPING IN ESL AND TESL PRONUNCIATION MANUALS

3.1 Introduction

Having established the exact input, output and environments of Flapping in NAE, we are now in a position to examine the various textbooks devoted strictly to pronunciation that have been produced in the last thirty years or so in order to determine whether they include some sort of description of this phonological process, and, if they do, how complete and accurate it is. This should allow us to get some measure of the importance that ESL pedagogues have given to a phenomenon which, although strictly allophonic, nevertheless affects a very large number of segments in running speech, and which has been surmised to impact on ESL learners' production and comprehension of NAE.

3.2 Older manuals

The decision to examine only manuals that have been published since the seventies is not an arbitrary one. As was pointed out at the beginning of Chapter 2, Flapping was not well understood before that time as evinced most obviously by the fact that the output of the rule was not viewed as an alveolar tap but rather as some sort of /d/. An early example of this is Krapp's admonition that "in relaxed and slovenly speech . . . a voiceless [t] in voiced surrounding becomes voiced, as in **belated** [br^lle:təd], pronounced [br^lle:dəd]; **rated** [ˈre:təd], scarcely distinguished in pronunciation from **raided** [ˈre:dəd]; **fitted** [ˈfɪtəd], pronounced [ˈfɪdəd]" (1969 [1919]:100). In this section, I will survey three influential pronunciation manuals of the American structuralist period in order to bring this erstwhile misapprehension of Flapping to light.

The standard of all NAE pronunciation textbooks is surely John Samuel Kenyon's *American Pronunciation*, which went through ten editions between 1924 and 1950 (the 1997 twelfth and expanded edition is Kenyon's tenth edition followed, *inter alia*, by Lance and Howie's "Spectrographic analysis of English phonemes and allophones", Lance's "Variation in American English", and Kenyon's "Cultural levels and functional varieties of English"). According to Kenyon,

[i]n American English t is often voiced between voiced sounds, as in *better* ~~betə~~, *battle* ~~bætə~~. Yet voiced t is not the same as d, and does not belong to the d phoneme, since Americans do not confuse such words as *latter* ~~lætə~~ [*sic*]—*ladder* ~~lædə~~, or *putting* ~~putɪŋ~~—*pudding* ~~pudɪŋ~~ . . . In the author's speech, the chief difference between voiced t and d is that t is less than half as long as d (1950:126-7).

What seems obvious here is that Kenyon is assigning to the consonants a length difference which, for some speakers, may in reality be part of the preceding vowels in forms such as those he cites, since it is a well-known fact that vowels are longer before voiced obstruents than before voiceless ones (cf. Abercrombie 1967:81). Thus, the vowel in *ride* is longer than the one in *write*, and this difference may persist in *rider* and *writer* even after the neutralization of /t/ and /d/ to [ɾ] has taken place. At any rate, there is no question but that Kenyon has failed to capture the essence of the process, which is simply that alveolar stops become taps uniformly.

Another well-known manual of NAE pronunciation is Clifford H. Prator's *Manual of American English Pronunciation*, with four editions to its credit between 1951 and 1985. In this work, the author recognizes "a special type of [t]" (1957:73) which surfaces in forms like *atom* and *hurting*. In light of the fact that "[m]any educated Americans appear to make no difference of any sort between this type of [t] and a [d] . . . perhaps the best advice that can be given to a foreign student of English is to pronounce this special medial [t] 'somewhat like a [d]'" (73).

Worthy of note is the fact that this directly contradicts Kenyon's pronouncement that "voiced *t* is not the same as *d* . . . since Americans do not confuse such words as *latter* ~~læɾ~~ [sic]—*ladder* ~~læɾ~~, or *putting* ~~puɾɪŋ~~—*pudding* ~~puɾɪŋ~~" (1950:126-7). It is also interesting to observe that in the latest edition of this work, which was co-written with Betty Wallace Robinett, the following comment has been added: "This special *t* is made by a quick flap of the tongue against the tooth ridge with vocal cords vibrating" (1985:103). The actual phonetic symbol [ɾ] is nowhere to be found, however.

Also prominent in the field of NAE pronunciation manuals from the pre-Chomskyan era is Arthur J. Bronstein's *The Pronunciation of American English*. Although generally pellucid in its presentation of the phonetic and phonemic particulars of this variety, the explanations regarding Flapping are remarkably confused and confusing in comparison. The author begins by referring to "a weakly aspirated, *lenis* /t/" (1960:73) which can be found in forms such as *better*, *atom*, *at all times* and *white elephant*. Then he states that "[m]edial /t/ and /d/ between two vowels (in intervocalic position) possess a slightly different incisiveness of formation and release when they precede unstressed vowels" (73). But whereas the variant of /t/ is appropriately illustrated with forms like *bitter*, *fitting* and *bottom*, in relation to /d/ he says: "Similarly when the intervocalic /d/ precedes an unstressed vowel, as *divide*, *divorce*, it does not possess the incisive plosive quality in *den* and *do*. Compare these with *fodder*, *ladder*, and *rider*" (73).

There are two serious problems with Bronstein's analysis. One is that his citation of *divide* and *divorce* as instances of "intervocalic" /d/ is seemingly inapposite though we might suppose that what he has in mind are cases like *the divide* or *a divorce*, and the other is his association of the medial /d/ of *fodder*, *ladder*, *rider*, which always undergoes Flapping, with the initial /d/ of *divide* or *divorce*, which never does. Thus, even if we

were to put forms like *divide* and *divorce* in contexts like *the divide* or *a divorce*, he would still be wrong in claiming that Flapping occurs there.

Next, Bronstein attempts to enlighten us on the difference between intervocalic /t/ and /d/ but the result can only be described as a total muddle. First, we are led to believe that these are identical in light of his assertion that “the intervocalic sounds before unstressed vowels are released with less incisiveness, less sharpness [than] when the /t/ or /d/ sounds appear initially or before a stressed vowel” (74). (Note the contradiction in regard to initial /d/ since he has just finished telling us that this segment varies in accordance with whether the following vowel is stressed or not, as in *divide*, *divorce* vs. *den*, *do*.)

The main point, however, is that he begins the very next sentence by stating that “[t]he acoustic value of this sound is almost identical with the intervocalic flapped sound of British English in such words as *worry* and *faraway* (IPA symbol [ɾ])” (74). Since he has jumped directly from talking about “the intervocalic sounds” to “this sound”, we are held in suspense as to what he is referring to exactly until we read in the following sentence stating that “[t]he intervocalic /t/ is of the same quality, with the voice quality removed” (74). This allows us to deduce that “this sound” was a kind of /d/ and that intervocalic /t/ is a voiceless version of same. But wait. No sooner is this cleared up that we are told in the very next paragraph that intervocalically in forms like *butter*, *let him in* and *get another*, “[a] voiced variety of /t/ is commonly heard in all regional areas of the country” (74). Overall, then, I think it is easy to see from the information contained in these three NAE pronunciation manuals why one would not bother examining what pre-1970s ESL materials might have to say about Flapping.

3.3 Preliminaries

There are basically two types of ESL pronunciation textbooks and manuals — those that are designed for students and those that are intended for teachers — and I will examine each of these separately. For each item in the exhaustive inventory I have tracked down (see Section 1.4), I will give the standard reference data and the ISBN number. The latter is provided to insure that the reader will know exactly which item I am referring to since a number of books comprise, under an identical or very similar title, either a paperback and a hardcover version, or more than one edition, or a student textbook and an instructor's manual, or a book and an audio cassette. For instance, Beverly Beisbier's *Sounds Great* is the title of five different items, viz., two students' books, two corresponding cassette editions, and an instructor's manual. With the ISBN number, there is no doubt as to which of these I am referring to.

For each book, I also provide a synopsis, which is usually taken from each author's introductory notes, and which endeavors to make clear his or her aims and objectives. This is followed by whatever account of Flapping has been found inside. Since this material varies widely from one manual to another, ranging from a total absence of information to quite detailed descriptions, I have devised a scoring system in order to provide some sort of objective measure with which to establish comparisons. Thus, each manual will have its references to Flapping assessed on the basis of a recognition of the criteria that were set up in Chapter 2, so that, for example, a book such as Harold T. Edwards' *Applied Phonetics: The Sounds of American English* (which is not an ESL or TESL text) where the process is (1) correctly described as /t/ and /d/ changing to [r], (2) incorrectly stated to apply "intervocally" (since the following vowel must be specified as unstressed word medially), and (3) not otherwise characterized (cf. 1997:81, 88), would merit the following rating (where \acute{V} = stressed vowel, V = unstressed vowel, A = approximant):

Evaluation of Edwards (1997)

	YES	NO
INPUTS		
/t/	✓	
/d/	✓	
/n/		✓
/nt/		✓
OUTPUTS		
[ɾ]	✓	
[ɹ]		✓
ENVIRONMENTS		
<i>Left</i>		
/ɣ/ + /v/		✓
/A/		✓
<i>Right Medial</i>		
/v/ - */ɣ/		✓
<i>Right Final</i>		
*/ɣ/ + #/v/		✓
TOTAL	3	7

Rating: 30

This rating of 30 is allotted based on the fact that the book in question mentions only three of the ten major input, output and contextual conditions (which are given a value of 10 points each) that Flapping was previously found to involve. Note that the failure to mention something explicitly does not automatically warrant a NO if there is an obvious awareness of a certain condition or constraint on the part of the author(s). For example, even though the symbols [ɾ] and [ɹ] may not be mentioned as such, a YES will be entered if the terms *flap* or *tap* are used, or if a reasonably accurate description of the articulation of the sound is provided. A YES will also be awarded in cases where a certain environment for Flapping is implicitly recognized through the use of pertinent examples such as *party*, *murder*, *corner* for the operation of the rule after glides, or *at all*, *hide out*, *can*

imitate for its application word finally before stressed vowels.

The ultimate goal of this evaluation process is not to pit one textbook against another such that one with a rating of 80, for instance, might be considered twice as instructive or informative as another with 40. Rather, the aim is simply to gauge how much data on Flapping the various pronunciation books contain *on average* so that we may be able to estimate, inter alia, how ESL and TESL materials compare in this regard, or how the attention devoted to this phonological process has evolved in the last three decades, i. e., whether it has been on the increase, on the decrease or relatively stable.

In this perspective, there does not appear to be any need to give preference or priority to any particular evaluation criteria such that, for example, information on oral Flapping might count for more than that on nasal Flapping given that the phonetic salience of [ɾ] in relation to /t/ is demonstrably greater than that of [ɾ] vis-à-vis /n/, as will be shown in 4.2. In this way, Book X and Book Y with respective ratings of 80 and 40 in the present system might turn out to be equivalent if Book Y were found to give a better account of the more “important” criteria. However, apart from the inevitable subjectivity inherent in the full implementation of such a system, there is really no need for it if the primary objective, as was stated above, is to measure the same elements across categories or across time.

In the two following sections, then, all the pronunciation manuals will be listed alphabetically by author, with those that are ESL-oriented appearing in 3.4 and those that are TESL-oriented in 3.5. After the aforementioned synopsis, any description(s) of Flapping presented by the author(s) will be given, and this will be followed by the ten-criteria evaluation of that description that was outlined above. Note that due to formatting constraints, it will prove necessary in certain cases to present the scoring chart on the page following the description.

3.4 Pronunciation manuals for ESL students

Baker, Ann, and Sharon Goldstein (1990)

Pronunciation Pairs: An Introductory Course for Students of English. Cambridge and New York: Cambridge University Press. ISBN 0521349729.

Synopsis

This book “is designed to teach students to recognize and to produce English sounds. It also helps students learn to differentiate between sounds that they might often confuse. The basic premise is that pronunciation material should be meaningful and easily understood” (p. v).

Description of Flapping

The authors cite the forms *sweater*, *letter*, *elevator*, *typewriter*, *city*, *little*, *water* and *sporting goods*, and state that “t sounds like a quick d in these words” (p. 75).

(continued next page)

Beisbier, Beverly (1993)

Sounds Great: Beginning Pronunciation for Speakers of English, and *Sounds Great: Intermediate Pronunciation and Speaking for Learners of English*. Boston: Heinle & Heinle. ISBN 0838439640 (Book 1), ISBN 0838442730 (Book 2) .

Synopsis

“[This] is a two-level series of American English pronunciation practice material designed for learners of English as a second or foreign language. Book One is designed for learners of the high beginning level. Book Two is geared toward intermediate-level students” (p. v).

Evaluation of Baker & Goldstein (1990)

	YES	NO
INPUTS		
/t/	✓	
/d/		✓
/n/		✓
/nt/		✓
OUTPUTS		
[ɾ]		✓
[ɹ]		✓
ENVIRONMENTS		
<i>Left</i>		
/ʧ/ + /v/		✓
/A/		✓
<i>Right Medial</i>		
/v/ - */ʧ/	✓	
<i>Right Final</i>		
*/ʧ/ + #/v/		✓
TOTAL	2	8

Rating: 20*(Beisbier (1993) continued)**Description of Flapping*

“Sometimes, /t/ sounds like a very fast /d/. You find this special /t/ between two vowel sounds. This /t/ is never at the beginning of a stressed syllable [and] /t/ does not sound like /d/ when a consonant sound is right before /t/ or right after /t/” (*Book One*, p. 96).

Evaluation of Beisbier (1993)

	YES	NO
INPUTS		
/t/	√	
/d/		√
/n/		√
/nt/		√
OUTPUTS		
[r]		√
[f]		√
ENVIRONMENTS		
<i>Left</i>		
/ʃ/ + /v/	√	
/A/		√
<i>Right Medial</i>		
/v/ - */ʃ/	√	
<i>Right Final</i>		
*/ʃ/ + */v/		√
TOTAL	3	7

Rating: 30**Bens, Allis R. (1977)**

Active English: Pronunciation and Speech. Englewood Cliffs, NJ: Prentice-Hall.
ISBN 0130033928

Synopsis

This book "was written for students who have almost no proficiency in spoken English. These students are usually encountering for the first time English spoken by native speakers . . . This text was also written to aid the inexperienced teacher of pronunciation and speech. The exercises contain traditional spelling as well as phonemic spelling" (p. xiii).

Description of Flapping

None.

Rating: 0

Bowen, J. Donald (1975)

Patterns of English Pronunciation. Rowley, MA: Newbury House. ISBN 088377044X.

Synopsis

"This manual can be used in several ways. For beginning — or elementary — level students the sequence of the text can be followed, assuring a reasonably complete coverage of the general problems of English pronunciation. For an intermediate or advanced class, or for remedial work, the teacher can identify problem sounds or contrasts and find an appropriate presentation and drill by consulting the index" (p. xii).

Description of Flapping

"Medial /t/ after a stressed syllable and *not* followed by /n/ or /l/ becomes . . . a 'flap' (p. 39).

"This sound is [found] in medial position between vowels after stress (the conditions of its occurrence in English)" (p. 39).

"[T]he flap /t/ occurs after a strong-stressed syllable *only* when it follows a vowel or a vowel plus /r/ . . ." (p. 40).

"The flap sound that characterizes the /t/ when it occurs medially after stress . . . is also the realization for /d/ under the same stress and position conditions" (p. 41).

"/nt/ after stress, in a word like /wɪntər/ (*winter*) . . . is produced as a nasal or nasalized flap, like /t/ in the same stress pattern and syllable environment [and] the /n/ of

winner may also be realized as a nasalized flap [which] means that /wɪntər/ (*winter*) and /wɪnər/ (*winner*) may not be distinguished at all . . ." (p.155).

Evaluation of Bowen (1975)

	YES	NO
INPUTS		
/t/	√	
/d/	√	
/n/	√	
/nt/	√	
OUTPUTS		
[ɾ]	√	
[ɾ̃]	√	
ENVIRONMENTS		
<i>Left</i>		
/ʧ/ + /v/		√
/A/	√	
<i>Right Medial</i>		
/v/ - *ʧ/	√	
<i>Right Final</i>		
#ʧ/ + #v/		√
TOTAL	8	2

Rating: 80

Chan, Marsha (1987)

Phrase by Phrase: Pronunciation and Listening in American English. Englewood Cliffs, NJ: Prentice-Hall. ISBN 0136658520.

Synopsis

"[This] is a text-tape program designed for learners of English who wish to make their speech more intelligible. It is intended for students who can already understand and use some English, not for absolute beginners. However, the lessons are flexible enough to be used by high-beginning, intermediate, and low-advanced . . . classes. The material in this book is especially suitable for use in pronunciation, listening and speaking, and oral communication courses, and provides an important balance in integrated skills language courses" (p. ix).

Description of Flapping

"In American English, when the sound /t/ comes before a reduced vowel and after a stressed or unstressed vowel, it is pronounced as a short voiced sound. To produce this sound, let the tip of your tongue tap the upper gum ridge very quickly" (p. 47).

(continued next page)

Chao, L. Chingpo (1988)

A Guide to American English Pronunciation. Kalamazoo, MI: Intercultural Development Service. ISBN 0944006159

Synopsis

"This text is dedicated to those who are learning English as a second language, with special attention to the learning of speaking" (*Author's Note*).

Evaluation of Chan (1987)

	YES	NO
INPUTS		
/t/	√	
/d/		√
/n/		√
/nt/		√
OUTPUTS		
[ɾ]	√	
[ɻ]		√
ENVIRONMENTS		
<i>Left</i>		
/ʔ/ + /v/	√	
/A/		√
<i>Right Medial</i>		
/v/ - */ʔ/	√	
<i>Right Final</i>		
*/ʔ/ + */v/		√
TOTAL	4	6

Rating: 40*(Chao (1988) continued)**Description of Flapping*

None.

Rating: 0

Clarey, M. Elizabeth, and Robert J. Dixon (1987)

Pronunciation Exercises in English. New York: Prentice Hall. ISBN 0137308701

Synopsis

None.

Description of Flapping

None.

Rating: 0

Cook, Ann (1991)

American Accent Training: A Guide to Speaking and Pronouncing Colloquial American English. Hauppauge, NY: Barron's Educational Series. ISBN 0812046021.

Synopsis

"This book and tape set will guide you to fluency in spoken American English (America Ninglish). You begin by getting away from depending on the way words are written in English. Instead you learn to hear again, the way you did as a child learning your own native language!" (*Back Cover*).

Description of Flapping

"An unstressed T in the middle of a staircase [a system the author uses to illustrate degrees of stress] between two vowel sounds should be pronounced as a soft D" (p. 88).

Evaluation of Cook (1991)

	YES	NO
INPUTS		
/t/	√	
/d/		√
/n/		√
/nt/		√
OUTPUTS		
[ɾ]		√
[f]		√
ENVIRONMENTS		
<i>Left</i>		
/ʃ/ + /v/	√	
/A/		√
<i>Right Medial</i>		
/v/ - * /ʃ/		√
<i>Right Final</i>		
#/ʃ/+ #/v/		√
TOTAL	2	8

*Rating: 20***Dale, Paulette Wainless, and Lillian Poms (1994)**

English Pronunciation for International Students. Englewood Cliffs, NJ: Prentice Hall Regents. ISBN 0132798522.

Synopsis

This book “has been written especially for YOU. You will find that this program has been designed to help you overcome your particular pronunciation problems with speaking English and that it is an independent program you can use **on your own**” (p. 2).

Description of Flapping

None.

Rating: 0

Dauer, Rebecca M. (1993)

Accurate English: A Complete Course in Pronunciation. Englewood Cliffs, NJ: Prentice Hall Regents. ISBN 0130072532.

Synopsis

"This book is designed primarily for adults who are non-native speakers of English, including undergraduates, graduates, college-bound students, professionals, and English as a Second Language (ESL) teachers — in short, anyone who wants to achieve a near-native accent . . . The level of the book is intermediate through advanced . . . The book can be used as the main text in a semester-long pronunciation course, as a supplemental text in a listening-speaking, teacher-training, or speech communication course, as a teacher resource book, or by students engaged in independent study with a tutor" (p. vi).

Description of Flapping

The author cites the forms *riding*, *writing*, *ladder*, *latter*, *thirty*, *party*, *lady*, *phonetic* and *editor*, and states that "a **tap** [ɾ] . . . is often used in North American English for /t/ and /d/ in unstressed syllables" (p. 124).

"/t/ and /d/ after a vowel and *before an unstressed vowel* (including /ə/ and /əl/) are not pronounced differently in normal speech. They both sound like a very fast /d/; that is, they are pronounced as a *voiced tap* [ɾ]. This may happen within a word or between words in the same pause group. Thus, *leader*, *liter* and *lead her* all pronounced as [ˈliɹə]" (p. 142). Although this is not explicitly stated, further examples like *at a*

meeting and *bet all his money* (p. 143) show that the author is aware that Flapping occurs word finally before both stressed and unstressed vowels.

Evaluation of Dauer (1993)

	YES	NO
INPUTS		
/t/	√	
/d/	√	
/n/		√
/nt/		√
OUTPUTS		
[ɾ]	√	
[ɹ]		√
ENVIRONMENTS		
<i>Left</i>		
/ʧ/ + /v/	√	
/A/	√	
<i>Right Medial</i>		
/v/ - *ʧ/	√	
<i>Right Final</i>		
#ʧ/ + #v/	√	
TOTAL	7	3

Rating: 70

Davis, D. G. (1993)

American Spoken English in Real Life: Fast Natural, Urgent Survival, Foreign Accent Begone!: The Phonology of General American Colloquial for Teaching and Learning American English as a Second Language. New York: American Spoken English Publications. ISBN 0929350014.

Synopsis

“This book is about informal spontaneous American speech, natural colloquial General American. It shows the exact sounds that Americans really do say, their variants and changing patterns. Also it is a guide to get ESL (English as a Second Language) learners to catch, perceive, understand and use the sounds and functional words the way Americans do in their casual daily-life conversations” (p. 6).

Description of Flapping

None.

Rating: 0

English, Susan Lewis (1988)

Say It Clearly: Exercises and Activities for Pronunciation and Oral Communication. New York: Collier Macmillan. ISBN: 0838433537

Synopsis

This book “teaches students to think about two things at once: what they are saying and how they are saying it. Each lesson focuses on a high-interest topic. Students learn pronunciation together with listening, reading, writing, spelling, and note-taking. First they master skills through step-by-step instruction with the teacher. Then they monitor those skills in communicative activities” (p. vii).

Description of Flapping

None.

Rating: 0

Esarey, Gary R. (1996)

Pronunciation Exercises for English as a Second Language, 2nd ed. Ann Arbor: University of Michigan Press. ISBN 0472083767.

Synopsis

"This text is designed for intermediate and advanced (TOEFL 450+) students of English as a second or foreign language who already grasp the basic sound system of English but who can benefit from additional practice of the more 'difficult' sounds and complex stress and intonation patterns . . . The text is designed for use in conjunction with other materials and is not intended to be a primary classroom text" (p. 2).

Description of Flapping

None.

Rating: 0

Foley, Barbara H. (1994)

Now Hear This! High Beginning Listening, Speaking and Pronunciation, 2nd ed.
Boston: Heinle & Heinle. ISBN 0838452701.

Synopsis

This book “is a listening, pronunciation, and speaking text for high beginning students of ESL. It develops listening skills from high interest narratives and informal conversations. The text and accompanying tapes may be used with college-level students, adult programs, and high school classes” (p. 5).

Description of Flapping

None.

Rating: 0

*Unit 15***Fragiadakis, Helen Kalkstein (1997)**

All Clear! Intro — Speaking, Listening, Expressions, and Pronunciation in Context.
Boston: Heinle & Heinle. ISBN 083844721X.

Synopsis

This book is “aimed at high-beginning students . . . High-frequency American English expressions such as *hold on a minute* and *wake up* are presented in meaningful contexts to develop speaking, listening, and pronunciation skills” (p. iv).

Description of Flapping

None.

Rating: 0

Gilbert, Judy B. (1993)

Clear Speech: Pronunciation and Listening Comprehension in North American English, 2nd ed. Cambridge and New York: Cambridge University Press. ISBN 0521421187.

Synopsis

This book “concentrates on rhythm, stress, and intonation because improvement in these aspects of pronunciation can do the most good in improving both listening comprehension and clarity of speech. Sounds are taught as part of rhythm and stress” (p. vi).

Description of Flapping

None.

Rating: 0**Grant, Linda (1993)**

Well Said: Advanced English Pronunciation. Boston: Heinle & Heinle. ISBN 0838439632.

Synopsis

“This textbook is designed to improve the speech intelligibility of high-intermediate to advanced learners of American English as a second language. It was written with the general ESL/EFL population in mind but should be especially useful for learners who wish to communicate more clearly in academic, business, scientific, and professional settings” (p. vii).

Description of Flapping

None.

Rating: 0

Hagen, Stacy A., and Patricia E. Grogan (1992)

Sound Advantage: A Pronunciation Book. Englewood Cliffs, NJ: Regents/Prentice Hall. ISBN 0138161909.

Synopsis

This book “teaches pronunciation and includes those elements essential to *production*. Designed as a comprehensive pronunciation text, it contains many skills necessary for improved fluency. Linking, reduction, intonation, word and sentence stress, ellipsis, consonant replacements, and inflectional endings are a few of the areas that complement traditional vowel and consonant practice” (p. ix).

Description of Flapping

“When *t* or *d* occurs between vowels, a sound called the ‘flap’ is produced. This sound is similar to a /d/ but much faster. The tongue tip touches the tooth ridge very quickly” (p. 87).

“Linking makes a flap very common. Many words, when spoken alone, do not have flaps (e.g., ‘what,’ ‘that,’). However, when linked, as in (c) [right away], (d) [what if], and (e) [I’ve got to go], a flap can be formed” (p. 87). Although this is not explicitly stated, further examples like *what if* and *at all* (p. 88) show that the authors are aware that Flapping occurs word finally before both stressed and unstressed vowels.

“When *nt* occurs in a word and is followed by a vowel sound, many speakers omit the *t* and use a flapped *n* in place of the *t*. A flapped *n* is a flap with **nasality**” (p. 165).

Evaluation of Hagen & Grogan (1992)

	YES	NO
INPUTS		
/t/	√	
/d/	√	
/n/		√
/nt/	√	
OUTPUTS		
[r]	√	
[ɹ]	√	
ENVIRONMENTS		
<i>Left</i>		
/ɹ/ + /v/	√	
/A/		√
<i>Right Medial</i>		
/v/ - */ɹ/		√
<i>Right Final</i>		
*/ɹ/ + */v/	√	
TOTAL	7	3

Rating: 70**Handschuh, Jeanne, and Alma Simounet de Geigel (1985)**

Improving Oral Communication. Englewood Cliffs, NJ: Prentice-Hall. ISBN 0134527569.

Synopsis

"[This] is a pronunciation, oral-communication manual for the intermediate-level student of English as a second language. The book is intended for students who can read and write English fairly well but who wish to improve their pronunciation and ability to communicate orally with other speakers of English" (p. xiii).

Description of Flapping

“Whenever [t] falls between a stressed vowel and an unstressed vowel, many American speakers substitute a sound that is produced by a quick movement of the tongue tip against the alveolar ridge (for instance, the words *water* and *city*). In fact, many Americans do not distinguish between the words *latter* and *ladder*” (p. 142).

Evaluation of Handschuh & Simounet de Geigel (1985)

	YES	NO
INPUTS		
/t/	✓	
/d/	✓	
/n/		✓
/nt/		✓
OUTPUTS		
[ɾ]	✓	
[ɹ]		✓
ENVIRONMENTS		
<i>Left</i>		
/ɔ̃/ + /v/		✓
/A/		✓
<i>Right Medial</i>		
/v/ - * ɔ̃/	✓	
<i>Right Final</i>		
# ɔ̃/ + # v/		✓
TOTAL	4	6

Rating: 40

Henrichsen, Lynn E., Brent A. Green, Atsuko Nishitani, and Carol Lynne Bagley (1999)

Pronunciation Matters: Communicative, Story-Based Activities for Mastering the Sounds of North American English. Ann Arbor: University of Michigan Press. ISBN 0472084917.

Synopsis

“[This] is a pronunciation improvement book for intermediate and advanced learners of English as a second or foreign language. It provides meaningful, communicative, and motivating practice activities leading to a mastery of targeted sound contrasts in North American English” (p. iii).

Description of Flapping

“When [t] comes **between two voiced sounds** (usually two vowels, but sometimes one is a consonant, like [r]) and the **preceding syllable is stressed and following** [*sic*] **one isn’t** (e.g., *píty*, *excíted*, or *héarty*), pronounce the [t] as a **quick flap**, without aspiration . . . and without stopping the vibration of your vocal cords. (In this case, the [t] will sound very much like a [d])” (p. 339).

“When [d] comes **between two voiced sounds** (usually two vowels, but sometimes one is a consonant like [r]) and the **preceding syllable is stressed and following** [*sic*] **one isn’t** (e.g., *decíded* or *hárdy*), pronounce the [d] as a **quick flap**, without aspiration . . . and without stopping the vibration of your vocal cords. (In this case, the [d] will sound very much like a flapped [t])” (p. 340).

Evaluation of Henrichsen et al. (1999)

	YES	NO
INPUTS		
/t/	✓	
/d/	✓	
/n/		✓
/nt/		✓
OUTPUTS		
[r]	✓	
[r̄]		✓
ENVIRONMENTS		
<i>Left</i>		
/ṭ/ + /v/		✓
/A/	✓	
<i>Right Medial</i>		
/v/ - *ịṭ/	✓	
<i>Right Final</i>		
#ịṭ+ #ịv/		✓
TOTAL	5	5

Rating: 50**Hewings, Martin, and Sharon Goldstein (1998)**

Pronunciation Plus – Practice Through Interaction: North American English. Cambridge and New York: Cambridge University Press. ISBN 0521577977.

Synopsis

This book “is for pre-intermediate level students of North American English who want to improve their pronunciation. Many of the activities would also be useful for higher level students. The book has been written for students working in a class with a teacher, although many of the tasks can be used by students working on their own with a cassette recorder” (p. vi).

Description of Flapping

“Sometimes the letters *t* and *d* are pronounced the same in North American English — like a very quick /d/ (called a *flap* or a *tap*). This happens when *t* or *d* comes after a vowel or /r/ sound and before an unstressed vowel” (p. 23).

Evaluation of Hewings & Goldstein (1998)

	YES	NO
INPUTS		
/t/	√	
/d/	√	
/n/		√
/nv/		√
OUTPUTS		
[ɾ]	√	
[f]		√
ENVIRONMENTS		
<i>Left</i>		
/ʃ/ + /v/	√	
/A/	√	
<i>Right Medial</i>		
/v/ - */ʃ/	√	
<i>Right Final</i>		
*/ʃ/ + */v/		√
TOTAL	6	4

Rating: 60

Imber, Brenda Prouser, and Maria Guttentag Parker (1993)

Integrated Lessons: Pronunciation and Grammar. Ann Arbor: University of Michigan Press. ISBN 0472081837.

Synopsis

This book "is designed for classroom use with intermediate and advanced students of English. It can be used as a primary, developmental text for intermediate students in

- Adult Basic Education (ABE) courses for nonnative speakers,
- General Equivalency Diploma (GED, i.e., high school equivalency courses for non-native speakers, or
- intensive English as a Second Language (ESL) courses.

It can also be used as a supplementary text in advanced ABE, GED, or ESL courses for remedial work in

- grammar,
- pronunciation, and
- speaking and listening." (*Preface*).

Description of Flapping

None.

Rating: 0**Johnson, Mary (1988)**

Sounds and Stress: A Pronunciation Handbook. Winnipeg: Clarity Press. ISBN 0919589146.

Synopsis

"This booklet is addressed directly to students of English as a second language who are able to read with comprehension, and who are determined to help themselves to improve their oral communication. E.S.L. classroom instructors and tutors of individ-

uals who have special problems may also find it useful" (*Introduction*).

Description of Flapping

None.

Rating: 0

Jones, Clarice M., and Jean H. Miculka, Mary (1992)

Speaking American English: For the Non-Native Speaker. Cincinnati: South-Western Publishing. ISBN 0538703288.

Synopsis

This book "is designed with a single purpose: to assist non-native speakers to find their tongues in American English. This text-workbook [is] geared to the improvement of oral English. Designed for young people and adults from foreign countries who have studied English as a second language, the material focuses on the sounds, stress, phrasing, and timing used by American speakers" (p. iii).

Description of Flapping

None.

Rating: 0

Kass, Elaine Wanda, and Anna Marie Schmidt (1992)

American English Pronunciation Workbook, 2nd ed. Dubuque, IA: Kendall/Hunt Publishing. ISBN 0840340230.

Synopsis

"This book was written to help you learn the pronunciation of American English. You will study all the sounds of American English and the use of these sounds in spelling and in pronouncing words and sentences" (p. 3).

Description of Flapping

"When [t d/] occur between a stressed vowel and an unstressed vowel, they may be pronounced with a very short tap of the tongue on the alveolar ridge. This sound is written /ɾ/ in phonetic transcription" (p. 16).

(continued next page)

Lane, Linda (1993)

Focus on Pronunciation: Principles and Practice for Effective Communication, Student's Book. White Plains, NY: Longman. ISBN 0801308062.

Synopsis

This book "is written for intermediate and advanced students of English as a Second Language. The book emphasizes elements of English phonology that are difficult or unusual in comparison to other world languages. Equally important, it emphasizes the relationships between different elements of pronunciation. Often, the relationships between elements cause more difficulty for students than the elements themselves" (p. viii).

Evaluation of Kass & Schmidt (1992)

	YES	NO
INPUTS		
/t/	✓	
/d/	✓	
/n/		✓
/nt/		✓
OUTPUTS		
[ɾ]	✓	
[ɹ]		✓
ENVIRONMENTS		
<i>Left</i>		
/ɣ/ + /v/		✓
/A/		✓
<i>Right Medial</i>		
/v/ - */ɣ/	✓	
<i>Right Final</i>		
*/ɣ/ + #/v/		✓
TOTAL	4	6

Rating: 40*(Lane (1993) continued)**Description of Flapping*

None.

Rating: 0

Lane, Linda (1997)

Basics in Pronunciation: Intermediate Practice for Clear Communication. White Plains, NY: Longman. ISBN 0201878062.

Synopsis

This book “is a comprehensive course that helps intermediate students speak English more clearly and accurately. The course integrates all aspects of pronunciation — sounds, stress, rhythm, and intonation” (p. iv).

Description of Flapping

None.

Rating: 0

Lane, Richard R. (1993)

Lane's English Pronunciation Guide. Stanford, CA: Lane Press. ISBN 0935606041.

Synopsis

“[This] is a drill book designed for learners of English as a Second Language. It has two sections: Consonants and Vowels” (p. iii)

Description of Flapping

None.

Rating: 0

Luter, James G., Jr. (1990)

The Pronunciation of Standard American English. Granada Hills, CA: Garrett Publishing Company. ISBN 0939085003

Synopsis

"This book was designed to assist those who struggle with speaking American English. It concentrates on the areas which cause most learners of the language great difficulty: stress, intonation, articulation and pronunciation. It provides a simple, natural approach to acquiring these important skills" (p. v).

Description of Flapping

None.

Rating: 0

Marelli, Leonard R. (1971)

American English: An Integrated Series for International Students — Pronunciation and Dictation. Paris: Didier International. ISBN 0395309948.

Synopsis

"[This] constitutes the elementary program at the American Language Institute, encompassing all aspects of language. Mastery of its contents is the requisite for undertaking all subsequent work in English at advanced levels" (*Preface*).

Description of Flapping

The author cites the forms *writing* and *riding*, *metal* and *medal*, and states that "there is very little difference between the sounds [t] and [d] in the pairs of words above. Usually, when [t] occurs between two vowels in a word or phrase, it becomes slightly voiced and sounds very much like [d]" (pp. 12-13).

Evaluation of Marelli (1971)

	YES	NO
INPUTS		
/t/	√	
/d/	√	
/n/		√
/nt/		√
OUTPUTS		
[r]		√
[ɹ]		√
ENVIRONMENTS		
<i>Left</i>		
/ʃ/ + /v/	√	
/A/		√
<i>Right Medial</i>		
/v/ - */ʃ/		√
<i>Right Final</i>		
#/ʃ/ + #/v/		√
TOTAL	3	7

Rating: 30**Matthews, Candace (1994)**

Speaking Solutions: Interaction, Presentation, Listening, and Pronunciation Skills.
 Englewood Cliffs, NJ: Prentice Hall Regents. ISBN 0137012292

Synopsis

"The purpose of [this book] is to develop the oral communication skills of intermediate through advanced ESL/EFL students in academic and professional settings. The text is intended for use in pre-academic college classes, intensive programs, private language schools, and English training courses for professionals" (p. xi).

Description of Flapping

None.

Rating: 0

Morley, Joan (1992)

Intensive Consonant Pronunciation Practice, Vol. 2 of *Improving Spoken English: Consonants in Context*. Ann Arbor: University of Michigan Press. ISBN 0472081284.

Synopsis

“The purpose of [this book] is to provide an intensive program of contextualized pronunciation practice with the consonant sounds of spoken English. Its goal is to blend attention to discrete point instruction with attention to practice with global patterning. It presents *imitative* speech practice for controlled production of selected speech-pronunciation features, *rehearsed* speech practice for stabilization of altered pronunciation, and introduces *extemporaneous* speech practice for integration of modified speech patterns into naturally occurring creative speech” (p. 1)

Flapping

“Spelled t, tt, d, and dd after a vowel or liquid consonant (r or l) and before an unstressed vowel are pronounced with the same sound — a voiced flap [D]” (p. 204).

Evaluation of Morley (1992)

	YES	NO
INPUTS		
/t/	✓	
/d/	✓	
/n/		✓
/nt/		✓
OUTPUTS		
[r]	✓	
[ɹ]		✓
ENVIRONMENTS		
<i>Left</i>		
/ɹ/ + /v/	✓	
/A/	✓	
<i>Right Medial</i>		
/v/ - * /ɹ/	✓	
<i>Right Final</i>		
#/ɹ/ + #/v/		✓
TOTAL	6	4

Rating: 60**Orion, Gertrude F. (1997)**

Pronouncing American English: Sounds, Stress, and Intonation, 2nd ed. Boston: Heinle & Heinle. ISBN 0838463320.

Synopsis

“[This] is a pronunciation text for students of English as a second or foreign language. It is suitable for high-beginning-level learners who are developing this skill, as well as for intermediate and advanced students who wish to perfect their pronunciation. Beginning students can learn ‘correct’ pronunciation in the very early stages of speaking, and intermediate and advanced learners can improve their oral proficiency” (p. xxi)

Flapping

“When the sound /t/ occurs between two vowel sounds, in an unstressed syllable or at the end of a stressed syllable, it is pronounced quickly, without a puff of air. Many educated Americans pronounce this sound like /d/ (sometimes called a ‘soft /t/’)” (p. 207). Although not explicitly stated, examples like *forty* and *dirty* (p. 207) show that the author is conscious that the process applies after approximants, while a form such as *hospital* (p. 210) indicates an awareness that it operates after unstressed vowels.

Evaluation of Orion (1997)

	YES	NO
INPUTS		
/t/	√	
/d/	√	
/n/		√
/nt/		√
OUTPUTS		
[ɾ]		√
[ɹ]		√
ENVIRONMENTS		
<i>Left</i>		
/ʃ/ + /v/	√	
/A/	√	
<i>Right Medial</i>		
/v/ - */ʃ/	√	
<i>Right Final</i>		
*/ʃ/ + #/v/		√
TOTAL	5	5

Rating: 50

Pavlik, Cheryl (1995)

Speak Up: Listening and Pronunciation for Beginning Students, and Speak Up: Listening and Pronunciation for High Beginning Students, 2nd ed. Pacific Grove, CA: Heinle & Heinle. ISBN 0838449964 (Book 1), ISBN 0838449980 (Book 2) .

Synopsis

"[This] is a comprehensive two-level oral/aural skills program for beginning and high beginning students of English as a second or foreign language (ESL/EFL). Book 1 is designed for beginning level students, Book 2 for high beginners" (p. v).

Description of Flapping

None.

Rating: 0

Sheeler, W. D., and R. W. Markley (1991)

Sounds and Rhythm: A Pronunciation Course, 2nd ed. Englewood Cliffs, NJ: Prentice Hall Regents. ISBN 013834003X .

Synopsis

This book "is designed to help learners of English practice many aspects of English pronunciation. These include the sounds of the language (the vowels and consonants), the rhythm of the language (the patterning of stresses) and the intonation of the language (the musical tone or pitch)" (p. ix).

Description of Flapping

None.

Rating: 0

Silverstein, Bernard (1997)

Perfecting the Sounds of American English. Lincolnwood, IL: NTC Publishing Group. ISBN 0844204811.

Synopsis

"This book has been compiled to meet the special needs of . . .

1. Students of English as a Second Language, in the United States and throughout the world, who wish to improve their articulation, pronunciation, reading, and spelling skills.
2. Nonnative speakers of English who are teachers of English as a Second Language who wish to improve their articulation, pronunciation, syllabification, and syllable stress" (p. v)

Description of Flapping

None.

*Rating: 0***Sudlow, Michael F., and Rita L. Lampkin (1986)**

Exercises in American English Pronunciation. Salt Lake City and Tokyo: Excellence in Education. ISBN 1877591211 .

Synopsis

This book "has been designed to enable students to develop . . . new habits of pronunciation and, equally important, *hearing*. Most experts agree that a student who is unable to hear a difference in sounds will probably not be able to produce a difference correctly, if at all. In this book, therefore, several aural (listening) exercises will always precede drills where the student actually has to produce the sounds orally" (p. 1)

Description of Flapping

None.

Rating: 0

Taguchi, Dorothy M. (1993)

American English Pronunciation: Exercises for Accent Reduction, Vol. 2: Consonants. Los Angeles: The Linguistic Edge. ISBN 1880822067.

Synopsis

"This pronunciation improvement program is divided into two basic categories of sounds: Volume I, *Vowels*, and Volume II, *Consonants* . . . Volume II begins with an overview of consonants. The following sections group the consonants according to the region of the mouth in which each is produced. The volume concludes with a discussion of the ideal rate of speech and instructions on how to measure yours. It also coaches you on smoothly connecting all the sounds you've learned, so as not to disrupt the rhythm but to produce fluid conversational speech" (p. 3).

Description of Flapping

"An under-ridge stop ([t] or [d]) between vowels in a word, where word stress occurs *before* the stop, quickly *taps* the ridge rather than *stopping* the air. Because of the speed of the tap, the vocal cords continue the vibration of the surrounding vowels, so the sound has a [d]-like quality. The [ɾ] symbol denotes the tap" (p. 106). Examples (p. 107) like *Marty*, *sorted*, *Saturday* suggest that the author is conscious that Flapping applies after approximants while others like *editor*, *visiting*, *velocity* indicate an awareness that the preceding syllable need not be stressed.

"Across word boundaries, the stress usually *follows* the ridge stop" (p. 107). Interestingly, the author provides many more examples where the following syllable is *unstressed*.

Evaluation of Taguchi (1993)

	YES	NO
INPUTS		
/t/	✓	
/d/	✓	
/n/		✓
/nt/		✓
OUTPUTS		
[r]	✓	
[ɾ]		✓
ENVIRONMENTS		
<i>Left</i>		
/ʔ/ + /v/	✓	
/A/	✓	
<i>Right Medial</i>		
/v/ - */ʔ/	✓	
<i>Right Final</i>		
*/ʔ/ + #/v/	✓	
TOTAL	7	3

Rating: 70

Trager, Edith Crowell (1982)

PD's in Depth: Pronunciation/Aural Discrimination Drills for Learners of English.
Englewood Cliffs, NJ: Prentice-Hall. ISBN 0137309872.

Synopsis

"[This] is not a pronunciation book in the usual — that is, conventional or traditional — sense; it differs from most pronunciation works in several significant (and innovative) ways. One important difference has to do with the orientation of the text materials. [The book] is actually more concerned with aural discrimination than with pronunciation *per se* . . . [It] is also different in that it is active and is a workbook [so that] students are required not only to listen and repeat, but to listen and choose, and also to listen and write . . . [A]nother difference [is that] it concentrates on providing an in-depth treatment of consonants — including work with systematic pronunciation variations (allophones) as well as with 'general' pronunciations (phonemes)" (p. vii).

Description of Flapping

"[I]n words like 'Betty' or 'writer', in which /t/ comes between a stressed vowel and an unstressed one . . . /t/ sounds something like /d/" (p. 11).

Evaluation of Trager (1982)

	YES	NO
INPUTS		
/t/	√	
/d/		√
/n/		√
/nt/		√
OUTPUTS		
[r]		√
[ʀ]		√
ENVIRONMENTS		
<i>Left</i>		
/ʃ/ + /v/	√	
/A/		√
<i>Right Medial</i>		
/v/ - * /ʃ/		√
<i>Right Final</i>		
# /ʃ/ + # /v/		√
TOTAL	2	8

*Rating: 20***Trager, Edith Crowell, and Sara Cook Henderson (1983)**

The PD's: Pronunciation Drills for Learners of English. Englewood Cliffs, NJ: Prentice-Hall Regents. ISBN 0137309201.

Synopsis

"The purpose of [this book] is to help ESL/EFL students internalize the systems of phonology and morphology of the language. To accomplish this purpose, presentation and practice materials are provided for all vowel, consonant, and stress phonemes, for the most frequently-occurring intonation patterns, and for the pronunciation of grammatical endings" (p. viii).

Description of Flapping

"In the middle of a word . . . *t* sounds like *d* in the speech of many Americans" (p. 75).

Evaluation of Trager & Henderson (1983)

	YES	NO
INPUTS		
/t/	√	
/d/		√
/n/		√
/nt/		√
OUTPUTS		
[ɾ]		√
[ɹ]		√
ENVIRONMENTS		
<i>Left</i>		
/ʧ/ + /v/		√
/A/		√
<i>Right Medial</i>		
/v/ - */ʧ/		√
<i>Right Final</i>		
*/ʧ/ + */v/		√
TOTAL	1	9

Rating: 10

Yates, Jean (1995)

Pronounce It Perfectly in English. Hauppauge, NY: Barron's Educational Series.
ISBN 0812082443.

Synopsis

"This book [is] designed to help you pronounce English words, phrases, and sentences correctly, so that the meaning you intend is clear and the sounds are pleasing to

the ear" (p. v).

Description of Flapping

"To make the sound of /d/ between vowels and after the consonant /r/, tap the tongue quickly on the palate without holding it, then go on to the next vowel" (p. 70).

"When the letter t occurs between vowels, it has one of the pronunciations of the sound /d/" (p. 69).

Evaluation of Yates (1995)

	YES	NO
INPUTS		
/t/	✓	
/d/	✓	
/n/		✓
/nt/		✓
OUTPUTS		
[ɾ]	✓	
[ɹ]		✓
ENVIRONMENTS		
<i>Left</i>		
/ɹ/ + /v/	✓	
/A/		✓
<i>Right Medial</i>		
/v/ - * /ɹ/		✓
<i>Right Final</i>		
# /ɹ/ + # /v/		✓
TOTAL	4	6

Rating: 40

3.5 Pronunciation manuals for ESL teachers

Avery, Peter, and Susan Ehrlich (1992)

Teaching American English Pronunciation. Oxford: Oxford University Press. ISBN 0194328155.

Synopsis

“This book is intended as both a textbook and a reference manual for teachers of English as a Second Language. While there are many other introductory phonetics textbooks on the market, none has been written specifically for the ESL teacher. This book attempts to fill this gap by providing an accessible introduction to the fields of phonetics and phonology as they relate to second language learning” (p. xi).

Description of Flapping

“[The] pronunciation of the /t/ in a word such as ‘putting’ sounds like the /d/ in ‘pudding’ . . . This sound is called a *flap* . . . (p. 41)

“When /t/ is pronounced as a flap . . . it only occurs between vowels when the preceding vowel is stressed” (p. 41)

“A word ending with a *t* may be pronounced as a flap if the following word begins with a vowel” (p. 42). Although this is not explicitly stated, examples *shut up* and *cut a lot of wood* (p. 42) show that the authors are aware that Flapping occurs word finally before both stressed and unstressed vowels.

“The flap is also a positional variant of the /d/ sound when it occurs between a stressed and an unstressed vowel” (p. 42)

Evaluation of Avery & Ehrlich (1992)

	YES	NO
INPUTS		
/t/	✓	
/d/	✓	
/n/		✓
/nt/		✓
OUTPUTS		
[ɾ]	✓	
[ɹ]		✓
ENVIRONMENTS		
<i>Left</i>		
/ɹ/ + /v/		✓
/A/		✓
<i>Right Medial</i>		
/v/ - * /ɹ/	✓	
<i>Right Final</i>		
# /ɹ/ + # /v/	✓	
TOTAL	5	5

Rating: 50**Burkowsky, Mitchell (1982)**

Teaching American Pronunciation to Foreign Students. St. Louis, MO: Warren H. Green. ISBN 0875270271.

Synopsis

"This text is directed toward educators who suddenly find themselves with students who have oral communication problems primarily because their native language is not American English" (p. 3).

Description of Flapping

"Medial /t/ as in *little* and *bottle* should normally sound almost like /d/" (p. 52).

Evaluation of Burkowsky (1982)

	YES	NO
INPUTS		
/t/	✓	
/d/		✓
/n/		✓
/nt/		✓
OUTPUTS		
[ɾ]		✓
[ɹ]		✓
ENVIRONMENTS		
<i>Left</i>		
/ɹ/ + /v/		✓
/A/		✓
<i>Right Medial</i>		
/v/ - */ɹ/		✓
<i>Right Final</i>		
*/ɹ/ + #/v/		✓
TOTAL	1	9

*Rating: 10***Celce-Murcia, Marianne, Donna M. Brinton, and Janet M. Goodwin (1996)**

Teaching Pronunciation: A Reference for Teachers of English to Speakers of Other Languages. Cambridge: Cambridge University Press. ISBN 0521406943.

Synopsis

"We have written [this book] to serve as the core of a comprehensive course in pronunciation pedagogy designed to provide ESL/EFL teachers with the following: (1) an overview of the issues involved in teaching pronunciation . . .; (2) a thorough grounding in the sound system of North American English (NAE), including both the segmental and suprasegmental aspects; (3) insight into the ways in which this sound

system intersects with other skills and areas of language, such as listening, inflectional morphology, and orthography, (4) a framework for developing teaching techniques . . . ; (5) a discussion of options in syllabus design as it relates to the teaching of pronunciation; and (6) a treatment of pronunciation diagnosis and assessment measures” (p. ix).

Flapping

“/t/ takes on a unique quality for most speakers of N[orth]A[merican]E[nglish] when it occurs after a vowel or an /r/ and before an unstressed syllable. This voiced allophone, which we will represent with the symbol [ɾ], occurs in such words as *data*, *city*, *putting*, *dirty*, *started*, and is called a **flap**, or **tap**. It is produced like /d/, except the tongue touches or flaps against the alveolar ridge only very briefly. Like /d/, the flap is voiced. A flap allophone occurs in the same environments as /d/ as well. In fact, most speakers of NAE make no difference in articulating the words *catty* and *caddy*, or *latter* and *ladder*. The flapping of /t/ and /d/ occurs even across word boundaries, and may even occur when the vowel in a following word is stressed. Consider, for example, the phrases “put it on” and “head it in,” in which the underlined sounds are flapped in normal speech” (p. 64).

“In the same environment — that is, before an unstressed syllable — the consonant sound /n/ and the consonant sequence /nt/ can both be realized as a nasalized flap. Thus for many NAE speakers, word pairs like *winner/winter* and *banner/banter* may have virtually the same pronunciation, especially in casual speech. This NAE phenomenon is sometimes referred to as “disappearing *t*,” and is particularly common when words with medial /nt/ occur in common phrases (*twen(t)y-one*, *win(t)ter break*, *the en(t)ertainment business*) and in place names (*San(t)a Ana*, *Toron(t)o*)” (p. 65).

Evaluation of Celce-Murcia et al. (1996)

	YES	NO
INPUTS		
/t/	√	
/d/	√	
/n/	√	
/nt/	√	
OUTPUTS		
[r]	√	
[ɹ]	√	
ENVIRONMENTS		
<i>Left</i>		
/ʃ/ + /v/	√	
/A/	√	
<i>Right Medial</i>		
/v/ - */ʃ/	√	
<i>Right Final</i>		
*/ʃ/ + */v/	√	
TOTAL	10	0

Rating: 100**Croft, Kenneth (1968)**

English Pronunciation: A Manual for Teachers. New York: Collier-Macmillan. ISBN 0029718805.

Synopsis

"This book is intended to serve as a practical introduction both to the phonology of English and to the general practices and techniques used in teaching and learning pronunciation. It is written primarily for the teacher who has had little or no formal exposure to the field of linguistics, but who has an interest in becoming acquainted with some of the elements of phonology and the application of linguistic facts to teaching

or learning pronunciation" (p. v)

Flapping

"In medial position, that is, between vowels, after the stress the phonemes /t/ and /d/ are often pronounced as 'flaps'; the tongue tip moves quickly across the alveolar ridge, making a momentary closure and then moving on" (p.70).

Evaluation of Croft (1968)

	YES	NO
INPUTS		
/t/	✓	
/d/	✓	
/n/		✓
/nt/		✓
OUTPUTS		
[ɾ]	✓	
[ɹ]		✓
ENVIRONMENTS		
<i>Left</i>		
/ɹ/ + /v/		✓
/A/		✓
<i>Right Medial</i>		
/v/ - */ɹ/		✓
<i>Right Final</i>		
*/ɹ/ + #/v/		✓
TOTAL	3	7

Rating: 30

Kreidler, Charles W. (1997)

Describing Spoken English: An Introduction. London and New York: Routledge.
ISBN 0415150957.

Synopsis

“This is a description of present-day English pronunciation . . . The book is intended to be a text . . . for those who are preparing to teach English as a second or foreign language” (p. xi).

Description of Flapping

“/t/ and /d/ may be articulated as **taps** when they occur between a strong vowel (and /r/) and a weak vowel” (p. 59).

“Tapping may occur when word-final /t/ or /d/ is followed by a word-initial vowel, even if the word-initial vowel is stronger” (p. 59).

“Many North Americans articulate a nasalized tap as the realization of the sequence /nt/ between a stronger and a weaker vowel in the same word or in word-final position closely followed by a word-initial vowel even when the latter word has greater stress” (p. 59).

Evaluation of Kreidler (1997)

	YES	NO
INPUTS		
/t/	√	
/d/	√	
/n/		√
/nt/	√	
OUTPUTS		
[r]	√	
[ɹ]	√	
ENVIRONMENTS		
<i>Left</i>		
/ɣ/ + /v/		√
/A/	√	
<i>Right Medial</i>		
/v/ - * /ɣ/	√	
<i>Right Final</i>		
#/ɣ/ + #/v/	√	
TOTAL	8	2

Rating: 80**Nasr, Raja T. (1997)**

Applied English Phonology: For ESL/EFL Teachers. Lanham, MD: University Press of America. ISBN 0761806415.

Synopsis

"This book is meant to help teachers of English give speakers of other languages the basic information and tools they need to help their students master the phonological system of English and overcome some of the more serious problems they face in doing so. The elements emphasized are those that contribute to more effective classroom practices" (pp. ix-x).

Description of Flapping

None.

Rating: 0

Nilsen, Don L. F., and Alleen Pace Nilsen (1973)

Pronunciation Contrasts in English. New York: Regents Publishing. ISBN 0137309384.

Synopsis

This book “is designed to assist teachers of English to speakers of other languages in dealing with pronunciation difficulties. It has been planned to serve as a time-saving aid for both the beginning and the experienced teacher in preparing materials for classroom use geared to the individual needs of each student” (p. vii).

Description of Flapping

None.

Rating: 0

Pennington, Martha C. (1996)

Phonology in English Language Teaching: An International Approach. London and New York: Longman. ISBN 058222571X.

Synopsis

“This book is intended as a comprehensive introduction to English phonology set in the social and international context of language learning and language teaching around the world. The book is principally geared to teachers of English as a second or foreign language (ESL/ EFL) . . .” (p. xvi).

Description of Flapping

“A medial /t/ or /d/ preceding a weak (unstressed or unaccented) syllable may be pronounced as a **flap** sound [which] is indicated by the symbol [ɾ]” (p. 59).

Evaluation of Pennington (1996)

	YES	NO
INPUTS		
/t/	√	
/d/	√	
/n/		√
/nt/		√
OUTPUTS		
[ɾ]	√	
[ɹ]		√
ENVIRONMENTS		
<i>Left</i>		
/ʔ/ + /v/		√
/A/		√
<i>Right Medial</i>		
/v/ - */ʔ/	√	
<i>Right Final</i>		
*/ʔ/ + #/v/		√
TOTAL	4	6

Rating: 40

Prator, Clifford H., Jr., and Betty Wallace Robinett (1985)

Manual of American English Pronunciation. Orlando: Harcourt Brace & Company.
ISBN 0030007038.

Synopsis

“This book [is] useful in courses designed to introduce native-English-speaking future teachers to the phonological system of American English and to methods of teaching pronunciation” (p. xviii).

Description of Flapping

“[A]mong medial consonants is a variant of /t/—one that occurs between voiced sounds, usually vowels, and that does *not* stand at the beginning of a stressed syllable. Examples are the *t*’s in *átom* and *húrting* . . . This special *t* is made by a quick flap of the tongue . . . Many educated Americans seem to make no difference of any sort between this type of /t/ and a /d/” (p. 103).

“[A] sandhi form that may occur either within a word or between closely related words is the medial /t/ that sounds ‘somewhat like a /d/’ . . . Examples of the occurrence of this /d/-like /t/ between closely related related words are *hút* ‘im /híd im/ and *ríght or wróng* /ráyɹ əɹ rón/. If the sentence stress is on the second of the two words, the /t/ is /d/-like when it ends the first word: *get úp* is pronounced /geɹ ɹp/” (p. 190).

Evaluation of Prator & Robinett (1985)

	YES	NO
INPUTS		
/t/	✓	
/d/	✓	
/n/		✓
/nt/		✓
OUTPUTS		
[ɾ]	✓	
[ɹ]		✓
ENVIRONMENTS		
<i>Left</i>		
/ɣ/ + /v/	✓	
/A/	✓	
<i>Right Medial</i>		
/v/ - * /ɣ/	✓	
<i>Right Final</i>		
## /ɣ/ + ## /v/	✓	
TOTAL	7	3

*Rating: 70***3.6 Summary**

Having completed an exhaustive examination of the comprehensive segmentally oriented pronunciation books (i.e., those not specifically restricted to vowels, prosody or conversation) produced for students (ESL) and for teachers (TESL) of NAE in the last thirty years or so, we are now in a position to evaluate not only the overall importance that has been given to Flapping by the authors of these manuals but also what differences, if any, exist between the two types of books. The first and most obvious observation to be made from the foregoing compilation is the proportions of these ESL and TESL materials that actually contain information on Flapping. As shown in Table 3.1, there is indeed a

significant difference between the two groups. Whereas less than half the ESL books contain such information, over three quarters of the TESL books do so. Taken together, the percentage rises to exactly half of the total inventory.

	ESL BOOKS	TESL BOOKS	BOTH
NUMBER OF BOOKS	41	9	50
DATA ON FLAPPING	18	7	25
PERCENTAGE	43.9%	77.7%	50.0%

TABLE 3.1. *The percentage of ESL and TESL books containing information on Flapping*

The next question one might ask is whether there have been any observable trends over the last thirty years both in the production of pronunciation books in general and the amount of information on Flapping — and perhaps English allophones in general — that they contain. Firstly, as shown in Table 3.2, there has clearly been a proliferation of such materials in the last decade, since over two thirds of the ESL books and over half of the TESL manuals were published during that period.

	1970s		1980s		1990s	
	NUMBER	%	NUMBER	%	NUMBER	%
ESL BOOKS	3	7.3	9	22.0	29	70.7
TESL BOOKS	2	22.2	2	22.2	5	55.6

TABLE 3.2. *The percentage of ESL and TESL books surveyed in each of the last three decades*

Secondly, with regard to the number of descriptions of Flapping during each of the three decades under scrutiny, Table 3.3 shows that this information has actually been decreasing slightly in ESL manuals while increasing considerably in TESL handbooks.

	1970s		1980s		1990s	
	NUMBER	%	NUMBER	%	NUMBER	%
ESL FLAPPING	2	66.6	4	44.4	12	41.4
TESL FLAPPING	1	50.0	2	50.0	4	80.0

TABLE 3.3. *The number and percentage of ESL and TESL books containing information on Flapping in each of the last three decades*

Finally, among those ESL textbooks that do contain information on Flapping, it is of interest to know how they rate as a group in terms of the rating scale that was established to evaluate their characterizations of the various inputs, outputs and environments that are involved in the process. It is also of interest to observe whether there is a distinction to be drawn between ESL and TESL manuals in this respect. As shown in Table 3.4, the difference between the two is less than 10%, both groups hovering around the 50% mark of what was deemed to be descriptively pertinent in terms of Flapping.

	100	90	80	70	60	50	40	30	20	10	AVG
ESL BOOKS	0	0	1	3	2	2	4	2	3	1	44.4
TESL BOOKS	1	0	1	1	0	1	1	1	0	1	54.3

TABLE 3.4. *Average scores for ESL and TESL books according to the rating scale*

If we consider these data in the context of our attempt to determine the (un)importance of providing ESL learners with information on allophones in general and flaps in particular, two major points seem to stand out:

- although there are significantly more TESL manuals than ESL books that contain information of Flapping (Table 3.1), there is much less difference between them in terms of the *amount* of such information contained in each type of book (Table 3.4);
- although there has been a sharp increase in the production of ESL books in the last decade (Table 3.2), there has actually been a decrease in the proportion of those that contain information on Flapping, whereas an increase has occurred in the TESL materials produced during that period (Table 3.3).

CHAPTER 4

CONCLUSION

4.1 On teaching allophones

Although the recognition and proper descriptive analysis of allophones like flaps is less than overwhelming in NAE pronunciation textbooks, and particularly in the ones that are meant for ESL students, enough of them acknowledge the existence, if not the importance, of these subphonemic segments that the issue of whether they should be actively taught in pronunciation courses would certainly seem to merit discussion. For there is no doubt that they contribute significantly to making the L2 more native-like overall, given the well-recognized fact that they add to intelligibility and that “intelligible pronunciation is an essential component of communicative competence” (Morley 1992:8).

As was pointed out in section 1.2, there is also little doubt that the main reason why allophones are so often neglected in pronunciation teaching is the widespread belief that phonemes are the only significant segments in language, the only ones that can make semantic differences. However, consider the following observation by Shen:

In the teaching of a foreign language, a comparison between the phonemic systems of both languages is essential. The purpose is to discover the phonemes that occur in the foreign language which do not occur in the native language. Such phonemes are generally accepted as the biggest learning load for the students and similarly the heaviest teaching problem for the instructor. But there are also structurally contrastive relations among the allophones of the two languages and between allophones of one language and phonemes of the other. Such relations must not be ignored either (1959:8).

Various other researchers in the area of L2 phonological acquisition have made comments along the same lines, i.e., that the phoneme is not the be-all and end-all of pronunciation teaching. Leather and James, for example, note that "it has become clear from a large volume of research over the past few decades that although the phoneme may be a useful construct in linguistic description, its status in the real-time processing of spoken language is problematic" (1996:278). As a consequence, "[p]erhaps a focus on the closer phonetic detail of F[oreign] L[anguage] sounds in acquisition . . . may be seen as a necessary corrective to previous more 'coarse-grained' contrastive analyses of the phonemes of first languages (L1s) and second languages . . ." (James 1985:225). The whole issue of phonemes, allophones and intelligibility is summed up very astutely by Prator and Robinett:

[T]he safest solution for a teacher of ESL is . . . to regard unintelligibility not as the result of phonemic substitution, but as *the cumulative effect of many little departures from the phonetic norms of the language*. Many of these departures may be phonemic; others will be allophonic. But under certain circumstances, *any abnormality of speech can contribute to unintelligibility* (1985:xxii).

If we adopt the position that the teaching of pronunciation should involve more than simply imparting the phonemic contrasts of a language, the question then becomes how far one is willing to go for there is virtually no limit to the phonetic details one can introduce to students. For example, some applied linguists have advocated the use of *articulatory setting* (also known as *phonetic*, *phonatory* or *voice setting*) in second-language instruction (cf. Ozga 1977, Erasmus 1982, Esling and Wong 1983, Esling 1987, Jenner 1990, Collins and Mees 1992 a, b). The concept of articulatory setting, which was first outlined by Honikman (1964), can be defined as " [t]he overall tendency . . . to maintain the organs of speech in some particular configuration throughout speech, as reflected in such factors as the height of the velum, the degree of lip-rounding and the tension of the tongue and lips" (Trask 1996:34). In essence, the theory proposes that each language has

a unique configuration of articulators accounting for or establishing the natural sounds of that language that give it phonological unity and differentiate it from other languages.

For example, here is how Mees and Collins (1992) propose that Danish speakers should modify their articulatory setting when learning NAE:

- adopt a generally tenser setting of the body of the tongue, with firmer closures and narrowings for stops and fricatives and use of the tongue-tip for alveolar consonants;
- avoid palatalization in favor of uvularization plus a bunched tongue-shape to produce /ɹ/ and provide *r*-coloring for *r*-adjacent segments;
- adopt semi-continuous nasalization;
- adopt a laxer lip-setting to facilitate weak rounding and protrusion for certain consonants;
- adopt a relaxed larynx setting for weaker glottalization and the avoidance of anterior voice.

Trying to implement these kinds of elaborate articulatory guidelines in an ordinary ESL classroom would be well nigh impossible given that students with different L1s would have to be given different sets of instructions. Moreover, one could easily run the risk of simply overwhelming them with indigestible and impracticable articulatory minutiae. In other words, too much attention to phonetic detail might be viewed as a waste of time given the widely recognized Critical Period Hypothesis. For if it is indeed the case that “after puberty it is nearly impossible to learn a second language and ‘pass for native’, especially in the area of phonology” (Major 1990:14), that is, if we already know that “adults rarely attain native-like competence in an L2 phonology” (Young-Scholten 1992:201), then the potential improvements in intelligibility that could be gained by teaching such fine distinctions of perception and production might not be worthwhile when measured against the time and effort involved. One cannot imagine any but the most gifted students benefiting from the discrimination of such intricate sound distinctions.

Some sort of middle ground between this sort of exhaustive articulatory approach and one involving simple phonemic contrasts would therefore seem to be desirable. Such an approach, as was mentioned previously, would involve introducing students to allophonic variation. However, one might question whether all allophones deserve equal opportunity, so to speak, since there are surely some that are more frequent or distinctive than others, and so more apt to cause misperception when pronounced incorrectly. For example, in discussing voiced and voiceless glottal fricatives, Laver states that “[t]he sound [ɦ] sometimes occurs in English, as an allophone of /h/ in intervocalic position” (1994:305), as in *behind the head*, and the labiodental nasal [m̥] is found in forms like *Banff* and *comfort*, but surely no one would want to attach as much importance to such phonetically inconspicuous and relatively uncommon phenomena as to the flapping of alveolar stops in something like *did it Saturday*. In the next section, we will look at some possible criteria for ranking allophones in terms of the pedagogical attention they should be given.

4.2 On teaching flaps

As was noted by Prator some thirty years ago, there exists an ever-present “problem of establishing a hierarchy of priorities for the teaching of pronunciation” (1971:61); one reason for giving priority to certain allophones over others might be their superior *potential pronounceability* or *transferability* due to the fact that they are often found to occur as phonemes in many languages. This is based on the existence of “abundant evidence that the beginning learner seeking to impose phonetic structure on the L2 speech to which he is exposed makes perceptual reference to the phonetic categories of his L1” (Leather and James 1996:274). Or, to look at it from another perspective, this potentiality stems from the frequent observation that “[n]otoriously, second language learners are unable to produce distinctions that do not function contrastively in their L1” (Busà 1992:48). What this criterion entails, then, is that ESL instructors should normally achieve greater success in getting learners to pronounce a particular allophone correctly the more such an allo-

phone is liable to be phonemic in their native language, though there are obviously limits to what can be done in this regard in heterogeneous L1 classes

An example of this sort of technique as applied specifically to flaps can be found in one of the pronunciation textbooks we examined in Chapter 3, wherein Cook gives the following suggestions: "If you speak any language — such as Spanish, Japanese, Italian, or Dutch among others — where your R touches behind the teeth, you are in luck with the American T. Just fix the association in your mind so that when you see a middle position T, you automatically give it your native R sound. Say, *Beri bara bira* . . . with your native accent. (*Not* if you are French, German, or Chinese!)" (1991:87).

The most commonly adduced subphonemic segments in NAE, besides the flaps [ɾ ɹ], are: (1) the positional variants of /p t k/, viz., aspirated [p^h t^h k^h] which occur at the beginning of words and stressed syllables, e. g., *pertain* [p^həɪt^héyn], *tomatoes* [t^həméyroʒ], *correct* [k^həɹɛkt], and unreleased [p[̚] t[̚] k[̚]] which are found in certain codas, e. g., *opted* [ɒp[̚]təd], *coat* [k[̚]owt̚], *acme* [æk[̚]mɪ]; (2) the velarized lateral [ɫ] which replaces /l/ in syllable codas, e. g., *fall* [fálɫ], *falter* [fálɫtəɹ]; and (3) the syllabic nasal [ŋ] which occurs when /n/ follows /t d/ in syllable codas, e. g., *sweeten* [swí:tŋ], *Sweden* [swí:dŋ].

When we check for these various segments in Maddieson's presentation of "the phoneme inventory of each of the carefully selected sample of 317 languages which comprise the UCLA Phonological Segment Inventory Database (UPSID)" (1984:200), we find that unreleased stops, syllabic nasals and nasal flaps are not contrastive in any of them, velarized laterals are phonemic in only about 2%, and aspirated stops and oral flaps (which may also be described as taps, and as either dental or alveolar) are each found in approximately 25% of these languages. On this basis, then, there is no doubt that the criterion of potential pronounceability would strongly favor aspirated stops and oral flaps over any of the other NAE allophones.

The second criterion that might figure in the determination of which allophones should be prioritized is that of what can be termed *differential salience*, that is, the phonological distance that exists between a particular phone and its underlying form. The

idea behind this is that a greater articulatory distance between two allophones should normally make them more perceptually distinct and thus more apt to lead to unintelligibility when one is substituted for the other. One way to measure the dissimilarity of segments in complementary distribution is to compare them in terms of distinctive features. Among the high-prioritized segments that were established above, namely the aspirated stops and the oral flap, we see that the only feature that sets plain stops apart from their aspirated counterparts is [spread glottis] whereas flaps are distinguished from alveolar stops by either two or three features, as shown below:

	/t/	/d/	/ɾ/
sonorant	-	-	+
voiced	-	+	+
vibrant	-	-	+

Moreover, further evidence that differential salience plays a part in the recognition and noticeability of allophones can be found in the fact that among the various pronunciation textbooks that were examined in Chapter 3, a full 40% of them mention [ɾ] solely as a positional variant of /t/, that is to say, in the case where the articulatory difference is at its maximum.

Overall, then, it would seem that flaps, and especially those that alternate with voiceless alveolar stops, as in *write* [ɹajt] and *writer* [ɹajrɛɹ], or *hit* [hɪt] and *hit it* [hɪɾɪt], should be given the highest consideration among the allophones of NAE. For anyone who might be wondering whether it is worthwhile to spend any time on these segments, the following observation by Celce-Murcia et al. would certainly seem to merit serious consideration:

Most learners are unaware of the flap allophone in NAE. This can mark their speech as foreign; it may also be the source of listening discrimination problems. For example, in place of the flap in phrases such as "cut it out" or "put it

on", these learners may produce a fully articulated /t/, and they may hear /d/ as opposed to [ɾ] in words like *latter*. Of course, those who have studied British English before encountering NAE may also be confused, since the presence of [ɾ] is one of the most salient features differentiating NAE from British English dialects. For these learners, this difference in dialect will need elaboration (1996:65).

One question that remains to be resolved, however, is whether ESL instructors should have their students actually practice the pronunciation of flaps or simply take cognizance of their existence in NAE. In other words, is the teaching of flaps to be approached in terms of their production or should some training in their perception be considered sufficient? As it turns out, both points of view have been expressed in the literature.

Avery and Ehrlich, for example, give the following advice to ESL teachers:

You should not insist on having students pronounce flaps because using a /t/ where native speakers use a flap results in very little loss in comprehensibility. However, students should be given extensive practice in the recognition of flaps. They are very frequent in the spoken language and the ability to recognize words that contain flaps is very important in improving students' comprehension of natural speech (1992:42-43).

This is echoed by Dauer, who, having pointed out that Flapping "is one of the main differences between North American English and other varieties of English", adds that although "[i]t is not necessary for a non-native speaker to pronounce /t/ in this way", ESL students "need to be able to hear it in order to understand native speakers" (1993:142).

On the other hand, if one is to judge by the following statement, Celce-Murcia et al. seem to be in favor of not only making ESL students in North America aware of Flapping but of also trying to get them to integrate flaps into their L2 phonological system:

The flap allophone of /t/ and /d/, being a distinct feature of NAE, would be a priority in situations where this variety is being taught. For example, students

often complain that when ordering water in a restaurant, they are not understood and have to repeat their request. This is probably a function of their not **producing** the flap allophone of /t/ (my emphasis). Since this distinction is not present in many dictionaries (especially the small bilingual dictionaries), students never discover it. Anecdotes of this nature emphasize the critical need for an awareness of positional variation and a teaching agenda that addresses this need (1996:69).

More categorical is Wells, who says: "Learners of English as a foreign language who take Am[erican] E[nglish] as their model are encouraged to use ɾ [i. e., r] where appropriate" (1990:703). In sum, whether the extra time and effort involved in trying to get students to produce flaps in the proper environments carries along with it a commensurate increase in articulatory intelligibility is a question that will probably not be settled without further research.

4.3 Summary

One thing that has become clear in this study of Flapping in NAE is that a large number of people involved in the phonological aspect of SLE do not subscribe to the notion of a phoneme-centered pronunciation universe. It seems evident that many of them have heeded Prator's admonition that "teachers would do well to suspect that any departure from the phonetic norms of the language can have a negative effect on the intelligibility of speech" (1971:61). On the one hand, the fact that a sizable proportion— some 50% in all — of those who have written pronunciation textbooks in the last thirty-odd years have included at least a minimal amount of information on this process certainly demonstrates an awareness on their part that ESL students should be familiar with it. More significant, perhaps, is the fact that over 75% of the resource books designed specifically for teachers mention Flapping, since it is quite possible that their influence might have some sort of trickle-down effect on those who design and use ESL pronunciation textbooks.

All in all, then, anyone involved in teaching pronunciation in any capacity would do well to heed Prator's recommendation that "[i]n the absence of any consensus regarding the degree of accuracy to be sought in teaching pronunciation, most teachers will probably want to take a position somewhere between that of the champions of absolute allophonic accuracy and that of the methodologists who insist on no more than an ability to produce a rough approximation of phonemes" (1971:64). From everything that has been gathered and analyzed in this comprehensive study of Flapping in NAE, this would certainly seem to be the safest and most sensible course to take in most circumstances.

REFERENCES

- Abercrombie, David (1967) *Elements of General Phonetics*. Edinburgh: Edinburgh University Press.
- Akmajian, Adrian, Richard A. Demers, Ann K. Farmer, and Robert M. Harnish (1995) *Linguistics: An Introduction to Language and Communication*. Cambridge, MA: MIT Press.
- Avery, Peter, and Susan Ehrlich (1992) *Teaching American English Pronunciation*. Oxford: Oxford University Press.
- Bailey, Charles-James N. (1985) *English Phonetic Transcription*. Dallas: Summer Institute of Linguistics.
- Bronstein, Arthur J. (1960) *The Pronunciation of American English*. New York: Appleton-Century-Crofts.
- Brown, Adam (1988) Functional load and the teaching of pronunciation. *TESOL Quarterly* 22:593-606.
- Brown, Adam, ed. (1991) *Teaching English Pronunciation: A Book of Readings*. London and New York: Routledge.
- Busà, M. Grazia (1992) On the production of English vowels by Italian speakers with different degrees of accent. In Jonathan Leather and Allan James, eds., *New Sound 92: Proceedings of the 1992 Amsterdam Symposium on the Acquisition of Second Language Speech*, 47-64. Amsterdam: University of Amsterdam.
- Carr, Philip (1993) *Phonology*. London: Macmillan.
- Carterette, Edward C., and Margaret Hubbard Jones (1974) *Informal Speech: Alphabetic and Phonemic Texts with Statistical Analyses and Tables*. Berkeley: University of California Press.

- Catford, J. C. (1987) Phonetics and the teaching of pronunciation: A systemic description of English phonology. In Joan Morley, ed., *Current Perspectives on Pronunciation: Practices Anchored in Theory*, 87-100. Washington: Teachers of English to Speakers of Other Languages.
- Celce-Murcia, Marianne (1987) Teaching pronunciation as communication. In Joan Morley, ed., *Current Perspectives on Pronunciation: Practices Anchored in Theory*, 5-12. Washington: Teachers of English to Speakers of Other Languages.
- Celce-Murcia, Marianne, Donna M. Brinton, and Janet M. Goodwin (1996) *Teaching Pronunciation: A Reference for Teachers of English to Speakers of Other Languages*. Cambridge: Cambridge University Press.
- Chela de Rodriguez, Bertha (1983) Recognizing and producing English rhythmic patterns. *English Teaching Forum* 21:27-35.
- Chomsky, Noam (1964) Current issues in linguistic theory. In Jerry A. Fodor and Jerrold J. Katz, eds., *The Structure of Language: Readings in the Philosophy of Language*, 50-118. Englewood Cliffs, NJ: Prentice-Hall.
- Clark, John, and Colin Yallop (1995) *An Introduction to Phonetics and Phonology*, 2nd ed. Oxford: Blackwell.
- Collins, Beverley, and Inger M. Mees (1992a) Differentiated approaches for the acquisition of articulatory setting by second-language learners. In Jonathan Leather and Allan James, eds., *New Sound 92: Proceedings of the 1992 Amsterdam Symposium on the Acquisition of Second Language Speech*, 76-85. Amsterdam: University of Amsterdam.
- Collins, Beverley, and Inger M. Mees (1992b) Articulatory setting and the Danish learner of American English. In Jorgen Erik Nielsen, ed., *The Twain Shall Meet: Danish Approaches to English Studies*, 59-68. Copenhagen: University of Copenhagen.
- Cook, Ann (1991) *American Accent Training: A Guide to Speaking and Pronouncing Colloquial American English*. Hauppauge, NY: Barron's Educational Series.

- Crystal, David (1997) *A Dictionary of Linguistics and Phonetics*, 4th ed. Oxford: Blackwell.
- Davenport, Mike, and S. J. Hannahs (1998) *Introducing Phonetics and Phonology*. London: Arnold.
- Denes, Peter B. (1963) On the statistics of spoken English. *Journal of the Acoustical Society of America* 30:892-904.
- Dewey, Godfrey (1927) *Relativ[e] Frequency of Speech Sounds*. Cambridge, MA: Harvard University Press.
- Dickerson, Wayne B. (1987) Orthography as a pronunciation resource. *World Englishes* 6:11-20.
- Durand, Jacques (1990) *Generative and Non-linear Phonology*. London: Longman.
- Eckman, Fred R., and Gregory K. Iverson (1997) Structure preservation in interlanguage phonology. In S. J. Hannahs and Martha Young-Scholten, eds., *Focus on Phonological Acquisition*, 182-207. Amsterdam and Philadelphia: John Benjamins.
- Edwards, Harold T. (1997) *Applied Phonetics: The Sounds of American English*, 2nd ed. San Diego and London: Singular Publishing Group.
- Erazmus, Edward T. (1982) A new look at a cause of foreign accent. *American Language Journal* 1:57-70.
- Esling, John H. (1987) Methodology for voice setting awareness in language classes. *Revue de phonétique appliquée* 85:449-473.
- Esling, John H., and Rita F. Wong (1983) Voice quality settings and the teaching of pronunciation. *TESOL Quarterly* 17:89-95.
- French, N. R., C. W. Carter, Jr., and W. Koenig (1930) The words and sounds of telephone conversations. *Bell System Technical Journal* 9:290-324.
- Fry, D. B. (1947) The frequency of occurrence of speech sounds in southern English. *Archives néerlandaises de phonétique expérimentale* 20:103-106.
- Fujimura, Osamu, and Julie Lovins (1982) Syllables in concatenative phonetic units. *Indiana University Linguistics Club*. Bloomington, IN.

- Gerber, Sanford E., and Susan Vertin (1969) Comparative frequency counts of English phonemes. *Phonetica* 19:133-141.
- Giegerich, Heinz J. (1992) *English Phonology: An Introduction*. Cambridge: Cambridge University Press.
- Gilbert, Judy B. (1994) Intonation: A navigation guide for the listener (and gadgets to help teach it). In Joan Morley, ed., *Pronunciation Pedagogy and Theory: New Views, New Directions*, 38-48. Alexandria, VA: Teachers of English to Speakers of Other Languages, Inc.
- Gimson, A. C. (1989) *An Introduction to the Pronunciation of English*, 4th ed, rev. by Susan Ramsaran. London: Edward Arnold.
- Goodwin, Janet, Donna Brinton, and Marianne Celce-Murcia (1994) Pronunciation assessment in the ESL/EFL curriculum. In Joan Morley, ed., *Pronunciation Pedagogy and Theory: New Views, New Directions*, 3-16. Alexandria, VA: Teachers of English to Speakers of Other Languages, Inc.
- Gussenhoven, Carlos, and Haike Jacobs (1998) *Understanding Phonology*. London: Arnold.
- Gutknecht, Christoph (1978) Intonation and language learning: the necessity for an integrative approach. *Studies in Second Language Acquisition* 1:25-36.
- Hammond, Michael (1997) Vowel quantity and syllabification in English. *Language* 73: 1-17.
- Harris, John (1994) *English Sound Structure*. Oxford: Blackwell.
- Harris, Zellig S. (1951) *Methods in Structural Linguistics*. Chicago: University of Chicago Press.
- Hawkins, Peter (1984) *Introducing Phonology*. London: Hutchinson.
- Haycraft, Brita (1992) Sentence stress — for more meaningful speech. In Adam Brown, ed., *Approaches to Pronunciation Teaching*, 57-72. London: McMillan.
- Honikman, Beatrice (1964) Articulatory settings. In David Abercrombie, et al., eds., *In Honour of Daniel Jones*, 73-84. London: Longman.

- James, Allan (1986) The acquisition of phonological representation: A modular approach. In Allan James and Jonathan Leather, eds., *Sound Patterns in Second Language Acquisition*, 225-249. Dordrecht: Foris.
- Jenner, Bryan (1990) Articulatory and phonatory categories for the description of L2 performance. In Jonathan Leather and Allan James, eds., *New Sound 90: Proceedings of the 1990 Amsterdam Symposium on the Acquisition of Second Language Speech*, 320-325. Amsterdam: University of Amsterdam.
- Jensen, John T. (1993) *English Phonology*. Amsterdam and Philadelphia: John Benjamins.
- Kahn, Daniel (1976) Syllable-based generalizations in English phonology. *Indiana University Linguistics Club*. Bloomington, IN.
- Kahn, Daniel (1980) Syllable-structure specifications in phonological rules. In Mark Aronoff and Mary-Louise Kean, eds., *Juncture: A Collection of Original Papers*, 91-105. Saratoga, CA: Anma Libri.
- Katamba, Francis (1989) *An Introduction to Phonology*. London: Longman.
- Keating, Patricia (1988) A survey of phonological features. *Indiana University Linguistics Club*. Bloomington, IN.
- Kenstowicz, Michael (1994) *Phonology in Generative Grammar*. Oxford: Blackwell.
- Kenyon, John Samuel (1948) Cultural levels and functional varieties of English. In John Samuel Kenyon (1997 [1924]), *American Pronunciation*, 12th ed., exp., 375-384. Ann Arbor: George Wahr Publishing Company.
- Kenyon, John Samuel (1950 [1924]) *American Pronunciation*, 10th ed. Ann Arbor: George Wahr Publishing Company.
- Kenyon, John Samuel (1997 [1924]) *American Pronunciation*, 12th ed., exp. Ann Arbor: George Wahr Publishing Company.
- Kiparsky, Paul (1979) Metrical structure assignment is cyclic. *Linguistic Inquiry* 10:421-441.

- Krapp, George P. (1969 [1919]) *Pronunciation of Standard English in America*. New York: AMS Press.
- Kreidler, Charles W. (1989) *The Pronunciation of English: A Course Book in Phonology*. London: Basil Blackwell.
- Kreidler, Charles W. (1997) *Describing Spoken English: An Introduction*. New York: Routledge.
- Ladefoged, Peter (1971) *Preliminaries to Linguistic Phonetics*. Chicago: University of Chicago Press.
- Ladefoged, Peter (1993) *A Course in Phonetics*, 3rd ed. Fort Worth: Harcourt Brace Jovanovich.
- Ladefoged, Peter, and Ian Maddieson (1996) *The Sounds of the World's Languages*. Oxford: Blackwell.
- Lance, Donald M. (1997) Variation in American English. In John Samuel Kenyon (1997 [1924]), *American Pronunciation*, 12th ed., exp, 345-373. Ann Arbor: George Wahr Publishing Company.
- Lance, Donald M., and Stephen M. Howie (1997) Spectrographic analysis of English phonemes and allophones. In John Samuel Kenyon (1997 [1924]), *American Pronunciation*, 12th ed., exp, 267-344. Ann Arbor: George Wahr Publishing Company.
- Lass, Roger (1984) *Phonology: An Introduction to Basic Concepts*. Cambridge: Cambridge University Press.
- Laver, John (1994) *Principles of Phonetics*. Cambridge: Cambridge University Press.
- Leather, Jonathan, and Allan James (1996) Second language speech. In William C. Ritchie and Tej K. Bhatia, eds., *Handbook of Second Language Acquisition*, 269-316. San Diego: Academic Press.
- MacCarthy, Peter (1976) Auditory and articulatory training for the language teacher and learner. *English Language Teaching Journal* 30:212-219.
- Maddieson, Ian (1984) *Patterns of Sounds*. Cambridge: Cambridge University Press.

- Major, Roy C. (1990) L2 acquisition, L1 loss, and the Critical Period Hypothesis. In Jonathan Leather and Allan James, eds., *New Sound 90: Proceedings of the 1990 Amsterdam Symposium on the Acquisition of Second Language Speech*, 14-25. Amsterdam: University of Amsterdam.
- Maley, Alan (1995) Foreword. In Clement Laroy, *Pronunciation*, 3. Oxford: Oxford University Press.
- Matthews, P. H. (1997) *The Concise Oxford Dictionary of Linguistics*. Oxford and New York: Oxford University Press.
- McNerney, Maureen, and David Mendelsohn (1992) Suprasegmentals in the pronunciation class: Setting priorities. In Peter Avery and Susan Ehrlich, *Teaching American English Pronunciation*, 185-196. Oxford: Oxford University Press.
- Mees, Inge M., and Beverley Collins (1992) *Sound American*. Copenhagen: Nordisk Forlag Arnold Busck.
- Mines, M. Ardussi, Barbara F. Hanson, and Jane E. Shoup (1978) Frequency of occurrence of phonemes in conversational English. *Language and Speech* 21:221-241.
- Morley, Joan (1994) A multidimensional curriculum design for speech-pronunciation instruction. In Joan Morley, ed., *Pronunciation Pedagogy and Theory: New Views, New Directions*, 66-91. Alexandria, VA: Teachers of English to Speakers of Other Languages, Inc.
- Naiman, Neil (1992) A communicative approach to pronunciation teaching. In Peter Avery and Susan Ehrlich, *Teaching American English Pronunciation*, 163-171. Oxford: Oxford University Press.
- Nespor, Marina, and Irene Vogel (1986) *Prosodic Phonology*. Dordrecht: Foris.
- Ozga, Janina (1977) Teaching English articulatory settings to Polish learners. In Jacek Fisiak, ed., *Papers and Studies in Contrastive Linguistics*, vol. 6, 123-128. Poznan: Adam Mickiewicz University, and Arlington, VA: Center for Applied Linguistics.
- Pennington, Martha C., and Jack C. Richards (1986) Pronunciation revisited. *TESOL Quarterly* 20:207-225.

- Prator, Clifford H., Jr. (1957) *Manual of American English Pronunciation*, rev. ed. New York: Holt, Rinehart and Winston.
- Prator, Clifford H. (1971) Phonetics vs. phonemics in the ESL classroom: When is allophonic accuracy important? *TESOL Quarterly* 5:61-72
- Prator, Clifford H., Jr., and Betty Wallace Robinett (1985) *Manual of American English Pronunciation*, 4th ed. Orlando: Harcourt Brace.
- The Principles of the International Phonetic Association* (1984 [1949]). London: International Phonetic Association.
- Pullum, Geoffrey K., and William A. Ladusaw (1996) *Phonetic Symbol Guide*, 2nd ed. Chicago: University of Chicago Press.
- Rivers, Wilga M. (1981) *Teaching Foreign Language Skills*, 2nd ed. Chicago: University of Chicago Press.
- Rogers, Henry (1991) *Theoretical and Practical Phonetics*. Toronto: Copp Clark Pitman.
- Shen, Yao (1959) Some allophones can be important. *Language Learning* 9:7-18.
- Spencer, Andrew (1996) *Phonology: Theory and Description*. Oxford: Blackwell.
- Standwell, G. B. J. (1973) The phoneme, a red herring for language teaching? *Audio-Visual Language Journal* 11:119-122.
- Tiffany, William R., and James Carrell (1977) *Phonetics: Theory and Application*. New York: McGraw-Hill.
- Tobias, J. V. (1959) Relative occurrence of phonemes in American English. *Journal of the Acoustical Society of America* 31:631.
- Trager, George L., and Henry Lee Smith (1957[1951]) *An Outline of English Structure*. Washington: American Council of Learned Societies.
- Trask, R. L. (1996a) *A Dictionary of Phonetics and Phonology*. London: Routledge.
- Trask, R. L. (1996b) *Historical Linguistics*. London: Arnold.
- Voelker, C. H. (1935) Count of phonic frequency in formal American speech. *Journal of the Acoustical Society of America* 5:242.

- Wardhaugh, Ronald (1995) *Understanding English Grammar: A Linguistic Approach*. Oxford: Blackwell.
- Wells, J. C. (1990) *Longman Pronunciation Dictionary*. Harlow: Longman.
- Whitney, William Dwight (1874) The relative frequency of simple sounds in English. Cited in Sanford E. Gerber and Susan Vertin (1969), Comparative frequency counts of English phonemes, *Phonetica* 19:133-141.
- Wolfram, Walt, and Robert Johnson (1982) *Phonological Analysis: Focus on American English*. Washington: Center for Applied Linguistics.
- Wong, Rita (1987) *Teaching Pronunciation: Focus on English Rhythm and Intonation*. Englewood Cliffs, NJ: Prentice-Hall.
- Young-Scholten, Martha (1992) The subset principle in interlanguage phonology: A preliminary investigation. In Jonathan Leather and Allan James, eds., *New Sound 92: Proceedings of the 1992 Amsterdam Symposium on the Acquisition of Second Language Speech*, 200-217. Amsterdam: University of Amsterdam.