

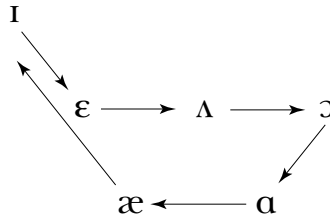
1. THE NORTHERN CITIES SHIFT

FOR OVER THREE DECADES sociolinguists and dialectologists have been researching a remarkable set of changes affecting the vowel systems in several varieties of American English. These changes are remarkable for their broad influence across both geographic and phonological space. As for the former, evidence of these changes has been documented as far east as New England and as far west as the Mississippi River, though most research has been focused on a few large cities including Chicago, Detroit, and Buffalo. In terms of phonological space, the impact is also great, with recent reports claiming that as many as six vowels are affected. Interestingly, the vowels at issue and the directions in which they are changing suggest a coordinated pattern in which movement of one vowel triggers movement in another, which in turn may trigger others in a sort of chain reaction. Traditionally, historical linguists have labeled this type of sound change a “chain shift,” and because of its geographic context the present set of changes has come to be known as the Northern Cities Chain Shift or simply the Northern Cities Shift (NCS).¹ The vowels involved in the NCS and the changes they are reportedly undergoing are represented in figure 1.1.

The supposed relatedness of the vocalic changes in the NCS is quite evident in this diagram. When the changes are represented in this way, it appears that the basic movement of the NCS is a clockwise rotation with the vowels linked into a complete circuit. It is important to keep in mind, however, that the neat pattern presented in figure 1.1 provides a very simplified and abstracted picture of what is in actuality a rather complex phonetic situation. As the results of this study will show, this picture needs to be substantially elaborated; nevertheless, it serves here to provide some sense of the nature of the NCS changes.

The NCS is one of the most widely known examples of sound change currently in progress; however, it has attracted surprisingly

FIGURE 1.1
The Northern Cities Shift
(after Labov 1994, 191)



little substantive research, and there remain tremendous gaps in our knowledge of the shift. The present study attempts to narrow some of those gaps. Reported here are the findings of a project that examines the status of the NCS in two small towns in Michigan. In assessing this status, consideration is given to both the linguistic and social distributions of the variables associated with the NCS, as an attempt is made to better understand the factors that play a role in shaping this variation.

By way of orienting readers to the methods and goals of this study, this introductory chapter offers a general discussion of some of the central issues involved in this line of research, as well as a brief review of what is known about the NCS based on the work of previous investigators.

1.1. THE STUDY OF LANGUAGE CHANGE IN PROGRESS

To the delight of linguists and to the chagrin of almost everyone else, language is forever changing. The influence of change is felt throughout the language, in every arena, from phonology and morphology to syntax and semantics. Traditionally, however, much of the focus in historical linguistics has been placed on sound change. The reasons for this focus have to do in part with the nature of sound change, which seems to behave in a much more regular manner than other types of change, and with methodologi-

cal considerations, such as the relative concreteness of sounds and the comfort of working within the clearly delineated realm of phonology. This focus has been remarkably fruitful and the field has made great advances in describing and working to understand the processes involved in sound change.

Describing the results of sound change is a relatively straightforward matter; however, getting at the details of how change is implemented has proven to be much more challenging. In fact, until quite recently linguists were content to deal with this issue only in the abstract. The kind of direct observation one would need to study the mechanism of change was felt to be an empirical impossibility. Sound change, it was held, proceeded by imperceptible degrees and, therefore, could only be detected after the fact. This was the view promoted by the neogrammarians and eventually adopted by American structuralists like Bloomfield and later Hockett (see discussion in Labov 1994, 43–72).

The last few decades have seen a renewed interest in studying the implementation of language change. This interest has been sparked in large part by the seminal paper of Weinreich, Labov, and Herzog (1968) and the pioneering methodologies of Labov and his colleagues. Among the “empirical foundations” laid out by Weinreich, Labov, and Herzog, their clear break with tradition in insisting that variation is a normal, in fact necessary, aspect of language was of central importance for future research:²

We will argue that natively like command of heterogeneous structures is not a matter of multidialectalism or “mere” performance, but is part of unilingual linguistic competence. One of the corollaries of our approach is that in a language serving a complex (i.e., real) community, it is ABSENCE of structured heterogeneity that would be dysfunctional. [101]

Finding order in the apparent chaos of language variation has been a guiding principle in sociolinguistics at least since Labov’s pioneering work on Martha’s Vineyard (1963) and in New York City (1966). The connection between variation as a synchronic phenomenon and language change is perhaps obvious. Innovative forms do not simply replace older forms overnight; rather, the two

forms coexist as competing variants for a period of time until eventually the older form disappears from use. A systematic exploration of the orderly heterogeneity in synchrony (where the forms compete) provides a platform from which one can make diachronic inferences. It is in this sense that Labov (e.g., 1972, 275) claims we can, *pace* the neogrammarians and structuralists, study language change in progress.

It should be noted that certain precautions must be taken before asserting that one has observed change in progress. For example, a critical datum for establishing a change is the evidence of significant generational differences in the use of the putative innovation, with older speakers using fewer of the new forms and younger speakers using more. This type of argument relies on “apparent-time” reasoning, in which the speech of different generations is taken as representative of different stages in the history of the language. Underlying such reasoning is the assumption that one’s speech patterns do not change significantly over the course of one’s life. There are, however, instances where such an assumption does not hold, where age-graded differences represent a stable pattern in which certain forms are associated with speakers of a certain age and are used only when one is in that period of life. In such cases, the distribution of forms across the generations may be indistinguishable from that produced while a genuine change is in progress.

To guard against misdiagnosis, Labov (1972, 275) recommends “obtaining at least one measurement at some contrasting point in real time.” So, for example, in his 1963 Martha’s Vineyard study, Labov was able to verify his apparent-time conclusions by consulting the records of the Linguistic Atlas of New England, which had been gathered 30 years earlier. Similarly, Milroy and Milroy (1985) supported their arguments for change in Belfast through comparison with the situation described over a century earlier by an elocutionist, David Patterson. The present project will also make use of such anchors in real time by incorporating evidence from linguistic atlas projects and various other studies from the nineteenth and early twentieth centuries.

1.2. THE DIFFUSION OF LINGUISTIC INNOVATIONS

Another issue central to this study is the question of how and why linguistic innovations are spread. Typically, changes spread in two dimensions, one linguistic and one social; that is, they make their way through both the language system, spreading from grammatical context to grammatical context, as well as through the social system, moving from speaker to speaker. Furthermore, along the latter dimension, the diffusion of changes takes place both within and across speech communities; that is, changes can spread vertically through a community from one social group to another, and they can spread horizontally from one location to another.

Understanding the processes involved in this social diffusion has been a central desideratum in variationist approaches to language change; yet, most of the research in this tradition has focused on the “vertical” dimension, and very few variationist studies examining the geographic diffusion of changes have appeared. Coincidentally, one of those few that was concerned with the geographic aspects of diffusion was a project dealing with the NCS: Callary’s (1975) study of /æ/-raising in northern Illinois. This study is described more completely below. It is mentioned here because Callary reported an interesting geographic pattern, whereby the extent to which a community was affected by the change was correlated with the population size of that community, so that the larger the community, the more advanced its residents were in their adoption of the change.

An attempt to offer a more generalizable account of patterns like those observed by Callary was made by Trudgill (1983). Borrowing from the methodology of geography, Trudgill sets out to test a “gravity model” for the diffusion of innovations. This model derives from the fundamental idea that “the diffusion of an innovation is the result of the interplay of exposure to information about the innovation and factors leading to resistance to its adoption” (61). Trudgill describes a mathematical measure of the level of interaction between two population centers that is based on the populations of the two centers and the distance between them (75). Trudgill tested this gravity model on linguistic data from

Norway and East Anglia and found a reasonably good fit for the observed diffusion patterns. It seems, however, that a more sophisticated model is needed to adequately represent the complexities of sociolinguistic data. As Trudgill notes (1983, 83), attitudinal factors, such as prestige, should be taken into account,³ as should internal linguistic factors, such as the structure of the linguistic system, since certain innovations may be more readily incorporated by some systems than by others. Of course, the quantification of such factors presents a much greater challenge than do measures of population and distance.

The diffusion patterns observed by Callary and Trudgill exemplify a common type of “hierarchical” diffusion in which innovations begin in large population centers and spread to other large population centers before trickling down to smaller centers. A rather different pattern is seen, however, with “contagious” diffusion, in which innovations are spread more uniformly across a region simply by contact among neighboring areas. Bailey et al. (1993) found that both patterns may obtain in the diffusion of linguistic innovations. Accounting for the spread of any particular change requires an understanding of the social meaning of that change, as different patterns are associated with elements serving different functions. As Bailey and his colleagues observed: “Features that reflect the imposition of external norms seem to diffuse hierarchically, whereas features that reaffirm traditional norms seem to spread contrahierarchically” (385). In actual fact the situation is often much more complicated and a single innovation may show characteristics of both types of diffusion. Such cases underscore the fact that the connection between linguistic form and social meaning is tenuous and frequently subject to reinterpretation (e.g., Labov 1966 on the changing prestige of (r) in New York).

The importance of social meaning in the diffusion of linguistic change is also stressed by Milroy and Milroy (1985), who found in their Belfast study that two changes similar in origin may function as social antonyms, depending on the groups with which they become associated. In order to understand why one group of speakers adopts some feature, we may consider why a different

group does not adopt that feature. To begin to answer these questions, Milroy and Milroy appeal to the concept of social network. A community's social networks reflect its cohesion and the integration of its members. The degree to which speakers are integrated into a community affects their receptiveness to innovations, such that "a strong close-knit network may be seen to function as a conservative force, resisting pressures to change from outside the network," and conversely, "Those speakers whose ties are weakest . . . are most exposed to pressures for change originating from outside the network" (Milroy and Milroy 1985, 362). One of the benefits of this network-based approach is its generality. It provides a link between regional and social variation and suggests that the mechanism involved in diffusion of innovation through both geographic and social space is essentially the same.

1.3. CHAIN SHIFTING

As a final step in this general discussion of key issues, we examine the notion of chain shifting. The term "chain shift" describes a series of two or more related sound changes, the end result of which is a rearrangement of the phonetic realizations of the phonemes involved without the loss or gain of any phonemic contrast. Thus, chain shifts are distinguished from splits and mergers which add or subtract from a language's phonemic inventory. They are further distinguished from these other types of change in that they involve at least two (and often more) individual changes. Central to the definition of chain shifting (and to the controversy surrounding this notion) is the presumed interdependence of the participating elements. As seems clear in representations of putative chain shifts, such as that of the NCS shown in figure 1.1, the individual components appear to act in concert; the movement of one item sparks the movement of a second and so on.

Martinet (1952, 1955) distinguished two types of chain shifts on the basis of the relative chronology of the changes involved. In some cases, the movement of one sound creates an opening in phonological space into which another sound is drawn.⁴ This type

of shift is known as a “drag” or “pull” chain. In other cases, a sound begins to infringe on the area occupied by another sound, thus causing the latter to move in order to maintain its distance. Such cases are termed “push” chains. While nearly all linguists accept the existence of drag chains (though they may dispute the motivations behind them), there is a fair amount of controversy over the reality of push chains (see, e.g., Anttila 1972, 112; Vincent 1978, 411–12; Labov 1994, 199–200). Much of the disagreement on this issue is rooted in the inherent teleology of the push-chain scenario, a point discussed below.

The most comprehensive recent discussion of chain shifts is found in Labov’s mammoth *Principles of Linguistic Change* (1994), in which no fewer than five chapters, spanning some 176 pages, are devoted to the topic. As the title of the book indicates, Labov’s focus is on describing the wealth of phenomena associated with language change in terms of a small set of universal principles. With regard to chain shifting, Labov posits three such principles:⁵

1. In chain shifts, tense nuclei rise along a peripheral track. [176]
2. In chain shifts, lax nuclei fall along a nonperipheral track. [176]
3. In chain shifts, back vowels move to the front. [116]

The term “peripheral” is used to refer to the relative position of a vowel in phonological space.⁶ Specifically, a peripheral vowel is one whose nucleus is located closer to the outer edge of vowel space “in its mean and distribution than another vowel of the same height” (172). “Tense” and “lax” are also defined phonetically, as they are used as cover terms for “an abstract assembly of several phonetic features,” including duration, peripherality, amplitude, and so on (174–75).

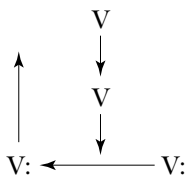
While the three general principles account for a great deal of the data on chain shifting, Labov believes they fail to capture the essential connectedness of all the elements in a shift. For this reason, he jettisons his three principles in favor of a single statement: “In chain shifts, peripheral vowels become less open and nonperipheral vowels become more open” (Labov 1994, 262). The introduction of the feature [\pm open] represents a change from a largely acoustic model to a wholly articulatory one, as a vowel’s

openness refers to the position of the highest point of the tongue body during its production. Such a change is motivated, according to Labov, by the elliptical shape of vowel space when viewed from an articulatory standpoint. This allows for a unity of the front/back and high/low dimensions on a single scale and, therefore, connects Principles 1 and 2 to Principle 3 (258–64).

A comprehensive assessment of Labov's principles is beyond the scope of the present discussion; however, the application of his statements to the specific problem of the Northern Cities Shift merits comment. In addition to the general principles, Labov (1994, 121–37, 166–218) presents a typology consisting of four basic patterns of chain shifting. The NCS is offered as the prime example of Labov's Pattern 2, which is reproduced here as figure 1.2. Labov's Pattern 2 illustrates each of his original three principles of chain shifting. A low back vowel is fronted (Principle 3), a low front tense vowel is raised (Principle 1), and front lax vowels fall (Principle 2).

A comparison of figure 1.2 with the diagram of the NCS presented above as figure 1.1 reveals a good deal of similarity. Low back /ɑ/ is fronted, while /æ/ is raised and high front /ɪ/ is lowered. There are, however, elements of the NCS that are not represented in Pattern 2, and it is not clear whether Labov's principles can account for them. For example, the movement of /ɔ/ involves both lowering and fronting (in addition to unrounding). Since /ɔ/ is a back vowel, its fronting is predicted by Principle 3; however, because it is structurally defined as a member of the tense class of

FIGURE 1.2
Labov's Pattern 2 Chain Shift
(after Labov 1994, 125)



vowels (Labov 1994, 163), its lowering runs counter to the predictions of Principle 1. Labov's solution to this contradiction is to attribute the behavior of /ɔ/ to a "basic chain-shifting principle" based on Martinet (1955):

When the phonetic space between two members of a subsystem is increased by the shifting of one member (the leaving element), the other member will shift its phonetic position to fill that space (the entering element). [Labov 1994, 184]

This principle raises questions about the falsifiability of Labov's claims by providing a wild card to be played whenever other principles do not apply. Even if we ignore the ad hoc nature of the statement, it is not clear that it should apply in the present situation. The principle purports to govern the relationship between "two members of a subsystem"; however, the vowels in question are not clearly from the same subsystem. By Labov's own classification (1994, 163), the leaving element /a/ is a member of the class of short vowels, while /ɔ/ is a long or tense ingliding vowel.⁷ Furthermore, the application of the "basic chain-shifting principle" in this case relies on a chronology in which /a/ was shifted before /ɔ/, though, as will be discussed below (§§1.4.4.2 and 6.1.3) the relative ordering of these elements is not at all clear.

Much more problematic for Labov's account is the backing behavior of /ɛ/ and /ʌ/. None of the original three principles provides for any backing; and, since the center section of vowel space is omitted from Labov's scale of openness (1994, 258), it is unclear whether his slimmed-down single-principle version holds. We are left with an empirical question of whether [ʌ] can be shown to be more open than [ɛ], and [ɔ] more open than [ʌ].⁸ If so, then perhaps Labov's principle can be upheld in these cases; however, we might still ask why, in their inevitable pursuit of openness, these nonperipheral vowels did not simply fall in a straight line. This question is given added significance by the fact that in some cases it seems that /ɛ/ is in fact lowering directly to a more [æ]-like vowel (see §3.1.1). Labov suggests that this lowering was the main tendency in the early stages of the NCS, but that the distribution of /ɛ/ began to overlap with that of the freshly fronted /a/. The result was

a “reorientation” of /ɛ/ as it began to shift toward [ʌ] (Labov 1994, 196). This description has a teleological ring to it and raises questions about the underlying motivation for chain shifting.

Chain shifts have frequently been put forward as evidence of functionally motivated sound change. The most passionate proponent of this idea was Martinet, who viewed the fact that such shifts result in the preservation of phonemic contrasts as evidence that they are either consciously or unconsciously designed to promote the communicative function of language (1952, 126). The functionalist approach does have a certain intuitive appeal, though it does not always fare so well with the evidence, and Martinet’s views have met with criticism from various fronts (e.g., King 1967; Lass 1978).

While a full review of the antifunctionalist responses is beyond the scope of this report, one alternative account proposed by Labov (1994, 569–99) certainly deserves mention. At the heart of Labov’s argument is the concept of probability matching, a phenomenon which leads animals, including humans, to adjust the variation in their behavior to match some observed frequencies in their environment (see Labov 1994, 580–83, for examples). Probability matching offers a mechanism whereby patterns of stable variation get reproduced with each new generation of language learners. Because language-change situations typically involve gradual shifts in the frequency of variants, we might also suppose that probability matching plays a role here. Conveniently, Labov (1994, 586–88) illustrates the operation of this process with an example from the NCS, and this example is paraphrased here.

Suppose that a token of /a/ is fronted so that it appears within the usual range of /æ/. In such a case, there is a chance that this item will be misinterpreted as an /æ/ token (e.g., *black* heard for *block*) or possibly not recognized at all (e.g., *drap* heard for *drop*). In either of these two cases, that token, because it was not identified as a token of /a/, cannot influence the listener’s conception of the acoustic profile of /a/, a profile which is drawn on the basis of probability matching to the observed variation and which might include, for example, a sense of the mean frequency values for the first and second formants. Such cases of misunderstanding are

predicted to have a conservative impact on the system, retarding any fronting of /a/.

If, however, the same fronted token of /a/ appears after the distribution of /æ/ has moved forward and up, it is more likely to be correctly interpreted as an instance of /a/. The listener may still fail to recognize the intended word, but he/she is less apt to misidentify it as an /æ/ token. When the fronted token is correctly interpreted, it stretches the listener's conception of the acoustic range of /a/ to include variants that are more fronted. As a result of this adjustment, listeners refigure their sense of what an average /a/ sounds like, with the new average representing a more fronted pronunciation. Here, then, the mechanism works to promote innovation.

It is important to note that probability matching is a purely mechanical process that "proceeds without conscious attention" (Labov 1994, 597). Labov's appeal to such a mechanism is in keeping with his general defense of the neogrammarian conception of sound change as a process that operates blindly and advances by phonetically gradual steps.

While Labov has provided a rather concrete alternative to the functionalist view of language change, there are still many open questions. Perhaps most problematic for this account is the fact that it describes a mechanism that can only operate in cases of drag chains. The example outlined above clearly shows that probability matching will only promote the movement of vowels into empty spaces. When the phonological space surrounding a vowel is occupied, the mechanism serves to preserve the distance between that vowel and its neighbors. Labov (1994, 588) suggests that this explains the behavior of /e/ in the NCS as, "an earlier pattern of descent of /e/ [= /ɛ/] to [æ] led to an overlap with advancing /o/ [= /ɑ/], and a gradual shift of the movement of /e/ toward the back." The probability matching mechanism may explain why the descent of /e/ was rebuffed, but the vowel should have met with the same fate when it shifted to the back. Labov's own chronology (1994, 195) places /ɛ/-backing before /ɑ/-backing, and he identifies these two steps as forming a push chain. How could /ɛ/ have infringed upon [ɔ] space before /ɑ/ had abandoned it? If we accept the reality of push chains, as Labov does, then we must continue to search for

a means of explaining them. Whether this means can be found in mechanical processes like probability matching or in more functionalist notions remains to be seen.

1.4. PREVIOUS RESEARCH ON THE NORTHERN CITIES SHIFT

Despite its large-scale impact both geographically and phonologically, the NCS has attracted very little attention in the way of primary research. The shift seems to have been generally accepted as a prime example of change in progress; yet, it has not been subjected to the kind of comprehensive study typified by Labov (1966) or Trudgill (1974). Our knowledge of the NCS is based on rather restricted sets of data produced by a handful of researchers.

Although the first linguist to recognize the NCS pattern was Ralph Fasold, who gave evidence of changes involving /æ/, /ɑ/, and /ɔ/ in an unpublished paper in 1969 (Labov 1994, 178), Labov has clearly been the most active figure in researching the shift and relating it to broader issues of language change. Much of Labov's theoretical approach to chain shifting is presented in his 1994 book, but his primary empirical work on the NCS appears in the study by Labov, Yaeger, and Steiner (1972). That study presented quantitative results and detailed phonetic analyses of the NCS changes and certainly made a major contribution to the study of the shift, though it should be borne in mind that their objective was rather more sweeping: "to discover the general principles which constrain, govern and promote sound change by the direct observation of change in progress" (1). The NCS, then, serves as one of several examples discussed in pursuit of this higher goal, rather than as a central focus of investigation. An important part of this goal is methodological, an affirmation of the claim that sound change can indeed be observed directly. This led, it seems, to a concentration on how sound change is implemented at the level of individual speakers. We see this focus reflected in the presentation of data, for which maps (plots of the frequencies of the first and second formants) of individual vowel systems are the preferred

method, and in the sample of speakers. The Northern Cities data are based on a total of 25 speakers from three locations: 12 from Detroit (using materials from Shuy, Wolfram, and Riley 1968), 9 from the Buffalo area (including Rochester and the small town of Chili), and 4 from Chicago. While the Detroit and Buffalo groups contained older, middle-aged, and adolescent speakers, the oldest Chicago speaker was 22 and the others were 18, 16, and 11. Obviously, Labov and his colleagues make no claims of representativeness. This sample and the analysis derived from it seem designed to illustrate rather than establish the NCS as a change in progress. There is a fair amount of discussion dealing with internal linguistic factors affecting the shift, but very little information is given about its social distribution.

Some of the research gap regarding the social profile of the NCS has been filled by later researchers. Most prominent among these is Penelope Eckert (1987, 1988, 1989a, 1991, 2000), whose work is based on two years of participant observation carried out in a suburban Detroit high school. Rather than focusing on individual speakers and their vowel systems, Eckert used standard quantitative reasoning to correlate participation in the shift with categories of group identity (i.e., speaker variables). In her work Eckert has explored gender-based differences as well as variation associated with the primary social division in the school that separates “Jocks” from “Burnouts.”⁹ Eckert’s research has greatly advanced our understanding and appreciation of the NCS, but it has been, nevertheless, rather limited in scope, examining only adolescents in a single geographic area.

In addition to the work of Labov and Eckert, there has been other research on the NCS, though the foci of these studies have been even more narrow. For example, Herndobler (1977, 1993) investigated a working-class community in Chicago and surveyed the speech of 82 informants covering a wide range of ages. However, the breadth of this sample of speakers was not matched by the coverage of linguistic matters. Herndobler provides data on only two changes involved in the shift (the raising of /æ/ and the fronting of /a/), and she leaves unaddressed all questions about the linguistic conditioning of these changes. A more thorough discus-

sion of phonological conditioning is offered by Callary (1975), who explored the geographic diffusion of the NCS by surveying the speech of 18 young women (first-year college students), each from a different county in northern Illinois. Callary's linguistic data are, nevertheless, severely limited because he examined only a single element in the NCS, the raising of /æ/. This limitation also applies to the study by Knack (1991), who examined the lowering and fronting of /ɔ/. Knack was interested in the linguistic consequences of ethnic identity and compared Jewish and non-Jewish speakers in Grand Rapids, Michigan, though she restricted her sample to middle-aged adults.

As might be expected, based on the limited scope of much of the previous research described here, there are many aspects of the NCS that are not well understood or even well documented. Nevertheless, some important findings have been reported, and these are summarized in the following discussion as a means of providing a sense of the current state of knowledge about the NCS.¹⁰ This discussion is organized around four of the main types of issues relevant to the study of the shift (indeed, of any sound change): phonetic and phonological matters (§1.4.1), the question of the geographic range of the NCS pattern (§1.4.2), issues related to the social distribution of the shift (§1.4.3), and historical evidence of the changes (§1.4.4).

1.4.1. PHONETIC AND PHONOLOGICAL ISSUES. Chief among the issues of concern in the study of the NCS are the very fundamental questions of how the vowels are changing (i.e., what phonetic realizations are associated with the variation) and how these changes are conditioned (i.e., what linguistic factors promote the shifting). These issues have been addressed by previous investigators, though they appear to be far from settled.

Preliminary steps toward a phonetic description of the NCS changes were taken above with the depiction of the shift in figure 1.1. According to that diagram, which is based on Labov's (1994, 1991) representation, the NCS involves six vowels, whose movements can be described as follows:

- (æ) This low front vowel is fronted and raised resulting in variants near [ɛ] or even [ɪ], sometimes accompanied by an inglide, i.e., [ɛə] or [ɪə].¹¹
- (ɪ) This high front vowel is lowered to something near [ɛ].
- (ɛ) This mid front vowel is backed to something near [ʌ].
- (ʌ) This mid central vowel is backed and often rounded, resulting in variants near [ɔ].
- (ɔ) This mid back rounded vowel is lowered, fronted, and unrounded to approach [ɑ].
- (ɑ) This low back unrounded vowel is fronted to [a] and sometimes as far as [æ].

These descriptions, like the diagram presented as figure 1.1, portray the NCS changes as interlocking elements participating in a kind of vocalic circle dance. Each vowel is described as shifting away from one vowel and toward another. It must be noted, however, that descriptions such as these do not provide a complete account of the variation demonstrated by the NCS vowels, and, in fact, it seems the phonetic reality is much more complicated than is suggested by the abstract pattern described above. This point is illustrated by the findings of the present study reported below (chaps. 3 and 4), but some evidence on this issue has been described by other researchers.

The most-discussed case illustrating a more complicated phonetic picture involves the mid front (ɛ), which, in addition to the backing portrayed above, has also been described as exhibiting a lowering tendency. In fact, Labov, Yaeger, and Steiner (1972) originally described the movement of (ɛ) as one of lowering to something near [æ]. Later, this description was modified, in part due to Eckert's research, which showed a trend toward backing of (ɛ). Labov (1994, 1996) interpreted these directional differences as representing a diachronic development in the shift where the initial lowering of (ɛ) has been replaced by a backing rule. Eckert (1991), on the other hand, suggested that the difference of lowering versus backing of (ɛ) is characteristic of a synchronic Chicago versus Detroit distinction, though she did not present evidence to support this claim.¹² It appears more likely that both lowered and backed variants are available to speakers in both cities, though the

sociolinguistic patternings of these variants may differ by location. Eckert (1991), in fact, demonstrates that this is indeed the case in the Detroit area, and such findings are also reported here (see §3.1.3.2).

A very similar case of apparently multidirectional shifting is seen with high front (ɪ). According to the standard account (as shown in fig. 1.1), (ɪ) undergoes lowering to “mid or even lower mid position” (Labov 1994, 188). While many speakers do exhibit this lowering tendency, others tend more toward centralization of (ɪ) (see, e.g., Labov, Yaeger, and Steiner 1972, figs. 13 and 14; Labov 1994, 191–92). This centralizing tendency was not addressed in these works; however, in recent conference presentations (e.g., 1997), Labov has modified his representation of the NCS to incorporate a more centralizing trajectory for (ɪ), though this centralization is still accompanied by lowering and seems to result in variants approaching [ʌ].

Similarly versatile directional tendencies are found with the movements of almost all of the other NCS variables. Thus, (ɑ), which is usually fronted to something approaching [æ], is also occasionally raised to [ʌ]. With (ɔ), too, there are occasional fronted tokens near [ʌ], instead of the more usual [ɑ] and [a] variants, and for (ʌ), the backing tendency, which usually gives forms near [ɔ], may be supplemented by either raising or lowering, leading to [ʊ] or [ɑ] tokens (Eckert 1989a, 260–61).

While these variations from the pattern that is usually felt to characterize the NCS may represent minor tendencies in terms of their frequency of appearance, they are, nevertheless, of great significance to the interpretation of the NCS as a chain shift. It seems much more difficult to argue for a coordinated series of changes with the divergent trajectories described in the previous two paragraphs (as well as in the present results) than with those depicted in figure 1.1. As is discussed below (chap. 6), the conception of the NCS as a chain shift has, it seems, been accepted rather uncritically. This may have led investigators to disregard potentially interesting variation that does not accord with the chain-shift model, including not only variation shown by the vowels thought

to be involved in the NCS, but also variation shown by those elements not (yet) recognized as part of the shift.¹³

Another issue fundamental to the study of sound change is how the variation is conditioned phonologically. Although the NCS appears to be an unconditioned change in the traditional sense that all allophones of the relevant phonemes are potentially subject to shifting, phonological contexts do play a conditioning role by influencing the rate at which various allophones are shifted. For example, it was reported by Labov, Yaeger, and Steiner (1972, 81) that the raising of (æ) was strongly favored when the vowel appeared before nasals (e.g., *hand*, *man*, *ham*). On the other hand, such raising was found to be disfavored when the vowel followed a liquid consonant (e.g., *lap*, *black*, *grand*). Other key findings from earlier studies regarding how particular environments affect the shift are discussed in fuller detail below (chap. 5).

It should be noted that, as with many aspects of the shift, coverage of the issue of phonological conditioning has been spotty. Previous researchers have restricted their investigation to only a few of the NCS variables. Even the most thorough account of phonological conditioning, that offered by Labov, Yaeger, and Steiner (1972), provides such information on the movements of only (æ), (ɑ), and (ɔ), and of these three, the raising of (æ) commands by far the greatest attention. In addition, investigators have typically conceived of conditioning environments in very narrow terms and have focused primarily on the effects of following consonants. While there is evidence to suggest that following consonants do play a role, other potential factors should also be explored, including most especially preceding contexts, which in the present study are found to play an important conditioning role for all elements in the NCS (see results in chaps. 3 and 4).

As this discussion makes clear, there are still many questions related to phonetic and phonological aspects of the NCS that remain open. Even issues as seemingly fundamental as the directionality of the shifting vowels have not been completely settled. Other issues only slightly less fundamental, such as the linguistic factors involved in conditioning the changes, have received very little coverage, and attempts to gain a clear understanding of them

are hampered by a basic lack of documentation. The methods used in the present study were designed, in part, as a reaction to this situation, and they include the application of a consistent analytic framework to the investigation of each of the six NCS variables.

1.4.2. GEOGRAPHY OF THE NCS. The Northern Cities Shift, as the name implies, is generally conceived of as an urban phenomenon, and, with the exception of Callary (1975), all major studies have investigated speakers in and around large cities. Furthermore, the cities participating in the shift are not randomly distributed, but rather appear to fit a well-established dialectological pattern. They are all located within the Northern dialect region, which is one of three large speech areas first delimited by Kurath (1949), and which includes upstate New York, Michigan, Wisconsin, and the extreme northern areas of Pennsylvania, Ohio, Indiana, and Illinois.

The geographic range of the NCS has not been determined with any precision. Labov (1994, 185) notes that the shift “has been observed in all the major cities in the Northern dialect area, from the White Mountains in Vermont westward: Rochester, Syracuse, Buffalo, Cleveland, Detroit, and Chicago.” Evidence from Laferriere’s (1977) study of Boston, which is discussed below (§1.4.4.1), suggests that the shift, or at least the raising of /æ/ associated with the shift, may be operating even further to the east than Labov observed. On the western frontier, Callary’s (1975) study found (æ)-raising all the way to the Mississippi River, and recent work from the ongoing Phonological Atlas of North America project at the University of Pennsylvania suggests that aspects of the NCS can be heard as far west as the Dakotas (Labov 1996).

While the NCS seems to be primarily an urban phenomenon, this does not mean it is restricted to major cities. It may be “more concentrated in the larger metropolitan areas,” as Wolfram and Schilling-Estes (1998, 138) suggest, but the influence of the shift is certainly felt in communities of various sizes throughout the region. Interestingly, population size does appear to be a factor in determining the progress of the shift, as it seems to be spreading through a hierarchical diffusion. As noted earlier (§1.2), Callary

(1975, 156) found that “the height of /æ/ is directly correlated with the size of the community in which the informant was raised”; that is, the larger the community, the higher the vowel.¹⁴ Of course, Callary’s findings are based on an investigation of only a single element in the NCS and rely on a rather limited sample of speakers; still, if they are found to be generalizable, they may offer insight into the mechanisms at work in the propagation of this and other linguistic changes.

1.4.3. SOCIAL DISTRIBUTION OF THE NCS. Also important to consider in assessing the current state of knowledge about the NCS are questions of how it is distributed in the social structures of the communities in which it is found. Social factors can and do play a role in the diffusion of language change, even though in traditional historical linguistics they have not received the same consideration as linguistic factors. Innovations may spread through a community from one speaker to another or from one social group to another, just as they may spread through a language from one context to another or one item to another. Sociolinguists often study the influence of social factors by appealing to “speaker variables,” including age, gender, social class, and ethnicity. To varying degrees, each of these four factors has been examined in previous studies of the NCS.

In the investigation of a putative change in progress, such as the NCS, we might expect that ample attention would be paid to the matter of speakers’ ages. As noted earlier (§1.1), synchronic studies frequently rely on age data as apparent-time evidence to establish the presence of change. It is surprising, therefore, that so few data dealing with the age distribution of the NCS are available. In fact, only two major studies have sampled speakers from a broad range of ages. The most comprehensive of these two was the study by Herndobler (1977), whose 82 speakers covered an age range from 7 to 95. Herndobler grouped these speakers by generation and provided comparative data across three groups. Herndobler’s results are rather surprising, however, because, while the oldest group of speakers showed, as expected, the lowest rates of use of the innovative forms, the highest rates were found not among the

youngest group but among the middle generation (Herndobler 1977, 146, 155). This pattern held consistently for both variables Herndobler studied, the raising of (æ) and the fronting of (ɑ), and across both speech styles she examined, free conversation and reading style. These findings seem to raise serious questions about the interpretation of the NCS as a change in progress, though Herndobler does not address this issue. This kind of bell-shaped pattern shown in her data is often indicative of a stable age-graded variable (Trudgill 1988). It has been suggested that such a distribution may be related to the fact that the middle generation of speakers typically differs from both the younger and older generations in that they are active in the workforce and, therefore, more subject to the pressures of the “linguistic marketplace” (see discussion by Chambers 1995 and §5.2.3 below).

The only other source to incorporate data from a broad age distribution is the report by Labov, Yaeger, and Steiner (1972). Their sample ranged from 8 to 89 years, but with only 25 subjects total, each age group discussed contained relatively few speakers.¹⁵ Given this small sample, it is not surprising that there are several apparent discrepancies regarding the age distribution in this study. For example, an 81-year-old rural speaker from Chili, New York, was found to be more advanced in his (æ)-raising than “many younger speakers from the city” (79).¹⁶ There are also cases where older and younger speakers differ with regard to the phonological conditioning of a change (see the discussion of (ɔ); 118–19) and even cases where older speakers show changes that are not present among younger speakers (see the discussion of (ɪ) and (ɛ); 121). Anomalies such as these as well as the problems raised by Herndobler’s data indicate that the issue of the age distribution of the NCS is far from settled.

A second important speaker variable in any study of language variation is gender. Linguistic differences between men and women have been documented in languages and speech communities around the world. In language-change situations, numerous studies have reported females leading males in the use of innovative forms (see Labov 1990).¹⁷ For the most part this is the pattern that has been observed with the NCS. Thus, for example, Eckert (1989a)

found significant differences between boys and girls in the use of three out of the five NCS variables that she studied, (æ), (ɑ), and (ɔ), and in all three cases the girls were shown to lead the changes. Herndobler (1977, 1993) also investigated gender differences among her speakers. Her data on the raising of (æ) are consistent with Eckert's and showed women ahead of men by a substantial margin in all three generations.¹⁸ With regard to the fronting of (ɑ), however, Herndobler's data seem to contradict the pattern reported by Eckert, as Herndobler found men in the lead (155). This discrepancy may reflect generational differences, since Eckert's speakers were much younger than most of Herndobler's, or it may indicate a geographic difference between Chicago and Detroit. Whatever the explanation, these contradictory findings suggest that gender is a relevant factor in shaping the NCS variation and certainly merits further attention.

Another speaker variable commonly examined in sociolinguistic studies is social class. Socioeconomic status as determined by factors like income, profession, and education is frequently found to correlate with linguistic behavior, and language-change situations are no exception. Among studies of the NCS, the influence of social class has been addressed only by Herndobler and Eckert, and on this issue, too, there have been contradictory findings. Herndobler (1977, 145, 155) compares two groups which she labels "lower middle class" and "middle class," and finds the latter leading in both the raising of (æ) and the fronting of (ɑ).¹⁹ Eckert (1988, 199), on the other hand, claims that elements of the shift "are currently spreading outward to the suburbs from the urban center" and seems to support the interpretation of the NCS as a "change from below" (in the sense of Labov 1994, 78). Eckert approaches the class variable indirectly through the study of the two opposing social groups, the Jocks and the Burnouts, who are oriented to the middle and working classes, respectively (see §5.2.2). Eckert's (1989a, 262) data show significant differences between these groups for the variables (ɔ), (ʌ) and (ɛ), with the Burnouts leading in each case. Again, then, Herndobler's and Eckert's findings reveal an apparent discrepancy on an issue of the social distribution of the NCS variables.

One final speaker variable to be discussed is ethnicity. Like age, gender, and class, ethnicity is a criterion by which people can be grouped, and the groups thus delimited may employ linguistic means to mark their status. In American sociolinguistics, perhaps the most commonly investigated ethnic distinction is that separating European and African Americans. Labov (1987) made the controversial suggestion that the varieties of English used by blacks and whites are diverging, a proposal that, according to Wolfram and Schilling-Estes (1998, 180), is supported by the NCS data: “There is also little evidence that the Northern Cities Vowel shift . . . is spreading to AAVE speakers in significant numbers in the metropolitan areas affected by the shift.” However, it should be noted that there is little evidence that the NCS is NOT spreading to AAVE speakers. As with many aspects of the shift, this issue has not been thoroughly investigated. One study that considered African American speakers, Deser (1991), did indicate some participation in the NCS, at least in the raising of (æ), though the interpretation of these results is not entirely clear. In a recent study designed to investigate this issue, I found no indications of African American participation in the NCS except for some minimal raising of (æ) (Gordon 2000). The phonological patterning of the raising (i.e., the fact that it was largely restricted to prenasal vowels) suggested, however, that this variation was not related to the NCS. Still, these findings were based on a small sample of speakers in a single geographic area. This is an important issue that merits further study.

As for other aspects of ethnicity, both Knack (1991) and Herndobler (1977) discussed the influence of Jewishness on speakers’ participation in the NCS. In the lowering and fronting of (ɔ), Knack found non-Jews, both men and women, to be leading over Jews, especially Jewish women. Herndobler did not directly compare Jewish and non-Jewish speakers. However, she suggested that the raised forms of (æ) may have their origin in the neighboring community of South Shore, which until the 1960s had a relatively high proportion of Jewish residents (1977, 148–49). It is interesting to note that Herndobler’s findings once again raise the possibility of a contradiction, for they identify an element of the NCS as

a feature of Jewish speech, while Knack's study found NCS activity to be typically avoided by Jewish speakers. Discrepancies such as these and the others identified in this section may have bearing on questions related to the broader interpretation of the NCS, particularly about whether the individual changes are indeed properly viewed as part of a single phenomenon. Such questions are addressed below in the discussion of the chain shift issue (chap. 6).

1.4.4. HISTORICAL EVIDENCE OF THE NCS. As a final step in reviewing what is known about the NCS, we turn to a consideration of issues related to the history of the changes. The discussion will center on two main questions: (1) When did the NCS changes get their start? and (2) In what order did the individual changes appear?

1.4.4.1. *The Time Depth of the NCS.* Fixing the origin of a sound change in time is a notoriously difficult task in historical linguistics. Orthoepic texts can offer evidence that a variant pronunciation was prevalent at a certain date, but they cannot tell us how long that pronunciation was around before it caught the critical ear of the orthoepists. Similarly, we may also look to spelling variants for evidence of innovation, but the conservative nature of orthography often conceals changes in pronunciation. With more recent changes, like the NCS, the situation is somewhat improved by greater availability of data; however, we are still very far from being able to identify the starting point of such changes with any great precision.

By almost all accounts, the pattern of change known as the NCS is a recent phenomenon. As noted above, the changes involving the lower three vowels (/æ/, /a/, and /ɔ/) were first identified in Detroit by Fasold (1969), and the broader geographic influence of these changes was not widely known until the report of Labov, Yaeger, and Steiner (1972). Presumably, the shift was fairly well established by the time it gained their attention, but it is important to note that the shift had gone unnoticed in several earlier studies. Even as late as 1965, Pederson does not report any systematic evidence of the shift in Chicago, despite the fact that his sample included 136 speakers, covering an unusually broad range of the

city in terms of age, ethnicity, neighborhood, and social class.²⁰ As Labov (1994, 185) notes, however, the absence of the NCS pattern in Pederson's study is most likely "a product of the methodology as well as the impressionistic notation, both of the most conservative type." Pederson's methods were essentially those of traditional dialectology, in which data are solicited using predesigned worksheets rather than being taken from free conversation, where innovative pronunciations might be assumed to take hold earlier.²¹

We can get some idea of the time depth of the NCS by considering the older speakers in studies like those by Labov, Yaeger, and Steiner (1972) and Herndobler (1977). The oldest Northern Cities speaker in the Labov, Yaeger, and Steiner study was a Detroit woman who was born in 1876.²² This woman shows clear evidence of /æ/-raising and some degree of both /a/-fronting and /ɔ/-lowering (see Labov, Yaeger, and Steiner 1972, fig. 3-11). Raising of /æ/ and fronting of /a/ were also found among the two oldest speakers from western New York, a Chili man born in 1889 and a Buffalo woman born in 1894 (see Labov, Yaeger, and Steiner 1972, figs. 16 and 3-15). The lowering of /ɪ/ and /ɛ/ were identified by Labov, Yaeger, and Steiner (1972, 121) as a tendency among "some of the older speakers in Detroit and Buffalo" and are shown quite clearly in the speech of a Detroit woman born in 1901 (see their fig. 14) and a Detroit man born in 1910 (see their fig. 11).

While the oldest Chicago speaker in Labov, Yaeger, and Steiner (1972) was born in 1946, Herndobler's study offers a much deeper chronological sample of this city. Herndobler's oldest speaker was born in 1880;²³ however, this woman showed no evidence of either /æ/-raising or /a/-fronting. Out of 24 speakers born in or before 1915, only 3 had raised tokens of /æ/, and they were women born in 1900, 1903, and 1908. These women also showed fronting of /a/, as did 5 older men, 3 born in 1894, 1899, and 1905 and 2 in 1915.

One possible interpretation of this evidence is that the NCS, or at least elements of it, may have been in operation for over a century. This is, in fact, the claim made by Frazer (1993, 15), though based on other evidence.²⁴ While this may certainly be the case, it is important to recognize the assumptions that underlie

such “apparent-time” reasoning, including, as was discussed above (§1.1), the claim that speech patterns are not significantly altered throughout one’s life. Empirical results, such as those of Herndobler’s (1977) study, where middle-aged adults were found to have greater levels of shifting than younger speakers, may raise questions about this assumption. Similar results are reported for the present study, and this issue is addressed below (§5.2.3).

One of the ways of preventing misinterpretation of apparent-time data is to establish an anchor in real time using reports from earlier research. Somewhat surprisingly, none of the major studies of the NCS has reported on such evidence.²⁵ In the present case, such an anchor can be sought in various sources of data from the region currently affected by the NCS. Fasold (1969) was apparently the first linguist to recognize NCS as a coordinated movement, but there were various earlier reports of “shifted” pronunciations in the relevant area, and these may serve as early evidence of the NCS in operation.

As a caveat to the discussion of this real-time evidence, it should be noted that the individual changes constituting the NCS are, for the most part, quite common in the history of the language. Although no other current or former variety of English gives indications of having experienced all of the six NCS changes at the same time, there is an abundance of evidence to suggest that each of the individual vowel shifts has occurred at various times and in various places throughout the history of English.²⁶ For example, the raising of /æ/ now heard in the Northern Cities has precedents dating as far back as the Old English period where *æ* was raised to *e* in the Mercian and Kentish dialects (Wyld 1927, 77). Similarly, the occasional spellings of *a* for *o* (e.g., *caffin* ‘coffin’, *stap* ‘stop’, *faly* ‘folly’) dating from the fifteenth to the seventeenth centuries (Wyld 1936, 240–42) indicate the operation of a fronting process similar to that affecting /a/ today in the NCS.

The prevalence of such historical precedents is an important fact to bear in mind when evaluating the current state of vocalic affairs. One might, for example, argue that, given the frequency with which changes like these appear, their co-occurrence in the NCS is rather more coincidental than reflective of any coordinated

series of movements. Such an argument is, of course, highly relevant to the interpretation of the NCS as a chain shift (see chap. 6). Of more immediate concern is the fact that the commonplace nature of changes like those involved in the NCS complicates any attempt to establish the time depth of the shift, muddying the waters of the historical record and raising questions about which changes are directly connected to the present situation and which are simply look-alikes. For this reason, the following discussion proceeds cautiously—as should readers as they weigh the evidence for themselves.

In seeking real-time evidence concerning the NCS (or any ongoing changes in American English), an obvious place to start is with the data from the linguistic atlas projects. Most relevant in this case are the report by Kurath and McDavid (1961), which covers the eastern United States and the data from the Linguistic Atlas of the North Central States (LANCS), which covers Michigan as well as Wisconsin, Illinois, Indiana, Ohio, Kentucky, and Ontario. What one finds in consulting these works is that, while they do offer evidence of pronunciations like those associated with the NCS, they give no indications that any systematic shift was in operation when the data were recorded.²⁷ As an example we can consider the situation with regard to the raising of /æ/. Kurath and McDavid reported a slight degree of raising in the speech of their Speaker 56, a woman from Buffalo born in 1876 (54). This speaker showed raised variants, transcribed as [æ[^]], in three of the five /æ/-items (raised in *ashes*, *bag*, and *half*, unraised in *glass* and *aunt*).²⁸ Raised /æ/ was also heard in the speech of their Speaker 53, a Rochester woman born in 1884 (53), though only in the word *bag*. In the LANCS data, all 5 Detroit speakers show raising of /æ/ in at least one of the items *January*, *Saturday*, and *afternoon*, as do 6 of the 17 Chicago speakers and 6 of the 10 speakers from northern Ohio (including Toledo and Cleveland).

While we may be tempted to interpret these data as an early indication of the NCS, at least of the (æ) component, it is important to recall the prevalence of such pronunciations in American English, indeed throughout the English-speaking world.²⁹ In Kurath and McDavid's work, NCS-like variants were not unique to the

Northern Cities area or even to the North. For example, raised forms of /æ/ are found in 17 of the 70 vowel synopses, including those of speakers from Georgia, South Carolina, Virginia, Pennsylvania, and Maine. Similarly, the LANCS data reveal that, in Michigan alone, raised variants of /æ/ are recorded for 43 of the 58 speakers outside of Detroit, including speakers from the Upper Peninsula.

The situation is the same for many of the other vocalic variables of the NCS: the atlas data show shifted variants occurring in the areas currently affected by the NCS, but there is no clear indication that such pronunciations were any more characteristic of these areas than of others. Of course, the fact that NCS-like variants may be common in areas lying outside the influence of the NCS does not mean that we should dismiss all such evidence even if it comes from the relevant locations, but it does make the job of establishing connections to the current changes more difficult. It seems very likely that the linguistic atlas data from the Northern Cities do contain some early indications of the NCS; however, any systematic pattern remains obscured.

In addition to the linguistic atlases, there are scattered accounts of NCS-like pronunciations in various other works. While for the most part these accounts deal with a specific city or state within the Northern dialect region, there are some that offer a more general view of the region. Interestingly, one tendency that is described in several of these general reports is the fronting of /a/. Thomas (1958, 117) noted the allophonic use of [a] for /a/ in various short-*o* words “in upstate New York and westward through the Great Lakes basin.” This tendency was also observed by Kurath and McDavid (1961, 104), who found that /a/ was “not infrequently fronted in the North.” Pilch (1955, 76–77) also discussed this fronting, which he described as a “compensatory” strategy, presumably designed to enhance the qualitative difference between /a/ and /ɔ/ in “Western New England and the Mid-West.”

Pilch’s explanation receives some support from studies conducted by Marckwardt (1941, 1942) on the development of Middle English *ǫ* and *wa-* in the Great Lakes area. Whereas in most British and many American dialects the reflexes of these ME items are

rounded vowels, [ɔ] or [ɔ̃], Marckwardt found a greater preference for unrounding in Michigan and the northern sections of Illinois, Indiana, and Ohio. Furthermore, even when rounded vowels do appear in these areas, as for example before voiceless fricatives (*frost*, *off*, *moth*, etc.), they tend to be “lower and more open,” thus [ɔ] rather than [ɔ̃] (Marckwardt 1941, 565). This tendency appears, from the geographic descriptions, to be coexistent with and perhaps connected to the /a/-fronting discussed in the previous paragraph. The relative ordering of these tendencies is not clear, but if Pilch’s (1955) claim of a “compensatory” movement is correct, then this would seem to describe a push chain, where /a/ is fronted to evade the intruding /ɔ/. Such a coordinated movement would, at the very least, represent a significant parallel to the current changes and could possibly be directly related to the NCS.

Turning to descriptions of more specific locations, we find confirmation of the suggestion that /a/-fronting and /ɔ/-lowering coexisted in the same area. DeCamp (1940) noted both tendencies in the dialect of Scranton, Pennsylvania, located in the northeast corner of the state. In /ɔ/ items, such as *off*, *lost*, *all*, *thought*, *fall*, and *caught*, DeCamp (1940, 369) recorded a lowered [ɔ] and even an unrounded [a].³⁰ That this tendency applied not just to ME *ɔ̃* words strengthens the parallel to the behavior of /ɔ/ in the NCS. For /a/, DeCamp (1940, 368) transcribed variants with [a], commenting, “I have never heard such an advanced vowel in these words elsewhere.” Interestingly, DeCamp observed no pattern of /æ/-raising in Scranton. He did, however, note the occurrence of a lowered variant in words like *can*, *adapt*, and *last*. This lowering may be related to tensing, which Labov, Yaeger, and Steiner (1972, 48) suggest is a precursor to raising, but there is insufficient information to be certain.

One of the earliest dialect studies of a Northern city was Emerson’s (1891) work on Ithaca, New York. There is some evidence of raised /æ/ in this study, but it seems to be restricted to a few scattered lexical items and cannot be seen as necessarily indicating a general trend. Many of the items have long been commonly pronounced with [ɛ] in various parts of America and Britain

(e.g., *catch*, *axle*, *gather*, *January*). Emerson does speak of a lengthened /æ:/ in “broad-*a*” words (e.g., *fast*, *ask*, *path*, *half*), and lengthening is often indicative of tensing, which is felt to be a precursor to raising (Labov, Yaeger, and Steiner 1972), but the phonetic value of this sound is uncertain. It seems likely that the recognition of this phoneme class was an aspect of Emerson’s analysis that was simply borrowed from the influential British linguist Henry Sweet and therefore does not represent a significant phonetic difference in this dialect.

Emerson (1891) also observed lowering of /ɪ/ and /ɛ/ to [ɛ] and [æ], respectively, but once again this seems to occur only in a small set of words, many of which are familiar from the dialectological literature. Thus, [ɛ] appeared in *been*, *since*, *Indian*, *engine*, *inside*, *Bingham*, *incline*, *rid*, *fit*, and *width* (128), and [æ] was heard in *yellow*, *yes*, *well*, *relative*, *Elmira*, *errand*, *vendue*, and *Schenectady* (122). There is no indication of any /a/-fronting in Emerson’s study and the only “unusual” variants of /ʌ/ are fronted, not backed (e.g., [ɛ] in *shut*, *just*, *judge*; 147). With regard to /ɔ/, the only hint of an NCS-like pronunciation is found in Emerson’s statement that “ɔ is usual in ‘dog,’ ‘hog,’ ‘frog,’ ‘log,’ ‘fog,’ but â [= α:] sometimes occurs” (142). In general, then, it seems there is little, if any, indication that a systematic shift of these vowels was under way in Ithaca at that time, despite Frazer’s (1993, 15) belief that Emerson’s study supports his claim that the NCS has been operating for over a century.

Half a decade after Emerson’s Ithaca report, Monroe (1896) conducted a study investigating 141 speakers from all over the state of New York. Unlike Emerson, Monroe reported actual counts for variant pronunciations; unfortunately, however, his data were rather limited. Monroe did provide a clearer sense of the variability of short-*o* words, and his findings (450) seem to contradict Emerson’s statement above. While [ɔ] was the usual vowel in *dog* and *log*, the unrounded [ɑ] was overwhelmingly favored (being used by 94–98% of the speakers) in *fog*, *hog*, *bog*, *grog*, *jog*, and *frog*. The unrounded vowel was the one prescribed in schools, and many of Monroe’s informants considered [dɑ] to be a “learned pronunciation.” Among other variable words in Monroe’s study we find [ɑ] was favored in *swamp*, *swath*, *wash*, *gospel*, and *wasp*, while [ɔ] was

more frequent in *daunt, haunt, coffin, coffee, office, long, and foster* (451). Not surprisingly, Monroe found no variation with *hot* and *not*, as both consistently appeared with [ɑ] (1896, 456).

While Monroe (1896) offers no better evidence of the NCS than did Emerson, a later study of upstate New York, Thomas (1935–37), suggests a much stronger connection to the current changes. For example, with regard to /æ/-raising, Thomas noted the usual miscellaneous occurrences of [ɛ] in *catch, gather, and radish*, but he also described what appears to be a more general type of raising:

In upstate New York, [æ] is usually high and close to [ɛ]. It is often a bit higher still before [n] in such words as *candid, hand, land, man, manners, and mechanics*, in which it may also be lengthened and nasalized. A more striking variation results from a raising and tensing of the tongue position, usually without nasalizing, before voiced back consonants, in such words as *anchor, brag, crags, dragged, and dragged*. [10: 294]

Thomas transcribes this first variant as a raised low vowel, [æ[^]], and the more extreme one as a lowered mid vowel, [e^v], but he notes that all of the items that show raising also appear with the ordinary [æ] (10: 294). In a further parallel to the NCS, Thomas also observed centralization and lowering of /ɪ/ and /ɛ/. The principal variant of /ɪ/ (after [ɪ]) was the centralized [ɪ[˚]], but Thomas also recorded lowered tokens like [ɪ^v] and the mid central [ɜ]. Both centralized and lowered variants of /ɛ/ were common, with a few of the former tokens being transcribed as [ɜ]. For both /ɪ/ and /ɛ/, Thomas provided data on the variation in over 50 different lexical items, and as with /æ/, he seemed to be describing quite general tendencies of movement. As regards /a/ and /ɔ/, Thomas observed the usual fluctuations in class membership, but he also described a fronted variant of /a/ which was recorded in several short-*o* words with following voiceless stops (e.g., *not, popular, knock*). He also noted a tendency for /a/ to be fronted before /r/, which he found to be more prevalent in the western part of the state. In fact, he speculated that “the ‘focus’ of this sound seems to be in the neighborhood of Rochester” (11: 69). In various respects, then, Thomas’s description bears a strong resemblance to the current NCS pattern, and if the variation he detailed is indeed connected

to the current changes, then his study appears to stand as the earliest reliable indication of the shift.

The tendencies Thomas (1935–37) observed, assuming they are historically related to the NCS, can be of great importance in determining the time depth of the shift. Thomas does not provide data on the ages of the speakers he sampled, but he does indicate that many of them were Cornell students. We can assume, then, that a number of his speakers were born around 1915. Even though this date is quite a bit later than the one calculated from the oldest speakers investigated by Labov, Yaeger, and Steiner (1972) and Herndobler (1977), Thomas's study is still a valuable source for dating the NCS since it seems to offer real-time evidence of what appear to be many components of the shift in action in 1935.

The matter of tracing the NCS back in time is complicated by the presence of a similar tendency in several cities along the Atlantic seaboard, including New York and Philadelphia. That tendency is the well-known tensing and raising of /æ/, first detailed by Trager (1930). The fact that the phonetic realizations of this process are virtually identical to those associated with (æ) in the NCS and the observation that both seem to be characteristic of urban speech have led some researchers to conclude that these processes are part of the same sound change (e.g., Bailey 1973). There is, however, one key difference between the behavior of /æ/ in the Middle Atlantic states and its behavior in the Northern Cities, and that is that in the former area the vowel is tensed and raised only in restricted phonological contexts,³¹ while in the latter, all /æ/ items are subject to raising (though to varying degrees). In some of his early work, Labov (1971) seems to agree with Bailey (1973) in considering the Northern Cities and Middle Atlantic patterns of /æ/-raising to be different manifestations of a single phenomenon, but more recently he has stated his belief that they are in fact historically unrelated processes (1994, 537). As Ferguson (1975) pointed out and Labov (1994, 535) reiterates, the rule that tenses and raises /æ/ seems to be connected to the change that led to the "broad-*a*" class in RP and other dialects, and, therefore, has deeper roots in the history of the language. By

comparison, raising in the Northern Cities appears to be a relatively recent phenomenon and the dialects participating were, in large part, unaffected by the “broad-*a*” pattern.

Although the two types of /æ/-raising seem to be unrelated historically, they do apparently overlap geographically. In such instances it seems to be the case that the NCS-type is innovative and the Middle Atlantic type is more established. Thus, after discussing the raising of /æ/ before nasals and other voiced consonants as a common pattern in the Northeast, Pilch (1955, 83) remarked, “In Waterbury, Conn., I have heard [ɛə] for /æ/ used by teenagers consistently in all environments, even before voiceless consonants.” If Pilch was indeed observing the NCS, as his description seems to indicate, then this report is valuable not only in establishing the time depth of the shift but also in determining its geographic spread, as Waterbury is farther east than other locations investigated in early studies.

Also potentially important in delimiting the eastern spread of the NCS is Laferriere’s (1977) study of Boston. The situation with regard to short-*a* is complicated in Boston by the presence of a small class of “broad-*a*” words. Laferriere reports that the older backing rule that leads to [a] in items like *half*, *ask*, and *can’t* is giving ground to an incoming raising rule. This raising rule appears for most speakers to be that of the Middle Atlantic states and, in fact, Laferriere makes that connection in her discussion. Among her youngest speakers, however, Laferriere found that raising occurred even before voiceless stops (/t/ and /k/), a pattern that is found with the NCS-type raising and usually not in the Middle Atlantic. Laferriere was apparently unfamiliar with the NCS data, as she commented, “Raising is not recorded by other investigators in these environments” (104–5). If Laferriere’s findings on /æ/-raising are connected to the NCS pattern, then they would seem to indicate that the shift has spread further east than Labov claims.

1.4.4.2. *Chronology of the Changes.* An issue closely related to the matter of dating the NCS is the chronological order of appearance of the individual changes constituting the shift. The most explicit discussion of this question is that offered by Labov (1994, 195), who posited the following order of changes:

1. raising of /æ/
2. fronting of /ɑ/
3. centralization and fronting of /ɔ/
4. lowering of /ɪ/ and /ɛ/
5. backing of /ɛ/
6. backing of /ʌ/

The first change is described as “nearing completion,” the second and third are “midrange changes,” and the others are “new and vigorous changes” (Labov 1994, 195). This chronology is essentially the same as that of Eckert (1989a) and seems to represent the current view of the situation; nevertheless, there are serious questions to be raised about it. These questions are considered in some detail in the discussion of the chain-shift issue in chapter 6, and so are treated more briefly here.

Despite its acceptance by leading researchers such as Labov and Eckert, this ordering is based on rather limited data. As Labov (1994, 195) indicates, most of the support for his chronology comes from apparent-time evidence, with which it is assumed that older speakers will show only older linguistic changes while younger speakers will show recent changes as well as more advanced stages of older changes. The potential pitfalls of apparent-time reasoning have already been mentioned (§1.1), but there is one other problematic issue that is of particular relevance here: the assumption in such an argument that all changes proceed at the same rate. Numerous factors intervene to promote and retard language change, and it is certainly possible that a newer, faster-moving change could overtake an older change and become more widely distributed both within the language (in terms of phonological environments) and within the community (in terms of speakers). In such a case, an apparent-time snapshot would suggest a relative ordering of these changes that was in direct opposition to the historical facts. As with other such dangers associated with the use of apparent-time evidence, the best guard against this problem is to seek real-time support for conclusions drawn from such data.

In many ways it seems the chronology outlined above is based more on the order in which the changes were recognized by

linguists than on their synchronic and diachronic distributions. The “oldest” change, /æ/-raising, was well documented in New York City, Philadelphia, and elsewhere before the NCS was postulated, and, as seen above, this Mid-Atlantic change was initially felt to be related to the Northern Cities phenomenon. Fasold (1969) discussed /æ/-raising as well as the movements of /ɑ/ and /ɔ/. Labov, Yaeger, and Steiner (1972) added to the picture the lowering of /ɪ/ and /ɛ/, and the final two stages, the backing of /ɛ/ and /ʌ/, were provided by Eckert (e.g., 1988). While the order in which the changes were observed by analysts is quite clear, the actual evidence, in both apparent and real time, does not present such a tidy picture.

Recalling the earlier discussion of the older speakers from the study by Labov, Yaeger, and Steiner (1972), we do indeed find evidence of /æ/-raising among these people, as we would expect of the oldest change. However, these speakers also show evidence of the fronting of /ɑ/ and /ɔ/ and of the lowering of /ɪ/ and /ɛ/. Similarly, Herndobler (1977) observed both /æ/-raising and /ɑ/-fronting (the only two changes she investigated) in her oldest group of speakers. In fact, in Herndobler’s study, more of the older speakers participated in fronting than in raising, a finding that might suggest that /ɑ/ had been shifting longer than /æ/.

The real-time data are equally problematic. It was noted above that some degree of /ɑ/-fronting and of /ɔ/-lowering and unrounding has apparently been quite common throughout the Northern region for some time (see, e.g., Marckwardt 1941, 1942; Thomas 1958). Both of these tendencies were observed in Scranton by DeCamp (1940), who, interestingly, did not report any incidence of /æ/-raising. These studies, therefore, suggest that /ɑ/ and /ɔ/ began to shift before /æ/. Thomas’s (1935–37) study, however, seems to contradict, in part, such a claim, as he did find /æ/-raising, some /ɑ/-fronting, and good indications of the centralization and lowering of /ɪ/ and /ɛ/, yet the evidence for lowered and unrounded forms of /ɔ/ is not clear. In sum, then, it seems the issue of chronology is far from resolved and certainly merits more careful consideration. Some steps in this direction are taken below in chapter 6.

1.5. CONCLUSIONS

The purpose of this discussion has been to provide an orientation to some of the central issues raised by this work and to some of the previous scholarship on the particular phenomenon under investigation. A recurrent theme throughout the review of previous research on the NCS has been the observation of vast areas of *terra incognita* in the present state of knowledge about the shift. While a fair amount of solid work has been done, most of our information about the NCS comes from studies that have been somehow restricted in their focus, often examining only certain of the NCS variables and/or only certain aspects of either their social or linguistic patterning. Of course, the focus of the present study has its own restrictions. No one study can hope to fill all the gaps in our knowledge about a change such as the NCS. The lesson to be drawn from the preceding discussion is that, even though a number of researchers (including very prominent scholars) have investigated the NCS, much remains to be done. It is hoped that the questions raised here may, in addition to laying a foundation for the present study, also serve to highlight areas for future research.

NOTES

1. Labov, Yaeger, and Steiner (1972) referred to the changes as “the Northern Shift,” though Labov (1994) uses the term “the Northern Cities Shift.”
2. Although it may be argued that traditional dialectologists have long recognized the essential nature of variation, their methods reveal that they were concerned largely only with variation in a single dimension, the geographic, and, for the most part, they did not give equal treatment to intraspeaker variation (e.g., stylistic differences) or interspeaker variation occurring within a single location.
3. The qualitative evidence discussed below in chapter 5 strengthens this point.
4. Although this description may suggest a kind of purposefulness is involved in the process (driven either by the concerns of speakers or of language structure), such motivations are not a necessary component of the definition, and other, less functionalist, accounts have

- been offered (see, e.g., discussion of Labov's 1994 proposal on pp. 11–13).
5. Labov presents five additional principles governing chain shifting, but these deal with changes across subsystems and for the most part are not relevant to this discussion (for details see Labov 1994, 280–91).
 6. Labov (1994, 159–60) defines phonological space in acoustic terms, using measures of the frequencies of the first and second formants (F1 and F2).
 7. Labov's account seems to rely on a proposal that /a/ undergoes tensing as part of its shifting, presumably following the Lower Exit Principle (1994, 280), which would bring the two vowels into the same subsystem, but this proposal is an empirical issue that remains to be tested.
 8. Acoustically, this question might be approached by comparing the frequencies of the first formant (F1) for each vowel, since F1 is often used as a correlate of vowel height. Peterson and Barney's (1954) data show /ʌ/ has a higher average F1 than both /ɛ/ and /ɔ/, suggesting that it is more open than both these vowels. The average F1 values for male speakers were 530 Hz for /ɛ/, 640 Hz for /ʌ/, and 570 Hz for /ɔ/.
 9. These categories are discussed in more detail below (§5.2.2).
 10. For a fuller review of the literature see Gordon (1997, 20–37).
 11. Parentheses will be used throughout this report to denote sociolinguistic variables.
 12. Eckert (1991, 220–22) claimed that Labov, Yaeger, and Steiner (1972) found (ɛ) “to be backing in the speech of Detroiters of all ages,” while among Chicagoans they found lowering. However, I could find no mention of the Detroit backing in their report, and the vowel charts for the Detroiters (figs. 11–15) give no indication of backing.
 13. A possible example of the latter is the fronting of /u/, which is demonstrated by some of Labov's recent Chicago speakers (see 1994, 191–92). This tendency is dismissed by Labov as one “affecting most western and northern dialects,” but it seems possible that such a change could interact with elements of the NCS (e.g., with centralized /ɪ/).
 14. Contradicting this finding were Labov, Yaeger, and Steiner's (1972, 77–78) data from Chili, New York, a small town outside Rochester. The two older speakers from Chili were found to be relatively more advanced in terms of their /æ/-raising than speakers from Rochester and Buffalo. Even more surprising, given the usual findings on sex-

- based differences (see pp. 21–22), was the fact that both Chili speakers were males and six of the seven urban speakers were females.
15. The only exception to this is the group of adolescents for which there were 13 speakers under age 19 (Labov, Yaeger, and Steiner 1972, 78).
 16. Instead of an age difference, this may be indicative of a rural/urban distinction, suggesting, contrary to the usual scenario, that the change began with rural speakers and later spread into the cities.
 17. This general tendency was cited by Callary (1975, 158) as a justification for his decision to sample only female speakers.
 18. Judgments on Herndobler's results are based on impressionistic comparisons of percentages of use, as she presents no evidence of statistical probability testing.
 19. This middle-class lead is shown in Herndobler's conversational data for both (æ) and (ɑ). The lead holds for (æ) in the reading-style data, though the lower middle class is shown to have a very slight lead in the reading style data for (ɑ).
 20. Pederson (1965) did record relevant variants of each vowel involved in the NCS but gave no indication that these variants functioned in any patterned way. For example, among the "free variants" of / æ / we see both raised and fronted forms, but we also find forms that are lowered and/or backed (1965, 30).
 21. Much of Pederson's work was used in the Linguistic Atlas of the North Central States.
 22. The speaker's age was given as 89 by Labov, Yaeger, and Steiner (1972, 84), but this was presumably her age at the time of recording in 1965. The calculations of birth dates given below for other speakers are also made in this way.
 23. Speakers' birth dates were calculated from the ages given by Herndobler on the assumption that her interviews were conducted in 1975, as was indicated in the Linguistic Atlas of the North Central States.
 24. To support his claim, Frazer (1993) cites Emerson (1891), a study which is discussed below.
 25. In introducing his proposed chronology of the NCS changes, Labov (1994, 195) states that it is based on "apparent-time data and the limited evidence from real-time differences," but he does not elaborate or cite any sources for this statement.
 26. A fuller discussion of historical and dialectological precedents of the NCS changes is offered in Gordon (1997, 38–63).

27. Much of the fieldwork for the data from Kurath and McDavid (1961) was carried out in the 1930s. The LANCS project began in 1938, and fieldwork continued into the 1970s.
28. This count excludes items with following /r/, an environment in which many vowels show special developments. In fact, /æ/ appears as raised before /r/ in many American dialects (Bronstein 1960, 154).
29. See Gordon (1997, 39–47) for examples.
30. In certain contexts (e.g., final position), /ɔ/ surfaces as [ɔ], so it seems fairly certain that the lowering tendency in this dialect is not a consequence of the “*cot* ~ *caught*” merger that affects many areas in Pennsylvania. Besides this fact, /a/ shows no tendency toward backing.
31. The conditioning factors vary by location. For example, in New York City, raising takes place regularly before front nasals, voiceless fricatives, voiced stops, and variably before /v/ and /z/; while in Philadelphia, raising is found regularly only before front nasals, some voiceless fricatives (/f, s, θ/), and variably before /d/ (Labov 1971, 427).