0. Introduction
The purpose of this paper is to illustrate the use of dialectological methodology to explain language change and account for variation. The data for this study have been extracted from *The Language and Culture Atlas of Ashkenazic Jewry (LCAAJ)*.

Map I: The Polish Yiddish dialect area

While the *LCAAJ* encompasses the entire pre-WWII Yiddish-speaking world, this current study focuses on the area marked “P” – for (Northern) Poland. As

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easily visible in Map I, this area does not coincide with the contemporary political boundaries of the Republic of Poland. Rather, it is the area considered by the editors of the atlas to represent the Polish dialect area of Yiddish. It is also the region in which most of the interviews that led to the compilation of this part of the atlas were conducted according to the Polish Regional Abridgement of the Standardized Master Questionnaire (SMQ). This area includes parts of today’s Poland, Belarus, the Ukraine, Moldova and Russia. For the sake of this study, the cluster of dialects in this region will be referred to as Polish Yiddish (PY).

1. Chain Shifts in PY: Overview
In our initial attempt to comprehend some of the data presented in the LCAAJ and adapt it into a concise, coherent statement about processes in the language, we used primarily the maps in Volume I (“Historical and Theoretical Foundations”). In this volume, unlike many other linguistic atlases, the data are presented in the form of “typical developments.” Rather than providing the reader with proto-words (e.g., in some standardized form of the language, and their local reflexes, this atlas presents the general pattern typical of a particular phoneme of Proto-Yiddish, providing several examples for each such phoneme.

The LCAAJ uses the following shorthand for reference to the vowels of Proto-Yiddish (motivated by the phonemes assumed for Middle High German (MHG), but encompassing words of all etymological origins): a capital letter represents the general “color” of the vowel; it is followed by a subscript numeral, usually from 1 to 4, but in one case from 1 to 5, which provides more information regarding the vowel. Subscript 1 refers to short monophthongs; subscript 2 and 3 refer to long monophthongs, and subscript 4 (and 5) refer to diphthongs.

Labov (1994:118) defines a minimal chain shift as “a change in the positions of two phonemes in which one moves away from an original position that is then occupied by the other.” Upon examining the maps in Volume I depicting sound changes in the vocalic inventory, we can determine that several shifts have occurred in PY. They are presented here assuming three subsystems:

### Short monophthongs:
1. u > i

### Long monophthongs:
**Within the subsystem:**
2. u :> i:
3. a :> u:

**Across subsystems:**
4. o :> oy
5. e :> ay

### Diphthongs:
**Within the subsystem:**
6. ey :> ay

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2 In this paper I will refer to maps included within the paper itself using Roman numerals. Maps from the LCAAJ will be referred to by their original numbers, using Arab numerals.
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(7)  au > ou ~ oy (but note (8) below)

Across subsystems:
(8)  au > o: (but note (7) above)
(9)  ay > a:

The short monophthongs are thus fairly stable, with only one shift to report. This seems, however, to be a significant shift, as it is in fact a merger of /u/ and /i/.

(10) Historical development within the short monophthong subsystem

A similar shift occurred with the long counterpart, resulting again in fronting and ultimately unrounding. Once the /u/ space became vacant, /a/ could take its place. These two changes in the long monophthongal subsystem constitute a minimal chain shift as defined in Labov 1994. The shifts described thus far correspond to Principle I in Labov (1994:116) (long vowels rise: a: > u:) and Principle III (back vowels move to the front: u[:] > i[:]).

An interesting interchange of phonemes across subsystems is also worth noting. The long monophthongal subsystem has gotten rid of /o:/ for the sake of the diphthong /oy/. However, one of the reflexes of original /au/ is the long monophthong /o:/.

Another instance of chain shifting involves both intra-subsystem and inter-subsystem changes. In accordance with Principle IIa in Labov (1994:116), the nucleus of the diphthong /ey/ falls to /ay/. Historic /ay/ shifts into the long monophthong subsystem taking the space vacated when /a/ shifted upward toward /u/. Figure (11) represents the phonological space for long monophthongs and for diphthongs, marking the shifts within each subsystem and across the two subsystems.
Note that the shifts in (11) are reminiscent of, but not identical to those depicted in (19) of Labov (1994:286), viz., chain shifting across subsystems in Central Yiddish -- based on Herzog's 1965 work on Yiddish in northern Poland.

2. Chain Shifts and Variation: The Case of u~i
Having established the existence of such chain shifts, further data were extracted from some of the maps in Volume III of the atlas (“The Eastern Yiddish – Western Yiddish Continuum”). This portion of the atlas resembles some of the traditional linguistic atlases available for other languages, in that each map typically represents the reflexes of one particular word, serving as one of a few examples for a linguistic phenomenon. We used maps pertaining to roughly the same vocalic phonemes as those we had used from Volume I for our initial study. Using the cartographic software package MapInfo at the Linguistics Laboratory at the University of Pennsylvania, the data for the specific points on the various maps were entered into a spreadsheet, so that it would be possible to superimpose data from different maps and compare the distribution of variants. Examining the specific data from Volume III revealed that the PY dialect area is by no means free of variation. There is a clear u~i distinction, with only a few points exhibiting either inter-lexical or intra-lexical variation.
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Map II: The u–i isogloss

Map II illustrates how data from two sources can be combined into one single, more systematic representation. In this map, the larger arrows denote the reflexes of Proto-Yiddish U₂,₃ in the word dUxₐnan 'perform the priestly benediction', and the smaller ones are reflexes of U₁ in the word sUkₐ 'tabernacle' or sUkas 'Sukkoth, Feast of Tabemacles'. Superimposing the symbols of one map on those of the other (originally Maps 20 and 19 in Vol. III of LCAAJ, respectively), opens a window for comparison. In this case, most small “i” arrows fit into corresponding large “i” arrows, and most “u” arrows show the same correlation between the two proto-phonemes. The only inconsistencies are in close vicinity to what we have determined to be the general isogloss for this historical change.

Our account of this part of the PY chain shift has now evolved from that of a solid, across-the-board sound change (see (1) above) to a more complex yet systematic view of the shift as being conditioned by a geographic boundary.

3. Chain Shifts: When Diphthongs Merge

From our expository discussion of chain shifts (see 1 above), it may be inferred that the diphthongs /ay/ and /oy/ are typically results of shifts either across subsystems, as in (4) and (5), or within the subsystem of diphthongs, as in (6) and (7). This account of the diphthong inventory of PY suggests that the historic diphthong /ey/ (presumably related to the long monophthong /e:/, as they both result in the same reflex /ay/) no longer exists in contemporary PY dialects. Yet several maps in the LCAAJ suggest that in a large area within the broader PY dialect area, /ay/ is the prevalent reflex of Proto-Yiddish phonemes E₄ and E₂₃, while /ey/ is the equivalent elsewhere. Map III shows the distribution of /ay/ and /ey/. It is a compilation of data from four maps in the original LCAAJ (Vol. III): Map 6 for mIfEns gazgt ‘expression of pity or content’, Map 7 for lEₐnan ‘to read’, Map 8 for bₜ(h)Eₛas ‘cattle; cows’, and Map 9 for sExl ‘brains; sense’.
The diamonds represent points where at least one of these words was pronounced with an /ey/ diphthong. The rest are points where there was either no data, or (for the most part), where the data showed that these local dialects have undergone the ey>ay shift.

Map III: Non-application of the ey>ay shift

Map IV: oy>ey shift
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As in the case of the u>i historic rule, superimposing information from different maps enables us to broaden the scope of our linguistic inquiry and refute some of the generalizations that may have resulted from coincidental data.

Three maps in the LCAAJ present the distribution of regional variants for Proto-Yiddish O₂₃. Map 10 deals with the word brOgaz 'angry', Map 11 with the word jontOvim 'Jewish festivals', and Map 12 with xalO(α)d 'period between first two and last two days of Passover or Sukkoth'. Data combined from these three maps constitute Map IV. In this map are shown the towns and villages in whose dialects at least one instance of /ey/ for a historical /oy/ occurs.

Map V: Initial evidence for oy/ey merger

Next, we can superimpose Map IV on Map III and the results, visible in Map V are quite interesting. In all the locales where at least one historical /ey/ did not surface as [ay], there was at least one historical /oy/, which was pronounced [ey]. This leads to the hypothesis that there might be a merger of two diphthongs in some of these local dialects. This hypothesis can be confirmed by inspecting our database. In a few cases, a given locality was coded as having only [ey] reflexes for all proto-E and proto-O phonemes. In other words, in a subset of the area defined by Map IV, where at least one token of each set of proto-phonemes coincided, there is in fact a full merger.

This full merger is the subject of Map VI. Stars indicate locales in which a full merger is apparent from the data. Map VII is an illustration of the proportion of full mergers in respect to those cases in which the merger is incomplete.
Map VI: oy/ey merger

Map VII: oy/ey merger: full vs. incomplete
4. Conclusions

This paper combined data collected within the framework of structural dialectology with a variationist analysis according to the principles of chain shifts and mergers laid out by Labov (1994). Applying the features of the mapmaking software MapInfo to linguistics has proven fruitful in accounting for sound changes, some of which had been previously reported, and enhancing our understanding of such changes and of the variation in their occurrence across geographic regions. Examining chain shifts and mergers and whether or not these processes have reached completion becomes more tangible when different maps are combined and conclusions are drawn from them. Using LCAAJ as a preliminary source of data has been illuminating, yet not unproblematic. Some of the original recordings of the atlas interviews are likely to soon become available, allowing further research of these and other changes in PY and other dialects.

References