

Religious Affiliation as a Correlate of Linguistic Behavior

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1 Introduction

One of the most important and consistent findings of sociolinguistics in the past 50 years is that social factors such as gender (Trudgill 1972), professional aspirations (Gal 1978), socio-economic status (Labov 1966), and ethnicity (Wolfram 1968) can influence what lexical, phonological and syntactic features a speaker chooses to use (Labov 1965). Expanding on these earlier studies, Milroy and Milroy (1985) linked these variables to social networks, claiming that one reason demographic features influence our speech is that we tend to develop social networks around them. In other words, individuals generally learn about linguistic changes by interacting in a community (Milroy 1987), and begin to speak like those around them, especially those that are admired. It is, therefore, those that we associate with that determine our linguistic behaviors.

Since a single individual belongs to many social networks (neighborhood, family, occupation, and so on), an individual's web of social networks can be quite complex (Eckert 2003, McPherson, Smith-Lovin and Cook 2001). Therefore, the number of demographic factors that have an effect on the development of social network ties, and therefore on linguistic variation and change, are potentially uncountable. Because of this, it can be difficult to isolate whether a specific demographic factor actually affects a particular linguistic behavior. In many cases, studies examining demographic effects on language variation have found that many factors contribute to any linguistic change (e.g., Baxter, Blythe, Croft, and McKane 2009, Hymes 2003, Mukherjee 2003, Croft 2000). Even early researchers (e.g., Trudgill 1972, 1978, Wolfram 1978) found that demographic factors interact; for example, Trudgill (1972) found interactions between sex, age, and socioeconomic status.

One possible social factor that has received relatively little attention in sociolinguistic research is religion, which may be defined in terms of one's membership in a religious organization or one's level of activity in that organization. Religion has certainly been found to correlate with language change and use in areas where religious affiliation overlaps with one's ethnicity, such as Turks (Bosakov 2006) or Romani (Igla and Draganova 2006) in regions like Bulgaria. In such cases, of course, it is difficult to determine whether differences in these regions occur because of ethnic or religious variation.

However, even in places like the United States, where differences in religion for most adherents involve relatively small denominational differences, religious affiliation as a potential sociolinguistic variable is important to investigate for a number of reasons. First, religion as a topic is a very salient characteristic in the United States; politicians, for example, are routinely expected to answer probing questions regarding their religious belief and practice (Wald and Calhoun-Brown 2006). Part of this, of course, is that most United States residents self-identify as religious; most studies find that Kuwait and the United States are outliers among wealthy nations, in that their residents are generally both wealthy *and* religious (Kohut, Wike, and Horowitz 2007).

Since religious affiliation is a socially salient characteristic in the United States, it is possible that different religious groups form separate social networks that do not overlap strongly. In such cases, religious affiliation could be reflected in linguistic behavior, because very separate social networks in the same geographic region could effectively produce separate speech communities,

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which could then have separate systems of variation. This sort of thing has a precedent: for example, Mallinson and Childs (2003) found that women who went to church each Sunday (“church ladies”) in a small Texas community had developed different social networks than those who did not (“porch sitters”), and a sound change had developed in one group that did not spread to the other. Similarly, Di Paolo (1993) found a connection between religious affiliation and linguistic behavior in Utah, finding that members of The Church of Jesus Christ of Latter-day Saints used pro predicate *do*, a construction not used by other Americans. Such findings suggest that, at least in areas where there is a significant number of members of the same religion (as in Utah and much of rural Texas), religion may in fact play an important role in determining language change (see also Johnson-Weiner 1998).

In addition, religiously affiliated individuals can demonstrate varying levels of religious activity, leading to another potential layer of complexity within social networks. This could also be reflected in linguistic behavior. For example, those on the periphery of religious participation (those who self-identify as belonging to a religious group but who rarely interact with that group) may participate in some of the linguistic behaviors of the religious group, but not all. This, also, has a precedent: studies of the Pennsylvania German-speaking Anabaptist “plain” groups in the United States have repeatedly found that there are clear linguistic effects related to individuals’ levels of religious orthodoxy (Raith 1981, 1986).

Finally, religious affiliation in the United States is also a voluntary characteristic: an individual can freely change their religion, which may not happen in other areas where religion has been found to be an important sociolinguistic variable. In fact, recent news reports estimate that nearly half of all adult residents of the United States have changed their religious affiliation at least once during their lives. For this reason, past researchers have speculated that membership in a religious organization is not a strong enough factor to influence more than just lexical variation, and mostly only lexical variation of religious terms (Labov 2001:245). Even in areas such as Northern Ireland, where one might expect that religious affiliation would be reflected in linguistic behavior, some researchers have found that Catholics and Protestants demonstrate no differences in lexicon or phonology, with any differences attributable to social factors other than religion (Milroy 1981, Millar 1987, note the conflicting claims by McCafferty 2001, Todd 1984). However, the evidence already given runs counter to any claim that this is always the case.¹

A number of the studies of religious identity on linguistic behavior, though, have run into a serious problem: religious affiliation often correlates with other social factors that may themselves correlate with linguistic behavior. For example, residential segregation may occur, with members of a particular religion choosing to live nearer members of that same religion rather than another; this would, of course, lead to different social networks that could be attributed not to religion but to neighborhood.² Other possible confounds include socioeconomic class, age, and sex, all things that correlate with religiosity in a number of communities.

Because there are many social factors influencing language change, it is often difficult to isolate how one individual factor influences language change (Milroy and Gordon, 2003). To examine the effects of religion as a variable predictive of sociolinguistic variation, we need communities where religion is a salient characteristic, but where different religious groups are integrated.

¹Just to give a few more examples, Kingsmore (1995) found that speakers with no religious affiliation in one London neighborhood were more likely to use the dark or velarized /l/ than were those affiliated with independent or Presbyterian congregations, especially when they were females, while Presbyterians used more [t]s than the other two groups. Similarly, Edwards (1986) found that religion influenced the language of Christian and Rastafarian Patois speakers in the same area. Freeouf (1990) examined two communities of German immigrants in Indiana and found differences in their German depending on whether the speakers were Lutheran or Catholic.

²Kingsmore (1995) has noted that differences in linguistic variation between Protestants and Catholics in Northern Ireland found by other researchers may be attributable to region as much as to religion, with no way to really tease those apart.

One area where such a community exists is in Utah County, Utah. Utah is located in the western United States, and is demographically notable for being one of only two states where more than half the population claims the same religious affiliation. Surveys generally find that over 60% of Utah's population is made up of self-identified members of The Church of Jesus Christ of Latter-day Saints (better known as the Mormon or LDS church), and the figure is much higher in Utah County, where about 80% of the population is Mormon. Historically, Utah was settled in the mid 1800's mainly by Mormons, and the population remained relatively isolated for about 50 years. More recently, silver and coal mining brought an influx of non-Mormons to Utah early in the twentieth century, and new industries (computer software companies in particular) have brought a number of non-Mormons to the state more recently.

Local conventional wisdom holds that Mormons and non-Mormons in Utah tend to inhabit largely non-overlapping social networks. If this is the case, then these separate social networks would likely lead to linguistic differences that can be defined in terms of religious affiliation, similar to the possible linguistic effects of religious affiliation found elsewhere. However, Utah County Mormons and non-Mormons do inhabit the same neighborhoods, attend the same schools,³ and have opportunities to interact on a daily or nearly daily basis. Therefore, Utah County is an ideal location for studying the linguistic effects of religious affiliation, since it allows us to get past the problem of religion-based residential segregation.

To investigate this, we used recorded sociolinguistic surveys collected as part of the Utah English Project, and conducted impressionistic analyses of phonetic variables, including some that are socially salient in the local community (such as the *card-cord* and *fill-fell* mergers) and some that are attested but not salient (such as the *cot-caught* near-merger and the *pin-pen* merger). We then analyzed the results with respect to self-described religious affiliation to determine not just whether Mormons and non-Mormons differ in their linguistic behavior, but also whether they differ in their treatment of salient and non-salient variables.

2 Methodology

2.1 Participants

There are, effectively, two groups of informants for this study: one that provided recorded instances of Utah English for analysis, and another that provided perceptual information. The participants who provided the recorded data were selected from a larger study examining features of Utah English (Sarver 2004). From the larger sample, we chose age- and gender-matched participants from Utah County, Utah who differed only in whether they were self-identified members of The Church of Jesus Christ of Latter-day Saints ("Mormons") or who were members of other affiliations ("non-Mormon"). All participants lived all or a majority of their lives (immigrating to Utah before the age of 5) in Utah County, Utah. To ensure that the groups were as similar as possible, participants in the "non-Mormon" group were matched to participants in the "Mormon" group in terms of age, sex, years of education, years lived in Utah, and the location where their parents were born and raised. Table 1 gives demographic information about these participants. Importantly, therefore, the two groups had experience in living in Utah County, Utah.

	N	Mean age	Sex	Avg. years of ed. after HS
Mormon	14	29.2	8 M, 6 F	3.2
non-Mormon	14	39.1	8 M, 6 F	3.5

Table 1: Demographic characteristics of Mormon and non-Mormon participants.

³Unlike a number of areas in the United States with a high concentration of a single religious affiliation, there is a very small number of Mormon-oriented K–12 schools in Utah (and none that are actually run by the Mormon church).

2.2 Stimuli

The stimuli for this study were individual words elicited from residents of Utah County as part of short, focused sociolinguistic interviews. The words were chosen because they contained one of fifteen vowels that have been shown to be of interest in previous studies of Utah English (Bowie 2003, 2008, Di Paolo and Faber 1990, Di Paolo 1992, Lillie 1998). Some of these involve mergers (or near mergers) before liquids, as in the vowel pairs *feel-fill*, *fill-fell*, *fail-fell*, *pool-pole-pull*, *dull-pull*, and *card-cord*. Other possible mergers that were investigated include *bad-bed*, *pin-pen*, and *caught-cot*.

Vowels	Words	Vowels	Words
[ɪ]	<i>pill</i>	[ɪN]	<i>pin, him</i>
[ɛ]	<i>fell</i>	[ɛN]	<i>pen, hem, ten, dentist, Wednesday</i>
[ʊ]	<i>pool, school</i>	[ɑɪ]	<i>barn</i>
[ʊ]	<i>pull, skull, full</i>	[ɔɪ]	<i>born</i>
[o]	<i>pole, coal</i>	[oɪ]	<i>horse, four</i>
[e]	<i>fail, pail</i>	[æ]	<i>sack, bag, tablet</i>
		[ɑ]	<i>hot, sock, dollar</i>
		[ɔ]	<i>caught, Santa Claus, taller</i>

Table 2: Stimuli (vowels examined and words used).

The interviews were recorded using a Shure unidimensional microphone and Marantz CD recorder. The participants were asked to respond to questions meant to elicit specific words (such as “What is the opposite of cold?” to elicit *hot*). The subjects gave the expected response in nearly every case, but when they did not produce the desired word, alternate questions were asked until the subject responded as desired. A total of 959 tokens were selected for use by the rating panel.

2.3 Procedure

These 959 words were then presented to three raters who had not had any previous experience with Utah English, but who had received some training in phonetics and had demonstrated the ability to distinguish all of the sounds under study here. Each member of the rating panel rated each utterance along a scale with clearly defined endpoints that differed for each vowel under analysis. For example, for a word with a short-*i* or short-*e* before a nasal (i.e., the *pin-pen* merger), participants rated the vowel on a scale where a score of 1 indicated that the rater heard the token as clearly [ɪ] and a score of 4 as a definite [ɛ]. A score of 2 or 3 indicated that the token sounded as if it contained a vowel spoken somewhere in between the two endpoints, either more like [ɪ] (for 2) or more like [ɛ] (for 3). Raters were also given the option of assigning a score of 0, indicating that the vowel sounded higher or tenser than [ɪ] or 5, indicating that the vowel sounded lower than [ɛ]. Raters could also mark that the vowel was indistinct or otherwise unratable. Crucially, the rating panel was not told what the sounds were that they were rating, to eliminate any bias from expectations about what something should sound like; they were simply told which scale to use for each token. That is, if the rating panel was presented with the word *ten*, they were not told that the word contained an /e/; rather, they were told to use the [ɪ]~[ɛ] scale. The raters could in all likelihood figure out that the word was either *ten* or *tin*, but they were never told which it actually was.

3 Results

The ratings that the panel assigned to the speakers' vowels were averaged together to produce a single measure for each utterance. Instances in which a member of the rating panel rated a vowel as indistinct or unratable were removed when calculating the average for the entire panel. Although there were a few cases in which members of the rating panel rated a vowel as beyond the endpoints of the system (i.e., as a 0 or 5 on the "4-point" scale), no vowel received an average rating of less than 1 or greater than 4. Though there were of course differences between the individual raters, paired t-tests revealed that there was a great deal of agreement among the members of the rating panel. The averages for each rated vowel, along with the endpoints of each scale, are shown in Table 3. Table 3 also shows whether the difference between the Mormons and non-Mormons was statistically significant, along with the value of Hedges' *g* for the difference for those cases where the difference was significant.⁴

Variable	1=	4=	Mormon mean	Non-Mormon mean	Significant?	<i>g</i>
pre-nasal /ɪ/	[ɪ]	[ɛ]	1.9	2.5	Yes	0.75
pre-lateral /ɪ/	[i]	[ɪ]	3.8	3.2	No	—
pre-lateral /ɪ/	[ɪ]	[ɛ]	1.4	1.7	No	—
pre-lateral /e/	[e]	[ɛ]	2.8	2.4	Yes	0.69
pre-nasal /ɛ/	[ɪ]	[ɛ]	3.2	3.1	No	—
pre-lateral /ɛ/	[ɪ]	[ɛ]	3.6	3.4	No	—
pre-lateral /ɛ/	[e]	[ɛ]	3.5	3.3	No	—
pre-obstruent /æ/	[ɛ]	[æ]	3.4	3.0	Yes	0.89
pre-lateral /u/	[u]	[ʊ]	2.3	2.1	No	—
pre-lateral /u/	[u]	[o]	2.3	1.8	Yes	0.67
pre-lateral /ʊ/	[u]	[ʊ]	3.9	3.2	Yes	1.21
pre-lateral /ʊ/	[ʊ]	[ʌ]	1.9	1.5	Yes	0.62
pre-lateral /ʊ/	[o]	[ʊ]	2.4	3.1	Yes	0.84
pre-lateral /o/	[u]	[o]	3.5	3.5	No	—
pre-lateral /o/	[o]	[ʊ]	2.2	1.9	No	—
pre-lateral /ʌ/	[u]	[ʊ]	3.9	4.0	No	—
pre-lateral /ʌ/	[ʊ]	[ʌ]	2.7	3.0	No	—
pre-lateral /ʌ/	[o]	[ʊ]	2.0	1.8	No	—
pre-obstruent /ɑ/	[ɑ]	[ɔ]	1.4	1.7	Yes	0.69
pre-rhotic /ɑ/	[ɑ]	[ɔ]	1.2	1.4	No	—
pre-obstruent /ɔ/	[ɑ]	[ɔ]	1.5	1.8	Yes	0.52
pre-rhotic /ɔ/	[ɑ]	[ɔ]	3.8	3.7	No	—

Table 3: Results of identification of vowels produced by Mormons and non-Mormons.

Since overt measures of effect size aren't yet widely used in sociolinguistic work, we should briefly discuss them. While measures of statistical significance show whether, say, a particular difference is the result of chance or not, they do not reliably give any measure of how large or small the difference is. Effect size measures such as Hedges' *g*, on the other hand, were developed not to give insight into whether a phenomenon can be explained by chance, but rather into the relative size of the phenomenon.

⁴The cutoff for statistical significance was set at the arbitrary value $p < .05$. Hedges' *g* values are not given for the insignificant differences because they are effectively meaningless in such cases. As might be expected, though, the effect sizes for nearly all of the insignificant differences were small or very small.

Conventionally, Hedges' *g* values are interpreted such that a value of less than 0.2 is very small, a value between 0.2 and 0.5 is small, one between 0.5 and 0.8 is medium, and one greater than 0.8 is large. With this in mind, it is clear that of the nine variables where the Mormons and non-Mormons differ, six are medium-sized effects, three are large effects, and none are small or very small. In other words, when the Mormons and non-Mormons in the study differ in production, the differences are relatively large.

These differences can also be looked at as a set of behaviors in which each group marks itself as different in a specific feature or set of features. The following list goes through each of the significant differences from Table 3 (except for pre-obstruent /ɛ/ and /æ/, which are dealt with separately), and describes the way the Mormons and non-Mormons treat each variable differently.

- (1) Pre-nasal /ɪ/: While the Mormons and non-Mormons did not produce pre-nasal /ɛ/ differently, they differed in their production of the other half of the *pin-pen* merger. If we work under the assumption that what we have here is a tendency toward merger via the lowering of /ɪ/ into [ɛ], we see that the non-Mormons in the sample show a greater tendency toward merger than the Mormons do.
- (2) Pre-lateral /e/: The merger by laxing of pre-lateral /e/ into [ɛ] is found in many different varieties of English and it is widespread enough in Utah English that one occasionally sees professionally-produced advertisements for “used car *sells*” (as opposed to *sales*). The rating panel found a tendency toward this merger among both groups, but it was more advanced among the Mormons in the sample.
- (3) Pre-obstruent /æ/: There is only a small amount of raising without diphthongization of /æ/ toward [ɛ] among this sample, but there is more of it among the Mormons. (Note that this was a large-sized effect.)
- (4) Pre-lateral /u/: The lowering of pre-lateral /u/ into [o] is another merger that has been reported across many varieties of English. In this sample, the Mormons show more of this lowering than the non-Mormons.
- (5) Pre-lateral /ʊ/ (when rated along an axis between [u] and [ʊ]): There is a lot going on with pre-lateral /ʊ/ in this community. (It is actually unsurprising that a lot is going on in the pre-lateral high back vowels, since previous work in nearby communities has found similar complexity; see Di Paolo and Faber 1990, Faber 1992, Faber and Di Paolo 1995.) When the rating panel rated pre-lateral /ʊ/ along a tense-lax [u]~[ʊ] axis, the Mormons showed nearly no tensing while the non-Mormons exhibited quite a large amount of tensing. Also, when the sound was rated along a high-mid [u]~[o] axis, the Mormons produced pre-lateral /ʊ/ somewhat more [o]-like (and therefore, presumably, a bit lower) than the non-Mormons. Quite interesting, then, was when pre-lateral /ʊ/ was rated along the more complex [o]~[ʊ] axis. In this case, the Mormons produced the variable much more [o]-like. Given the results from the other axes (particularly the [u]~[ʊ] one), this is more likely the result of lowering than tensing. Therefore, it seems that the most likely explanation for all this is that Utah County Mormons lower pre-lateral /ʊ/ more than the non-Mormons.

Before moving on, it is worth noting that, in most cases where we found a significant difference between the Mormons and the non-Mormons in the sample, the Mormons' productions were further away from the historical form of the vowel. If this finding holds up as we test larger numbers of variables, this may tell us something about the ways that members of these groups situate themselves socially through linguistic behavior.

There is one additional significant difference between the Mormons and non-Mormons that is not immediately obvious from Table 3: the merger (or near-merger; see Di Paolo 1992) of /a/ and /ɔ/. The rating panel found statistically significant differences between the Mormons and non-Mormons for both of these two vowels. However, they found no significant difference between the

Mormons' production of /a/ and /ɔ/, and also no difference between the non-Mormons' production of those two vowels. This is shown graphically in Figure 1. (In the graph, the difference between the Mormons and the non-Mormons appears small (Mormons, /a/ 1.4 and /ɔ/ 1.5; non-Mormons, /a/ 1.7 and /ɔ/ 1.8), but effect size testing finds it to be a medium-sized difference.) Overall, this means that the rating panel found that both the Mormons and the non-Mormons merged /a/ and /ɔ/, and the targets were closer to [a] than [ɔ] for both groups, but the precise targets of each group's mergers were significantly different.

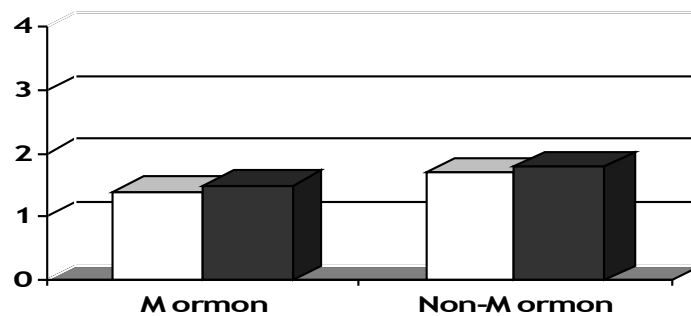


Figure 1: Mergers of Mormons' and non-Mormons' pre-obstruent /a/ and /ɔ/.

To summarize, based on the panel's ratings, Mormons and non-Mormons in Utah County have a great deal of overlap in their linguistic production. This is unsurprising, since the populations are well integrated, and there is enough contact that one would expect the populations to behave similarly. It is, then, perhaps initially surprising that there are several clear differences between Mormons' and non-Mormons' vowels in Utah County, and that none of the religiously-correlated differences was a small effect. Since linguistic differences correlate with social networks (Milroy 1987), this lends credence to the local conventional wisdom that social networks in the region are based at least in part on religious lines.

4 Discussion

The goal of the present study was to determine whether religion, defined in this study as membership in the Mormon church, is a socially salient characteristic as determined by the use of typical vowel mergers (or near mergers) in Utah County, Utah. While, as expected, findings were largely consistent with previous studies (Bowie et al. 2001, Di Paolo 1992, Di Paolo and Faber 1990, Faber and Di Paolo 1995, Morkel 2003), religious affiliation and activity also had significant effects. That is, the results of this study demonstrated that the two groups examined, members of the Church of Jesus Christ of Latter-day Saints ("Mormons") and those who are not members of this church ("non-Mormons"), participated in vowel mergers in this region differently from each other, even though both groups were raised in the same area and lived in non-segregated communities.

In particular, as shown in listener judgments, the Mormon speakers in this study participated in typical mergers found in Utah English, including the *fail-fell*, *pole-pull-pool*, and *dull-pull* mergers, while the non-Mormon groups did not. Instead, the non-Mormon group seemed to be participating more in the mergers common to the Western shift, such as the *pin-pen* merger (Labov, Ash, and Boberg 2006). This finding expands previous research in that it demonstrates that religion can influence language use independent of race (e.g., Bosakov 2006) or geographic location (e.g., Kingsmore 1995).

These findings may be explained by the fact that the two groups may have developed social networks around the very salient characteristic of religion (Milroy 1987). Although the two groups may work together and live in the same neighborhoods, they seem to have created, whether consciously or not, social networks mainly around the social variable religion. This is demonstrated by the fact that the participants in this study are from several age groups and educational backgrounds, and yet the most salient feature that determined their production of typical vowel mergers seemed to be their religious affiliation.

It is also possible that the two groups are attempting to assert differences between each other, again whether consciously or not. Whether the differences are initiated by the Mormons or non-Mormons needs to be determined by future research, although the fact that the non-Mormon group did not participate in the vowel mergers typical of the area suggests that this group may be the initiators of differences between the two groups. This is particularly significant given that the two groups of participants in this study (Mormons and non-Mormons) had been matched in terms of age, gender, educational level, and years spent living in Utah (all participants in both groups had been raised in the area at least since the age of 5). Moreover, we matched the two groups on where their parents had been born and raised, so that any effects of extended family members would also be controlled for.

Another important finding of this study was that, even when the two groups were participating in the same merger (*hot-caught*), the two groups produced the merger slightly differently from each other, one group merging more closely to *hot* than the other. Again, this finding demonstrates that the two groups, though both living within the same area and participating in similar vowel shifts, still attempt to identify themselves as members of different groups.

This finding is also significant given that the number of Mormons in Utah County, Utah is estimated at 88%, and therefore the non-Mormon group is by far the minority in this area. Even though the non-Mormons were from several different neighborhoods, and attended different churches and worked at several different locations, they produced these vowel pairs similarly to each other and different from the Mormons in this study. These findings seem to suggest that the non-Mormons may be attempting to use differences in vowel production to identify themselves as non-members of the dominant culture.

One of the most interesting findings of this study is that the non-Mormons seem to be participating in mergers characteristic of the Western shift (Labov, Ash, and Boberg 2006), including the *pin-pen* merger, while the Mormons are not. These findings seem to suggest that the non-Mormons may identify and interact more with speakers from other locations. This may occur as other non-Mormons move into the area, or as the participants in this study associate with family or friends from other regions. What is significant is that the Mormons do not seem to participate in these mergers, even though there has been significant movement to Utah in the last several years from other regions of the U.S. by both Mormons and non-Mormons. Research exploring whether Mormons immigrating to Utah County, Utah assimilate the features of Mormons, while non-Mormons do not, would help to illuminate the effect of transplants into the area.

From all this, we conclude that religions that require a high time commitment of their members facilitate the development of social networks based on religious affiliation, leading to linguistic differences between adherents and non-adherents. Therefore, we urge sociolinguists to investigate religious affiliation as a possible social factor in their studies of communities, particularly when a religion in the community requires a large involvement of time on the part of its members.

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