14 Variation

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1 Introduction

The process of second language acquisition (SLA) is highly variable. Indeed, Young (1988, p. 281) identifies variation as "one of the abiding problems of second language acquisition." Variation is immediately obvious in the fact that Japanese learners of English, for instance, sometimes pronounce English /r/ as /l/, or that Chinese and Vietnamese learners of English do not always mark noun plurals, etc. Many such differences between learners' performance and that of native speakers were traditionally attributed to interference or transfer from the learner's first language (L1), (see Odlin, this volume, on cross-linguistic influence).

Contrastive analysis of the learner's language with the target language (TL) was used to pinpoint areas of difference and hence predict learner errors. Thus, within this framework the failure of Japanese learners to produce English /r/ consistently was explained by the fact that Japanese does not distinguish phonologically between /l/ and /r/. Likewise, the variability in plural marking among Chinese and Vietnamese learners of English can be attributed to the fact that Chinese and Vietnamese do not regularly mark plurals.

On closer examination, however, variability clearly has sources and causes other than cross-linguistic influence. Czech learners of English, for instance, also mark noun plurals variably, and Czech does mark plurality in a way similar to English by means of inflectional morphology. Furthermore, variability is not totally random or idiosyncratic. Low-proficiency Chinese learners, for example, more often mark plurals on nouns ending in stops, such as *dog*. Grammatical accuracy also varies depending on the demands of the task, with more target-like performance typically more frequent on formal tests than in casual conversation.

Until the 1970s such phenomena were not generally discussed in variationist terms or indeed within the larger context of linguistic theory, because the learner's language was not considered as a system in its own right. Since then,

however, researchers have turned their attention away from contrastive analysis and analysis of individual errors defined in terms of the mature TL system, in order to concentrate instead on the notion of SLA as a dynamic process characterized in terms of a variable and changing system over time. The introduction in particular of the notion of *interlanguage*, the variable learner systems of increasing complexity that develop during the process of acquiring a second language, marked an important paradigm shift in the field of SLA. The observation that learners from different L1 backgrounds acquiring the same TL appeared to go through the same stages of development, whether they were receiving formal classroom instruction or learning the language informally, led to claims that SLA was influenced by internally driven mechanisms independent of the learner's L1 and the TL (see, e.g., the papers in Rutherford, 1984).

With the shift in emphasis toward accounting for variability and explaining its sources and causes, there was initially much cross-fertilization between the fields of sociolinguistics and SLA, as well as between the study of pidgin and creole languages and SLA, because scholars in both those fields were also engaged in analyzing variation. During the 1970s and 1980s there were a number of attempts to develop taxonomies of variation within sociolinguistics as well as within SLA (see Adamson, 1988; Preston, 1989). Klein and Dittmar (1979), for example, pioneered the systematic study of learner varieties with their work on the natural or untutored (i.e., outside the classroom) acquisition of German by foreign workers. Recognition of the central concern of students of SLA to describe and account for the variability in interlanguage systems led in some cases to the adoption of sociolinguistic procedures for collecting and analyzing data, in particular recognition of the need to collect data in different contexts which might affect the occurrence of individual linguistic features. Correspondingly, there has been a growing interest in the influence of external variables of the kind investigated by sociolinguists, such as setting (see, especially, the chapters by Siegel and by Watson-Gegeo and Nielsen, this volume), attitudes and motivation, peer group influence, amount of planning time, topic, and interlocutor.

2 Sources of Variation in SLA

2.1 Systematic and unsystematic variation

The most basic (though not uncontroversial) distinction is that between systematic (i.e., rule-governed) and non-systematic (or free) variation not conditioned by any observable factors or governed by rule. As an example of non-systematic variation, consider the case of an 11-year-old Portuguese learner of English who used pre-verbal negation (e.g., *No look my card*) and *don't* + V (e.g., *Don't look my card*) in apparently random fashion (Ellis, 1992). The development of negation actually began with the generalized use of pre-verbal negation. Then *don't* entered the boy's repertoire and for a time was in free variation with *no* until other forms were added, such as *can't* and *won't*. The stage of

free variation rapidly gave way to systematic variation and target-like invariance once he mastered the system. It is still an open question, however, whether cases of seemingly free variation are instead the result of inadequate research methods and lack of sufficient data for analysis. Other researchers looking at the same or similar data in more detail have not agreed with Ellis's claims about free variation and its role in the learner's interlanguage (see further in Ellis, 1999; Towell, Hawkins, and Bazergui, 1993; and section 5 below).

As an example of systematic variation, we can take the case of another learner mentioned by Ellis who marked third person singular present tense verbs with the suffix *-s* when the clause subject was a pronoun, but tended not to do so when the subject was a noun. Compare *he eats turkey* with *John eat turkey*. Here, variation is systematic because constraints can be observed and used to predict the appearance of the variants.

2.2 *Internal and external variation*

Quantitative sociolinguistic research of the type established by Labov (1966) identified both internal and external factors which had systematic effects in constraining the occurrence of phonological variables; for example the pronunciation of post-vocalic /r/ in words such as *farm*, *car*, final -t/d in *missed/grabbed*, *mist/hand*, or grammatical variables such as the third person singular present tense suffix *-s*, etc.

Internal variation is conditioned by linguistic factors, such as the phonetic environment in which a sound occurs. Over two decades of research on these and other variables in a number of different varieties of English and English-based creoles has revealed that variation previously reported and described as unsystematic or free was in fact conditioned by linguistic factors, such as environment. In the case of -t/d deletion, for example, it matters whether a word beginning with a vowel or a consonant follows (e.g., *missed train* v. *missed Alice*) or whether the final member of the cluster is the past tense morpheme (e.g., *missed* v. *mist*).

In addition, there are regular external or social factors affecting the realization of -t/d, including social class of the speaker, with higher-status speakers deleting less often than lower-status ones; style, with more deletion in less formal styles than in formal ones; and age, with younger speakers differing from older speakers with respect to the treatment of verbs such as *keep*, where past tense is marked by both the final /t/ and vowel change of the type found in strong verbs such as *come* (see Guy and Boyd, 1990). There are also differences relating to ethnicity and region, with African-Americans, for instance, deleting more frequently than whites.

2.3 *Constraint hierarchies*

An important finding of quantitative sociolinguistic research is that variable constraints can be ordered in a hierarchy according to how great an influence

they exert on deletion. In this example, the linguistic constraints follow the hierarchy:

i Monomorphemic > Bimorphemic
ii C > V

This means that the phonetic environment promotes deletion more than the grammatical constraint: monomorphemic forms such as *mist* are more likely to show deletion than bimorphemic forms such as *missed*, where there is a morpheme boundary between *miss* and the final *-ed* signaling the past tense. Where a word beginning with a consonant follows word final -t/d, as in *missed train*, deletion is most likely.

One of the first SLA studies to adopt this kind of explicitly variationist perspective in both methodology and analysis was Dickerson's (1975) study of the variable phonology of ten Japanese learners of English. Dickerson incorporated the sociolinguistic concept of variable rule, an analytical construct which attempts to capture the observation that variation is sensitive to various constraints in the internal and external environment. Figure 14.1 shows the variable performance of learners in the pronunciation of /z/ in four linguistic contexts: before a following vowel (e.g., *jazzy*); before a following consonant other than interdental fricatives, affricates, and alveolar stops (e.g., *jasmine*); before a following silence; and before interdental fricatives, affricates, and alveolar stops (e.g., *buzzed*).

There are a number of theoretical and practical implications of Dickerson's findings. The first is that learners' pronunciation is most target-like before

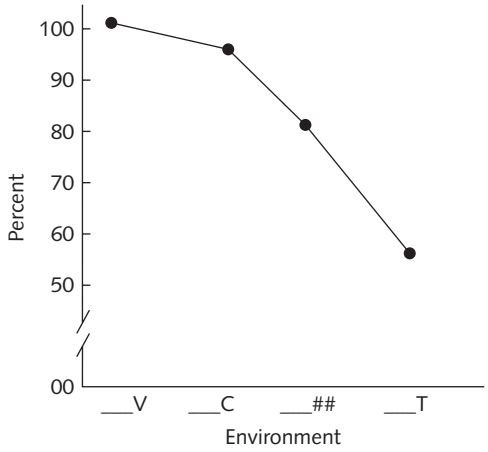

Figure 14.1 Accuracy of Japanese learners' pronunciation of English /z/ in four linguistic contexts
Source: Dickerson (1975, p. 403)

vowels, and least target-like before interdental fricatives, affricates, and alveolar stops. Thus, variation is sensitive to internal linguistic conditioning factors of the same type identified by sociolinguists in their study of native speakers. Another is that new sounds of a foreign language are easier to acquire in some contexts than others, a fact which is pedagogically useful for designing teaching materials. Learners can be taught to master difficult sounds in the easiest environments first before moving onto more difficult ones. Quantitative analysis can reveal the ordering of environments according to difficulty of acquisition. In later work, Adamson and Regan (1991) characterized the learning of constraints as "horizontal variation" (by comparison to "vertical variation," which is of a developmental nature). The problem posed by horizonal variation is that learners must learn the external and internal constraint rankings on variation.

3 Explanations for Internal Variability

3.1 Markedness

Explanations for internal linguistic variability in both native and non-native performance have appealed to a variety of factors, such as markedness and universals. A number of sociolinguists, for instance, have treated -t/d deletion as a slightly more specific version of a more general articulatory reduction rule. The loss of final consonants is a universal phonetic tendency operative in a wide range of languages. Thus, speakers tend to simplify consonant clusters, presumably because sequences of consonants are more marked than a sequence of consonant followed by vowel. This constraint operates to maintain the preferred universal canonical syllable structure, CVC. In fact, deletion of -t/d in consonant clusters is normal in casual, non-standard speech throughout native-speaker varieties of English.

Likewise, it has been assumed that a one-to-one relationship between form and meaning is the most natural one. Kiparsky's (1972) Distinctiveness Condition, for example, states that there is a tendency for semantically relevant information to be retained in surface structure. Therefore, the final /t/ of *mist* is more likely to be deleted than the final /t/ of *missed*, which carries meaning. A meaningful feature is more marked if it has no phonetic realization. Grammars tend to block rules which would wipe out surface morphological distinctions. We can then predict that a phonological rule of deletion would tend not to operate across morpheme boundaries. Thus, in general terms, we could say that the grammatical constraint reflects a functional principle because deletion in this environment would result in syncretism between the present (except for 3rd person singular forms) and past tense forms.

Kiparsky (1972, p. 645) claims that processes such as -t/d deletion are better treated as the result of general functional conditions impinging on speech performance than as specific rules in individual grammars. Phonological change

Table 14.1 Markedness metric for t/d/ deletion

	Constraints	
Environments	*[morpheme boundary]*	*[syllabic]*
i mist #C	u	u
ii mist #V	u	m
iii miss+ed #C	m	u
iv miss+ed #V	m	m

works against the demands of ideal morphology, with optimal encoding being expressed by uniform encoding of one form/one function.

Using these insights, we can generate a markedness metric for the environments in which -t/d deletion occurs, as shown in table 14.1. The constraint of a following consonant outranks that of a preceding morpheme boundary, so environment (i) is the most favorable to deletion because the unmarked values for both features [morpheme boundary] and [syllabic] co-occur; and environment (iv) is most resistant because here both features are marked.

Morphological and syntactic studies also show that variability reflects universal principles of markedness rather than simply the influence of L1 and L2. Typological work on relative clause formation strategies led to a variety of predictions that were tested by SLA researchers. Gass and Ard (1984), for example, found that acquisition of English relative clauses by learners of various L1 backgrounds proceeded from left to right in the noun phrase accessibility hierarchy postulated by Keenan and Comrie (1977): Subject > Direct object > Indirect object > Oblique > Genitive > Object of comparison. The hierarchy predicts universal constraints on relativization by means of an implicational ordering of noun phrases according to their degree of accessibility to relativization. The hierarchy predicts that subject position will be the most frequently relativized (e.g., *the woman who works with me rides a bike to the office*). If a language has a relative clause formation strategy that works on two possible NP positions, then it must work on all intermediate positions. This means that we would not expect to find a language with relative clause formation strategies that apply only to subject and oblique position.

Gass and Ard also found that the lower the position in the hierarchy, the more likely resumptive pronouns were used, for example, *the woman that I gave the book to her*. Here the relative clause is in oblique position (i.e., object of a preposition) and *her* is a resumptive pronoun occupying that slot. The frequency of occurrence of resumptive pronouns also occurred in inverse proportion to proficiency.

Similarly, Hyltenstam (1984) showed that learners of Swedish as a second language from a variety of L1 backgrounds used resumptive pronouns with

greater frequency further down the hierarchy. Some of the learners' languages allowed resumptive pronouns. Swedish, however, like English, does not permit resumptive relative pronouns.

3.2 The relationship between variation and change

One of the tenets of sociolinguistic theory is that synchronic variation represents a stage in long-term change. We can also use this constraint hierarchy to predict the development through time of varieties, on the assumption that linguistic change proceeds in step-wise increments, with rules generalizing as they spread through time and space, as suggested, for instance, in Bailey's (1973) wave model. Initially, a rule may have a probability of application of zero in all environments, and then the probability of application increases environment by environment. This is shown in table 14.2, where the onset of change is in variety A at time i in environment a. Using the kind of calculus applied by Bailey (1973), we can generate the continuum of varieties in table 14.2, in which the environments a, b, c, and d are temporally successive.

In assigning the heavier weight to the following consonant and the lighter one to the morpheme boundary, the model predicts that more deletions will occur in monomorphemic than bimorphemic clusters. The assumption here is that, all other things being equal, "normal" linguistic change proceeds from heavier to lighter environments. Bailey also predicts, however, that rules operate faster in heavier than lighter environments. Thus, the oldest environment is the earliest and fastest. It becomes categorical earliest, before the last environment begins to be variably operative. In other words, what is heavier has a greater effect on the application of the rule. What is quantitatively less is slower and later. In variety E, deletion is categorical in the heaviest environment,

Table 14.2 Temporal development of varieties for the rule of -t/d deletion

		Environment			
Time	*Variety*	*a* *mist #C*	*b* *mist #V*	*c* *miss+ed #C*	*d* *miss+ed #V*
i	A	mis(t)	mist	missed	missed
ii	B	mis(t)	mis(t)	missed	missed
iii	C	mis(t)	mis(t)	miss(ed)	missed
iv	D	mis(t)	mis(t)	miss(ed)	miss(ed)
v	E	mis	mis(t)	miss(ed)	miss(ed)
vi	F	mis	mis	miss(ed)	miss(ed)
vii	G	mis	mis	miss	miss(ed)
viii	H	mis	mis	miss	miss

while the others are variable. Variety H, which is furthest in time and space from the point of origin, displays categorical deletion, while variety A is the least advanced. Here the rule applies variably only in the most favorable environment. Environments are implicationally ordered so that a variety which shows categorical deletion in environment c, for example, must also show categorical deletion in the lighter environments to the left, a and b. This is shown in variety E.

Rules, of course, can become stagnant, die out, or be aborted at any point in their temporal development. They may also be stable over long periods of time, as is the case for -t/d deletion, for instance. There is no reason to believe that one day all final instances of -t/d will disappear, because literacy acts as a brake on change. Constraints on rules may also be reweighted as they develop in a particular direction or variety. Rules can also compete for the same territory, and the same linguistic environment can host more than one change at the same time.

Dickerson (1975) also showed that it is possible to model SLA as continuous change over time, comprised of a series of transitions from one variety to the next, with each stage and transition characterized by systematicity. She monitored the learners' performance by recording them on three separate occasions over a nine-month period and found that development involved an increase in the proportion of target and target-like variants over time.

A number of SLA researchers have employed the same kinds of statistical procedures used by sociolinguists, such as VARBRUL analysis, a statistical program to calculate the probabilities for each factor (see, e.g., the studies in Bayley and Preston, 1996, and the appendix by Young and Bayley, 1996), as well as the kind of implicational model of change embodied in Bailey's dynamic paradigm, frequently employed by creolists in the analysis of variable data.

Gatbonton (1978) was one of the first to apply the dynamic model of language change to the acquisition of English interdental fricatives by French Canadian learners, who tend to substitute the equivalent stops. Her results for the voiced interdental fricative [d], shown in table 14.3, illustrate that new pronunciations move through learner interlanguage systems in a similar way to forms undergoing change in native-speaker varieties (or lects, as Bailey called them).

Like Dickerson, Gatbonton found that the correct TL pronunciation was mastered in some environments more readily than others. Variety 1, for instance, shows the system used by three learners who do not use the correct TL pronunciation at all. Variety 11 shows complete mastery of the TL pronunciation, a stage none of the learners in this study has reached. In fact, only two of the learners have progressed to the stage illustrated in varieties 8 and 9, where the use of the correct TL variant is categorical in the heaviest three environments, but still variable in the lightest two environments.

Note that Gatbonton's findings do not match exactly the predictions made by Bailey's wave theory, where only one variant appears in one environment

Table 14.3 Acquisition of English interdental fricatives by French Canadian learners

Linguistic environments[a]						
Heaviest ..... *Lightest*						
Lect	*V___*	*VCT___*	*VS___*	*VLCT___*	*VLS___*	*Number of subjects*
1	1	1	1	1	1	3
2	1,2	1	1	1	1	7
3	1,2	1,2	1	1	1	3
4	1,2	1,2	1,2	1	1	0
5	1,2	1,2	1,2	1,2	1	2
6	1,2	1,2	1,2	1,2	1,2	2
7	1,2	1,2	1,2	1,2	1,2	3
8	2	2	1,2	1,2	1,2	1
9	2	2	2	1,2	1,2	1
10	2	2	2	2	1,2	0
11	2	2	2	2	2	0

[a] V, preceding vowel; VCT, preceding voiced continuant; VS, preceding voiced stop; VLCT, preceding voiceless continuant; VLS, preceding voiceless stop. 1 = categorical presence of non-native substitute for English; 2 = categorical presence of native or nativelike English; 1,2 = variation of 1 and 2.
Source: Adapted from Gatbonton (1978), in Preston (1996, p. 244)

at a time. Once the learners in Gatbonton's study introduce a new form into an environment, it does not completely replace the old one. There is a stage where the old and new form alternate in apparent free variation. Otherwise, there is a good match between the model and the data. Only 6 of the 28 learners in the study did not fit into one of the predicted lect patterns. For Ellis (1992), such "free" variation is the clue to development because it is restructuring of competing rule systems which leads to change (see section 5).

3.3 Implications of variation in developing systems

The possibility that there may be universal constraints, such as markedness, driving the progression of linguistic systems from more simple to more complex also prompted a good deal of fruitful interaction between creolists and SLA researchers, as scholars sought to identify the similarities across both first and second language acquisition and language change, particularly contact-induced change of the type resulting in pidgins and creoles (see Andersen, 1983; Romaine, 1988, ch. 6, for an examination of the relevance of SLA to the

study of pidgins and creoles). If there is a tendency to use less complex, more universal, and less marked forms in all these settings, then the sorts of systems that emerge ought to be similar.

Such ideas launched a series of studies aimed at detailing the similarities and differences among these developing variable systems. With respect to grammatical morphemes in first language acquisition, for instance, Brown (1973, p. 257) noted some time ago that performance does not pass from total absence to reliable presence: "There is always a considerable period, varying in length with the particular morpheme, in which production-where-required is probabilistic." Bickerton's (1977, pp. 54–5) characterization of pidginization as second language acquisition with limited input, and creolization as first language acquisition with restricted input, sparked a number of studies showing how the early stages of SLA shared features with pidgins. Schumann's (1978) longitudinal study of negation strategies used by Spanish speakers, in particular by Alberto, a 33-year-old Costa Rican Spanish speaker who acquired a rather limited proficiency in English, emphasized Alberto's continued use of pre-verbal negation, the preferred strategy of negation in English-based pidgins. Stauble (1978) suggested that developmental stages of the interlanguage continuum could be called basilang, mesolang, and acrolang, by analogy with the portions of the creole continuum referred to as basilect (i.e., that furthest away from the target), mesolect, and acrolect.

A strict universalist interpretation would lead to the prediction that there is a single series of changes or sequence of developments in any continuum linking the basilect/basilang to the acrolect/acrolang, between particular pairings of source and target languages. This encouraged consideration of cross-linguistic data from learners with different L1 backgrounds acquiring the same TL, which contrasted along major parameters of variation. The European Science Foundation project on adult second language acquisition among immigrants employed this methodology. Six teams of researchers based in different countries of Europe undertook paired comparisons of the learning of one TL by speakers of different source languages (SL) and the learning of different TLs by speakers of the same SL. This systematic comparison allowed a distinction to be drawn between features of the learning process specific to one linguistic pairing and features which were recurrent.

Overall, there appeared to be little TL influence in the acquisition of major semantic domains, such as temporality (see Dietrich, Klein, and Noyau, 1995). In the early stages, it seems that learners create a system of communication rather than acquire specific TL features. Learners begin by using lexical means before proceeding to grammaticalized ones. Systematic morphological distinctions emerge rather late, if at all. In the case of French, for instance, Noyau, Houdaïfa, Vasseur, and Véronique (1995, p. 205) found that although French has a grammaticalized aspectual distinction in the past, even advanced learners did not acquire it. This suggests that acquisition is dictated not by the TL, but by the constraints of the developing interlanguage system over time.

3.4 Transfer

An approach based on markedness and universals does not, however, explain everything, partly because there is no single definition of markedness. As Janda (1995, p. 207) has remarked, the notion has "survived decades of imprecise definitions and . . . developed into a cluster of (dis)similar concepts." Nor does markedness eliminate the need to invoke a role for transfer (see Odlin, this volume). As work becomes more sophisticated, researchers have resisted the temptation to look for single causes and accepted that interlanguage variability may have more than one source.

Gilbert (1983), for instance, examined the acquisition of the definite article in German by foreign workers of different language backgrounds. Four of the six source languages included in this study possess definite articles (i.e., Spanish, Greek, Italian, and Portuguese) in syntactic environments corresponding to those of German. A simple interpretation of transfer theory would predict that speakers of these languages should find it easier to learn a category in a second language equivalent to one already existing in their own. In addition, if such learners omit definite articles, this has to be attributed to pidginization rather than transfer. Absence of the definite article is a significant indicator of pidginization, because the definite article is nearly universal in all Germanic- and Romance-based pidgins and creoles. Moreover, the only instance in which the definite article is omitted in native-speaker German is in foreigner talk. Conversely, Turks and Yugoslavs, whose languages have no matching category, would face a more difficult task because they would have to create a whole new category.

Table 14.4 shows that speakers of languages with definite articles do make more use of definite articles, as would be predicted by transfer theory. However, they do not use articles categorically, which argues against the "bulk transfer hypothesis." The differences among Portuguese, Spanish, Italian, and Greek speakers is partly due to period of residence. Those with longer

Table 14.4 Frequency of occurrence of the definite article in the German of learners of different language backgrounds

Nationality	*% of occurrence of definite article*
Turkish	15
Yugoslav	19
Portuguese	35
Italian	69
Greek	75
Spanish	87

Source: Adapted from Gilbert (1983, p. 173)

residence produced more definite articles. The lower rate of use of definite articles among learners with shorter periods of residence is evidence of pidginization operative in the early stages of SLA.

Another effect of pidginization is in evidence in the forms of the definite article actually used. German has six distinct forms inflected for case, number, and gender. Italian and Greek are the languages most similar to German in this respect, and according to transfer theory, we would expect these two groups to produce a greater variety of marked forms (even if incorrectly distributed) than Spanish, Italian, and Portuguese speakers, whose definite articles differ in terms only of gender and number. This is not the case, however. In fact, Italian speakers used *die* categorically, just as speakers of Rabaul Creole German used *de* categorically. The form *die* is actually the most frequently occurring form in native-speaker German, occurring over 50 percent of the time. In fact, all groups tended to overgeneralize the use of *die*, regardless of period of residence. Overall, this study supports the idea that there are universal principles of pidginization, as well as positive and negative transfer effects. These manifest themselves in variable frequencies of occurrence of different features in L2. The study also suggests that learners with the same L1 make up learner communities.

The acquisition of the definite article in English is one of the major difficulties faced by second language learners, particularly those who speak languages with no definite articles. Similar effects may be found to those of the German acquisition study, namely that learners with articles in their first languages perform better than those who do not (Oller and Redding, 1971). Zobl (1982) shows how Spanish and Italian learners of English move directly from zero representation of the definite article to the target form. Chinese speakers, whose L1 does not have a definite article, follow a different evolutionary route in which a demonstrative pronoun is used as a first approximation to mark definiteness. Likewise, Zobl's (1984) study of the acquisition of nominal possessives in German by Turkish and Romance speakers shows that each group follows a distinct route which relates directly to typological differences between Romance languages and Turkish.

Another approach drawing on markedness, universals, and typological variation has followed the principles and parameters model account of the language faculty (Chomsky, 1981) to explain both order of acquisition and the effects of transfer in SLA. Within this perspective the grammar contains a core of fixed principles and certain open parameters which are set in accordance with experience. An associated theory of markedness dictates that in the absence of evidence to the contrary, the child will select the unmarked options. If we assume, not uncontroversially, that second language learners still have access to universal grammar, the problem is how to reconcile possible differences in parameter setting between the first language and the TL.

Some have argued that all parameters are initialized at the unmarked setting, and thus the second language learner will first adopt the unmarked form,

irrespective of first language parameter settings. Meisel (1983, p. 202), for example, argued that deletion of pronouns can be found across a range of second language learners with different first language backgrounds in accordance with the fact that pro-drop constitutes the unmarked case (see also Hyams, 1986, for first language acquisition). However, there is also evidence that where the same parameter is marked in both languages, learners do not reset to the unmarked value. This, in effect, predicts that transfer will have no effect, and is too strong a claim. White (1986), for example, discusses evidence to show that speakers sometimes transfer a marked parameter setting from their first to a second language, in which the parameter is unmarked. There are also other cases where the learner's first language does not have a particular parameter at all, but nevertheless, the learner acquires the marked setting found in the second language rather than going through a stage of treating the parameter as if it had the unmarked setting.

There will also be ambiguous cases where it is impossible to distinguish transfer from the application of the default parameter setting. For example, some Spanish speakers apply pro-drop to English, but since English has the marked setting for this parameter and Spanish does not, the use of the unmarked parameter setting in English could be due to transfer or to more general markedness principles, or both. Other indeterminate cases arise from the fact that markedness theory does not dictate any particular setting as marked or unmarked. Thus, core grammar allows a number of different unmarked word orders. There is also some disagreement on the markedness values assigned to different parameter settings, which will affect how the evidence is interpreted. White (1986, p. 319), for instance, argues that pro-drop is the marked setting, and suggests that it might be harder for native speakers of Spanish learning English to abandon pro-drop than it is for native speakers of English learning Spanish to acquire it. In effect, this means that it should be harder to go from marked to unmarked than from unmarked to marked, if pro-drop is the marked setting. Phinney (1987, p. 235) provides evidence to support White's claim that English speakers are more easily able to acquire the pro-drop system of Spanish than Spanish speakers are able to acquire the non-pro-drop system of English, but she assumes that pro-drop constitutes the unmarked case.

More interesting perhaps, however, are cases where the languages in contact are typologically very different with respect to more than one parameter or with respect to a parameter which has far-reaching structural consequences, such as the head-final/head-initial parameter, which dictates basic principles of word order in a language (see, e.g., Flynn, 1989, on the acquisition of English relative clauses by Japanese and Spanish learners). More carefully controlled contrastive studies of a number of different language combinations must be conducted before these differing findings can be properly evaluated and understood, or indeed before it is clear whether a developmental interpretation of parameter setting is coherent (see Saleemi, 1992).

4 External Factors in Variation

External variables, such as social class, network, age, sex, ethnicity, or style, may come into play in both native and non-native performance. Although social class distinctions have been of paramount interest in accounting for sociolinguistic variation, they are of limited use within SLA. Interlanguage variants seldom have social significance for learners, although they may convey such distinctions to native speakers (see section 5).

4.1 Style/task-based variation

Stylistic variation, understood in terms of amount of attention paid to speech in different situations or while performing different tasks, however, is pertinent to both native and non-native speakers (see also Siegel, this volume, on context more generally). Dickerson (1975) found that Japanese learners of English produced more target-like variants in situations where they were able to monitor their speech, such as reading word lists, and fewer target-like forms in situations where they were less able to monitor their speech, such as free speech. This, too, has a direct parallel in sociolinguistic studies of native speaker varieties, where prestige forms are usually produced more frequently in carefully monitored styles.

Figure 14.2 shows Tarone's interlanguage continuum, which attempts to account for variation in learner speech by hypothesizing the existence of a number of varieties arranged along a continuum, which also represents the progression from zero to ultimate attainment. The learner moves up or down according to amount of attention paid to speech.

There are problems, however, with respect to both the measurement of amount of attention and the equation between attention and formality (see Sato, 1985; Traugott and Romaine, 1985). Different tasks make different demands

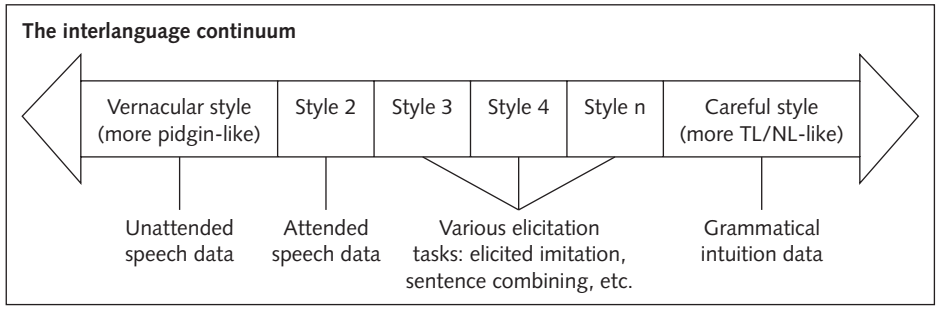

Figure 14.2 The interlanguage continuum
Source: Tarone (1985, p. 152)

on native speakers as well as learners. Where spelling suggests a more standard pronunciation, as, for instance, it does in forms ending in -t/d, native speakers may produce the more standard variants in reading style for reasons that have nothing to do with formality per se. In other cases, spelling may bias speakers to produce a non-standard variant, such as in the case of speakers of some non-standard varieties of British English who pronounce the final ending of words such as *singing* as [ng] rather than with a velar nasal [n]. In other varieties of English, this feature is also variable, but the main variants are an alveolar nasal [n] and a velar nasal [n]. Here we have an example of the same process leading to two completely different outcomes.

In his study of -t/d deletion, Bayley (1996) found that although both native English speakers and Chinese learners of English were affected in the same way by style, with more deletion occurring in more informal styles, the learners were more likely to omit -t/d from past tense forms. The magnitude of the effect varied according to the social circumstances of the learner. Learners who regularly interacted with native speakers in informal contexts behaved more like native speakers, omitting -t/d from past tense clusters more frequently than those whose use of English was restricted to the classroom. It is tempting to suggest that socialization patterns are the cause of the variation, which would parallel explanations based on network theory within sociolinguistics, where scholars such as Milroy (1980) proposed that the kind of social network speakers are involved in has significant effects on language patterns. However, learners rarely form cohesive communities and networks of the type sociolinguists typically investigate, with the possible exception of indigenized varieties, such as Singapore English, which have been heavily shaped by substratum influence (see Ho and Platt, 1993). Hence, we would not expect the same types of sociolinguistic explanations based on the identity functions served by the maintenance of non-standard norms of speech to apply to second language learners.

In any case, Bayley offers a different explanation for the behavior of the Chinese learners, who he says have not learned to delete final -t/d, but simply have failed to acquire target-like patterns fully. Similarly, Romaine (1984) has argued that it makes no sense to talk of deletion in earlier stages of the history of English before we have a system containing bimorphemic clusters. It was not until fairly late in the history of English that the verb system contained the relevant environments for deletion. The same could be said for most pidgin and creole varieties of English, where it makes more sense to speak of addition of -t/d as a late rule. Even in the most favorable environments, presence of past tense marking is rare. Once these clusters emerge regularly, they are picked up, so to speak, by the phonetic rule which was already operating more generally on final consonant clusters. The fact that this environment is relatively late would explain why it is quantitatively less. There is no need to invoke a distinctiveness condition (a notion which has been criticized on other grounds by both sociolinguists and SLA researchers; see, e.g., Labov, 1994, pp. 553–5; Young, 1993). Thus, early absences of -t/d do not represent cases of

true deletion but, rather, sporadic failures to insert. Here we have a case where different processes or rules may lead to the same outcome. It is not always possible to tell if surface zero results from deletion or failure to insert. Divergent grammars may be concealed by surface similarity.

Sociolinguists have also observed some regular interactions between change and external factors. The effect of style, for instance, is such that more formal styles tend to be more conservative, while more casual speech tends to be more innovative. Tarone (1985) suggests that new forms may be produced first in unmonitored styles and spread later to more carefully monitored styles, or conversely, they may appear first in monitored speech and spread to casual speech. Ellis (1992), however, predicts that free variability will occur first in more carefully monitored styles and spread from there. Preston (1989) speculates that more marked forms develop more quickly in monitored styles of interlanguage production and that unmarked ones are acquired earlier in less monitored styles (see also Major, 1999). This is an attempt to draw a specific parallel between interlanguage development and variationist notions of change from above (i.e., conscious change which originates in more formal styles and in the upper end of the social hierarchy) and change from below (i.e., below the level of conscious awareness and in the lower end of the social hierarchy).

More carefully monitored styles may also be open to aberrant, marked, and SL forms. Beebe (1980), for instance, found that Thai learners of English showed less accuracy in pronouncing English initial /r/ in elicitation environments which promoted greater attention to form (word lists) because a non-target-like trilled /r/ in Thai in initial position has high prestige. A more English-like /r/ is actually more frequent in initial position in casual styles. Thus, transfer itself may be responsive to social constraints, such as prestige. Prestige, in turn, may operate differently for men and women. If women are more sensitive to prestige norms, as suggested by a variety of sociolinguistic studies, this might lead to greater transfer among women in certain contexts. Schmidt (1987) found more evidence of transfer in more formal styles.

The clear effects of style and task on phonological variability are not always evident in morphology. Tarone's (1985) study of variable morphology by Japanese and Arabic learners of English, for instance, showed that some features, such as the third person singular indicative marker /s/, were also more frequently present in more formal elicitation contexts, such as on grammar tests, and less frequently present in less formal contexts, such as narratives. Overall, Japanese learners produced more target-like forms than Arabic learners. Other features, however, such as noun plurals, showed no sensitivity to elicitation environment or to language background.

Pienemann (1998), however, explains the task-based variation observed by Tarone (1988) and others in terms of the different components of the language production system utilized by different tasks, rather than in terms of differences in underlying knowledge (see box 14.1). Some tasks are more successful than others in eliciting particular structures. When a learner does not produce a particular structure in a given task, but uses it in another, we have to ask

Box 14.1 Task variation and the steadiness hypothesis (Pienemann, 1998, 6.5)

Research question: what is the variability of learners' interlanguage in response to task?

Hypothesis: Pienemann proposes a Steadiness Hypothesis, which predicts that the basic nature of the grammatical system of a learner's interlanguage does not change in different communicative tasks as long as those tasks are based on the same skill type in language production. Learners, thus, do not use grammatical rules which are beyond their current level of processability.

Methodology: Two groups (one consisting of learners of English, the other of English native speakers) with six subjects each, similar in age range (19–25 years) and gender composition (four females, two males), were asked to carry out six time-controlled tasks in sequence. The study also aimed to test the effectiveness of tasks in eliciting morphosyntactic structures. The tasks produced 12 hours of recorded speech.

Tasks:

Task 1: Habitual actions
Structure: 3 sg. *-s*
Participants: Subject + researcher

This task involved a set of photographs depicting a day in the life of someone such as a police officer or a librarian. Subjects were asked questions such as "What does a librarian do every day?"

Task 2: Story completion
Structure: *Wh*-questions
Participants: Subject + researcher

Subjects were shown a set of pictures in order, then instructed to find a story behind the pictures. They were encouraged to ask for information.

Task 3: Informal interview
Structure: General
Participants: Subject + researcher

Subjects were interviewed informally by researcher.

Task 4: Picture sequencing
Structure: Questions
Participants: Subject + subject

Subjects were each given part of a sequence of pictures, which together made up a story. Questions had to be asked to enable the subjects to sequence the pictures.

Task 5: Picture differences
Structure: Negatives/questions
Participants: Subject + subject

Subjects were given one picture each of the "Spot the difference" variety. They had to ask questions to determine the differences.

Table 14.5 Third person singular -s and plural -s marking by learner 1 in six different tasks

Structure	*1 Habitual actions*	*2 Story completion*	*3 Informal interview*	*4 Picture sequencing*	*5 Picture differences*	*6 Meet partner*
3 sg. *-s*	26	21	17	15	0	25
Plural *-s*	88	50	57	29	100	33

Source: adapted from Pienemann, 1998, p. 304, table 6.5–18.

Task 6: Meet partner
Structure: Questions
Participants: Subject + subject

Subjects in dyads asked each other questions to find out information and then were asked to introduce each other to the researcher.

Conclusion: Fluctuations in correctness levels across tasks do not reflect different levels of acquisition, but are brought about by the specific lexical needs of the individual tasks and the status of morphological marking in different entries to the learner's lexicon.

Discussion of selected results: Results showed the expected fluctuation in rule application associated with task. Table 14.1 illustrates variability in the rate of plural *-s* insertion and for third person singular *-s* for one subject who displayed some of the greatest amounts of variation in each of the tasks. The numbers are percentages reflecting the rate of application of the rule. The plural rule, for example, has a rate of application varying between 29 percent (picture sequencing task) and 100 percent (picture differences task), whereas the third person singular varies between 0 percent (picture differences task) and 26 percent (habitual actions task).

The differential effects of task are evident. The fact that the habitual actions task prompted the highest use of third person singular *-s* is a logical response to the expressive needs of the task, which requires a singular third person referent and reference to present and non-continuous action. This task produced 23 contexts for the third person singular. The story completion task only makes reference to different time relations, with some of the action placed in the past, and so produces fewer contexts for the occurrence of the third person singular *-s*. Likewise, the picture differences task shows the highest rate of plural marking because it had the highest number of plural referents. Moreover, accuracy rates are affected by lexical choice, which in turn is determined by the task. A highly frequent use of correctly marked items increases the accuracy rate.

This conclusion is reinforced by the fact that native speakers responded in a similar way to the tasks, as shown in table 14.2, which details the results for third person singular *-s* in three tasks. Here we see the number of environments produced by natives and non-natives for the three tasks, along with the number of T-units (minimal terminal units) for each group, and a measure of the rate of occurrence of

Table 14.6 Frequency of the production of the environment for subject–verb agreement in three different tasks by native speakers and non-native speakers of English

Structure	*1 Habitual actions*	*2 Story completion*	*3 Informal interview*
Natives:			
3rd sg. *-s*	113	88	40
T-units	398	551	722
3rd sg./T-unit	0.28	0.16	0.06
Non-natives:			
3rd sg. *-s*	146	101	34
T-units	291	423	450
3rd sg./T-unit	0.50	0.24	0.08

Source: adapted from Pienemann, 1998, p. 302, table 6.5–17.

the third person singular *-s* per T-unit (i.e., what Pienemann calls "data density"). The main difference is that non-native speakers produce a greater number of environments for the feature, which may reflect the fact that learners produce a greater number of T-units to accomplish the same task.

The study underlines the importance of controlling for task variation in data collection. If speech samples are collected in the context of tasks which produce few contexts for the feature under study, then the researcher may draw incorrect conclusions about the state of the learner's grammar.

The study also casts some doubt on the use of quantitative acquisition criteria as accurate measures of development. This notion occurred in response to the question of when we can consider a learner to have acquired a particular structure. Some researchers have suggested that an item is acquired when a learner produces it 80–90 percent of the time. Non-application of a rule could, however, reflect the fact that no contexts for its application occurred in the environment in which the data were collected. If we adopted an arbitrary 80 percent criterion in the case of learner 1 in this study, for instance, the plural *-s* has been acquired in only two tasks (i.e., picture differences and habitual actions), while the third person singular *-s* has not been acquired at all.

Note that steadiness does not refer to consistency across individuals but to developmental consistency. Pienemann found that none of the subjects underperformed in any task, that is, failed to produce structures at or above the developmental level displayed in other samples.

whether each task produces enough relevant contexts for the rule to appear. Pienemann demonstrated that native and non-native speakers behaved very similarly in terms of the extent to which they produced particular structures, such as the third person singular present tense, in response to different tasks. This means that the nature of the communicative task itself produces the variable effect on the production of subject–verb agreement.

4.2 Gender-based variation

Few studies have focused on gender differentiation as a source of explanation for SLA variability, although gender has been of increasing concern within sociolinguistics (see, e.g., Romaine, 1999). When taken into account in the usual way by correlating linguistic variables with sex, results have generally not produced much of interest. Selinker (1969), for instance, found no difference in interlanguage word order for men and women. However, other studies taking a broader approach to the issue of gender as a social and cultural variable have found some significant effects.

Gass and Varonis (1986), for instance, studied sex differences in conversational interactions among Japanese learners of English. They found that mixed-sex dyads showed a greater number of negotiations than single-sex dyads, and that females were responsible for twice as many such negotiations as males. Males led in the number of conversational turns taken in mixed-sex dyads, and tended to lead the conversation in a picture-description task even when women were assigned the role of describing the picture to the male who could not see it. Men more often than women also gained the floor after interruptions. Single-sex dyads showed a more equitable distribution of talk.

Not surprisingly, these findings replicate patterns well known to gender scholars, such as Holmes (1994) and others, who have looked at the distribution of talk in various settings and found that men often dominate in public settings and in mixed-sex interaction. Many researchers have noted that from the very outset of schooling through to university level, male students talk more than females, and receive more class time than females. Studies have shown how this gender bias results in lower levels of achievement and self-esteem for girls. Since talk is crucial to learning, and input crucial to acquisition, males and females should have equal time. Informal reports suggest that the same kind of gender bias may also apply to second language classrooms. Lillian (1996) offered personal testament to her own unsuccessful efforts to give equal time to male and female students in her eighth-grade French-as-a-second-language class. On a "good" day, if she "used every scrap of energy and determination," she might manage to give the girls the floor 40 percent of the time, but on such days, the class was "absolute pandemonium," with the boys calling out, banging their feet and desks, and even verbally abusing her. In order not to have bedlam, she estimated she could allow the girls no more than about 25–30 percent of the talk time. In spite of what she perceived as her

own failure to give equal time to the girls, she was regularly accused of favoring the girls and giving them all of her attention. One father even came to her classroom to complain that she was a "man-hater," just like his ex-wife!

Another way in which women learners may not receive equal time is suggested by Polanyi (1995), who offered an explanation for the findings of Brecht, Davidson, and Ginsberg (1995) that listening and speaking skills of American women learning Russian in a study-abroad program did not improve as much as the scores of the male learners, otherwise matched for ability, aptitude, and other factors. She found that the linguistic growth of the women had been compromised by routine incidents of sexual harassment from Russian males, which made their communicative encounters unpleasant and awkward, and thus placed limits on their language learning opportunities.

The extent to which gender differentiation is encoded in the TL may also be an inhibiting factor for women. Japanese, for instance, is well known for its linguistic encoding of information relating to social status, politeness, and gender differences. The complexity of this system poses a special difficulty for foreign learners, in terms of not only the range of expressions available, but also the level of social and cultural competence required to use them appropriately. Even after a year abroad, students still have difficulty.

Although norms are changing (in many cases faster than textbooks appear to allow), Japanese women tend to use more polite and honorific forms than men. Western women who come from more egalitarian societies may feel they must project too subservient and alien a persona in order to speak Japanese properly as females. Japanese language teachers in the US report that female students reject the images of women's language projected in the textbooks and say they would not speak Japanese if they had to speak in such a fashion. One woman commented (Siegal and Okamoto, 1996, p. 675): "I don't think I've found my Japanese persona yet, who I am when I am speaking Japanese – I was listening to this lady speaking on the telephone in a little squeaky voice <imitates voice> it's like no, I don't think I can do that, it's not for me – um – I don't know." Gender, then, in the larger sense may be an important factor affecting the outcome of the SLA process.

5 Variability in Outcome

Although there are strong similarities in the structure of the acquisition process for all learners acquiring a given TL, there is considerable variation in its final point, as well as in its speed. In contrast to first language acquisition, which produces fluent speakers, there are wide differences in the outcome of the SLA process. The systems of many second language learners maintain a degree of variability in areas where native speakers show none (i.e., they maintain non-target variants such as *I no like it*). At the same time, learners do not display some of the more complex kinds of sociostylistic variation found in native varieties. Coppieters (1987) found that even highly fluent, near-native

speakers of French had different intuitions about grammaticality and different semantic interpretations of a range of French constructions from native speakers (see Sorace, this volume).

These facts have led some researchers to claim there is evidence of variability in competence as well as performance between native and non-native speakers. This issue of whether learners' underlying competence is also variable (see Gregg, 1989; Pienemann, 1998, pp. 237–9) parallels a debate which had its heyday in sociolinguistics in the 1970s and 1980s (see, e.g., Cedergren and Sankoff, 1974; Romaine, 1985), but does not seem to have influenced the field of SLA. As Preston (1986, p. 246) points out, Ellis has misunderstood the notion of free variation as well as the concept of variable rule.

Other explanations can often be found for instances in which Ellis (1992), for instance, has argued for variable competence. The fact that Zambian learners of English mark the third person singular present tense of verbs in main but not subordinate clauses falls out more generally from the processability theory argued for by Pienemann (1998). Although the theory does not define the set of conditions which determines the individual form of variation, it does attempt to delineate the scope within which interlanguage variability can occur. Processability Theory contains a hierarchy of processing procedures and routines ordered according to their activation. Pienemann predicts that in the acquisition of language processing procedures, the assembly of the component parts will follow an implicational sequence. Subordinate clause procedures are the last ones to be implemented. Within this theory, then, variability is explained in terms of the constraints imposed on the learning process by the architecture of the language processor. The task of language acquisition is seen as the acquisition of processing skills. Learners cannot acquire what they cannot process (see further in Pienemann, this volume).

Likewise, another of Ellis's examples of free variation between pre-verbal negation and *don't* + V (see section 2.1) has been challenged by Berdan's (1996) detailed analysis of negation in Schumann's (1978) study, which also claimed variation was not rule-governed. Berdan showed how the use of *don't* + V in Alberto's speech changed from being the least likely variant to the more likely variant over time, and identified a number of constraints governing choice of variants. Schachter (1986), too, concluded after an examination of variation in the development of negation among learners of English as a second language that the variation between pre-verbal negation and *don't*, which Ellis believed to be unsystematic, was in fact conditioned by function; pre-verbal negation was used to express denial or non-existence. Findings such as these call for more careful attention to methodology to ensure that studies are designed to control for as many conditioning factors as possible.

It is, however, still puzzling that learners should progress beyond a very basic level if they have control over a system which enables them to communicate reasonably well. Dietrich and Perdue (1995, p. 6), for instance, point out that learners are perfectly able to express temporal reference and relations despite the complete absence of verb morphology, and even of verbs, in a

large proportion of their utterances. This means that there is no way of marking temporality by grammatical means.

Moreover, a high degree of proficiency is needed for second language learners to master nativelike sociolinguistic variation. Native-speaking English children between the ages of 5 and 8, for example, have already acquired the constraints on -t/d deletion and other variable features routinely exploited by native speakers as part of sociolinguistic competence. As Lavandera (1978) points out, failure to exploit the sociostylistic dimensions of such variables, where the choices among variants are not referentially distinctive but socially diagnostic, carries the connotation of foreignness, no matter how proficient a speaker is otherwise, and limits the ability of the speaker to express sociostylistic meaning.

As an example, consider how the first element of the French negator *ne . . . pas* is variably deleted and is a highly sensitive marker of status, style, power and solidarity, and even political orientation (see, e.g., Sankoff and Vincent's 1980 study of Montreal French). Regan (1995) found that although advanced learners of French increased their deletion of *ne* dramatically after spending a period of study abroad, thus improving their sociolinguistic competence, they still tended to overgeneralize it. The deletion rule strengthened in nearly all environments and the ordering of constraints was generally the same as for native French speakers, and became even more nativelike over time.

The appearance of socially sensitive variable behavior is most likely to be found in learners with a high degree of proficiency. Among groups with lower levels of proficiency, the most importance influence is that of linguistic environment. Some learners may make no overt progress in the pronunciation of unfamiliar sounds due to peer pressure, and thus fossilize for social reasons. Accommodation theory thus has a role to play in explaining learner variability. A high degree of motivation and identification with the group whose language is being learned are more likely to result in a greater degree of convergence and, thus, greater L2-like accuracy, as the earlier example of Japanese honorific language illustrates.

6 Conclusion

The study of SLA requires an understanding of variation and the nature of the constraints on variable systems over time. Variation is usually conditioned by multiple causes, which means that researchers will be concerned with identifying multiple factors and assessing the relative contribution of each. There is still much to learn about the intersection of grammatical and phonological variation. Likewise, although task-based variability is well established, it is still not well understood. The conspiring influence of transfer and universals makes careful cross-linguistic work essential.

The study of SLA offers potential for greater understanding of language change. A broad developmental perspective of the type outlined in section 3.3

allows us to view both first and second language acquisition, as well as pidginization and creolization, within a larger framework of variation and change. Such insights are captured in ongoing work on grammaticalization theory and cognitive linguistics, which attempts to map routes between source and target categories (see Romaine, 1992).

The application of quantitative techniques of analysis from sociolinguistics to second language learners' performance can be used to solve both practical and theoretical problems. Unfortunately, Preston (1996, p. 246) observes that sociolinguistics and SLA have not had much in common recently, due to greater interest on the part of SLA researchers in the generative paradigm (particularly, the principles and parameters approach) and the reluctance or inability of sociolinguists to propose convincing psycholinguistic explanations of variability.

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