Bilingualism: Language and Cognition 10 (1), 2007, 43–45 © 2007 Cambridge University Press doi:10.1017/S1366728906002793

Variation and dynamic systems in SLA

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In their paper De Bot, Lowie and Verspoor (henceforth DBL&V) attempt to recast SLA research from a non-modular and psychometric position that is based on the assumption that "all variables are interrelated and therefore changes in one variable will have an impact on all other variables that are part of the system" (p. 8). In such grand endeavour their paper naturally raises a large number of issues in SLA research.

In this commentary I will focus on just one key issue that is crucial to DBL&V's article, interlanguage variation. My basic point can be summarized as follows: DBL&V assume that key aspects of SLA have not been adequately accounted for, in particular, variation. However, they do not define variation, no reference is made to the extensive literature on this topic, and the paper does not offer a new and operationalized treatment of variation, or generally of the dynamics of L2 development. Therefore I will review some of the relevant literature and relate it to DBL&V's claims. DBL&V imply that many or most approaches to SLA view variation as "noise" and not "as an inherent property of a changing system" (p. 14). Unfortunately, they are not explicit in stating the offending approaches or researchers. Instead, they rely on their overall perception that the linearity assumption is widespread and that it is to be found in the more traditional nativist approaches to SLA.

On this basis it is difficult to argue how widespread the linearity assumption is. However, this is not a quantitative issue. My point is that there is a wealth of research that is devoted to the issue of variation in second language acquisition that is ignored by DBL&V.

A substantial number of approaches to SLA were inspired by variationist linguistics as conceptualized by Labov (1972) and by the account of dynamic linguistic systems utilizing aspects of implicational scaling (Bickerton, 1971; DeCamp, 1973; Guttmann, 1944), of Labov's (1972) probabilistically weighted rules and of Bailey's (1973) wave model. This is evident, for instance, in the work of Klein and Dittmar (1979), Tarone (1979, 1985), Meisel, Clahsen and Pienemann (1981), Huebner (1983), Ellis (1985b), Preston (1993) and Pienemann (1998).

Variable rules are designed to capture three different things:

- the social context in which linguistic forms are being used,
- the linguistic context, and
- the probability of rule application.

A variable rule typically makes the following kind of statement: *rule x (e.g. contraction of the copula) is used with probability X in social context Y given that the linguistic context is Z.*

In applying this variationist approach to the study of SLA, Tarone (1979, 1982, 1983, 1985, 1988) and Ellis (1985a, b) focus on the social context and the probability of rule application. Tarone claims that a learner's interlanguage represents a continuum of speech styles which differ in their degree of variability and internal consistency. In her model, the choice of an interlanguage style primarily depends on the amount of attention to language form such that the less attention is paid to form, the less variability.

Ellis (1985a, b) claims that there is a continuum of speech styles and that free variability, i.e. variable forms which cannot be predicted by linguistic or social context, will first occur in the carefully planned style and will spread from there to other styles. He therefore perceives free variation as the engine behind acquisition which ensures that new forms enter the interlanguage system. Ellis also allows for socially defined variation, but it is unclear in his model how this is related to attention-based variation in a principled way.

In Tarone's and Ellis's models different varieties are placed along a continuum, which also represents the progression of interlanguage grammar from zero to ultimate attainment. The learner oscillates up and down this continuum (Ellis 1985a, b) depending on the amount of attention paid to speech production. The learner gradually moves up the continuum by adding new structures, while he or she can still move up and down the continuum from one moment to another. This model then accounts for the fact that the same learner may use two different linguistic forms for the same function in the same stretch of speech.

Sato (1985) and Young (1988) claim that in both models attention is not well-defined and that it is therefore difficult to empirically test the model. Those tests which have been carried out within these limitations do not support a direct relationship between interlanguage variation and attention. Young (1988) and Tarone (1988) conclude that the relationship is probably multi-factorial.

https://doi.org/10.1017/S1366728906002793 Published online by Cambridge University Press

Gregg's critique of Tarone's and Ellis's work probably comes closest to the position that DBL&V attribute to most mainstream SLA research. Gregg (1989) criticizes Tarone's and Ellis's models of variable interlanguage competence from an extreme rationalist position, pointing out that these authors assume that variable interlanguage rules form part of interlanguage competence. His basic point is that variable interlanguage rules describe performance and that the assumption of variable competence ". . . unfortunately, explicitly erases the line between linguistic knowledge and linguistic output". (Gregg, 1989, p. 377). He points out that describing variable linguistic output, even if one could account for all possible linguistic variants and the circumstances in which they occur, does not offer an explanation of the phenomena observed. Hence, "the variabilist [sic] is committed to the unprincipled collection of an uncontrolled mass of data" (p. 377). Gregg concludes that "to try to force variability into a theory of the acquisition of competence by claiming that competence itself is variable is self-defeating; it will neither lead to a theory of acquisition nor to a theory of performance" (Gregg, 1989, p. 379).

The generality of this strong statement makes it unclear if Gregg's critique is directed at the concept of variable competence or at variation as an object of study. There are indeed scholars who are committed to the study of variation without the assumption of a variable competence. A prominent example is Preston (1989, 1993) who argues that "there is no inconsistency in believing that variation arises from alternatives (not 'variation') in competence and that the probabilistically determined realization of those alternatives is due to a variety of contributing factors, not necessarily to a built-in variability in linguistic competence itself" (Preston, 1993, p. 170). Preston (1993) makes the point that many of the concepts used by variationist SLA researchers are based on misunderstandings of concepts borrowed from variationist linguistics. He quotes Brown (1976, p. 138), who pointed out that the dichotomy "systematic–variable" contradicts the basic variationist assumption that linguistic variation is systematic.

Meisel et al. (1981) reconceptualized the above dynamic linguistic paradigm in a way substantially different from Tarone's and Ellis's accounts of SLA. Meisel et al. (1981) accommodated two of Labov's descriptive parameters directly in their descriptive framework: linguistic contexts form an essential part of their descriptive approach, and the percentage values given for each rule correspond to Labov's probability of application which is integrated into implicational analysis. This addition yields a finely-grained description of transitions in the rule system. Developmental stages are determined by applying the emergence criterion to the quantitative distributional analysis. Thus, developmental features of the interlanguage can be distinguished from variational features, and the dynamics of L2 development can be described within a two-dimensional space. In other words, this framework was designed from the outset as a NON-LINEAR approach to the study of L2 acquisition. The social context is hypothesized to correlate with the variational features chosen by the individual learner, i.e. with their social interlanguage dialect. Clahsen et al. (1983) demonstrated through cluster and discriminant analyses of a large set of socio-psychological variables that these variables correlate with the variational features displayed in the interlanguages of the same speakers.

The key concepts of variationist linguistics enable the researcher to represent grammatical development within a variable system. This applies to language acquisition as well as to language change. This linguistic framework has been highly successful in many empirical studies where it has provided formal tools for the identification of grammatical development within variable learner data collected in longitudinal and cross-sectional studies. The empirical findings produced by these studies form a solid observational basis for the testing of explanatory hypotheses, an opportunity utilized by many SLA researchers (e.g. Clahsen and Muysken, 1986, 1989; duPlessis et al., 1987; Schwartz and Tomasseli, 1988; Spada and Lightbown, 1993). More recently, Pienemann (1998) developed an approach that constrains the possible range of interlanguage variation on the basis of processability, and this research shows that psychological constraints on interlanguage variability can also explain the different developmental trajectories found in L1 and L2 acquisition.

In the context of DBL&V's article it is important to note that using the development–variation distinction, accuracy rates distribute in large sets of SLA data not in a linear but in a two-dimensional manner (cf. Meisel et al., 1981). This finding empirically underpins the point that accuracy and frequency measures lack validity as measures of L2 development. The type of frequency counts shown in DBL&V's Figure 1 can therefore be treated as a depiction of the raw data and not as a "developmental curve" as DBL&V suggest. Unless one is prepared to equate raw statistical scores with notions such as development and variation, there is no way around defining and operationalizing these key notions in SLA research. DBL&V do not offer a definition or operationalization of these key notions, nor do they reject or augment existing definitions and their operationalization. I do not suggest that these approaches provide universally acceptable solutions to the issue of variation in SLA. Instead, the purpose of my commentary is to show that a wide array of issues relating to interlanguage variation has been discussed for several decades at an advanced level of abstraction using operationalized definitions of key notions.

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DBL&V paint an SLA scenario in which the majority of mainstream research works with the linearity assumption. However, the only SLA study they quote to support this view is that by Dulay and Burt (1974), one of the classical morpheme order studies. DBL&V point out that in these studies the use of group mean scores obscures any individual variation found in accuracy scores obtained by individuals. This is an observation that has been made by many critics of the morpheme order studies over the past three decades, and this very observation formed part of the motivation for the development of the descriptive methods for dynamic linguistic systems that I outlined above. The shortcomings of morpheme studies have long been identified and have been overcome through the development of a whole range of approaches to the dynamic description of second language development. One only needs to look at the Handbook of Second Language Acquisition Research (Doughty and Long, 2003) to realize the considerable amount of intellectual energy that has been invested into this over the past few decades with a multitude of rich longitudinal studies and careful distributional analyses that are guaranteed to be free of group mean scores.

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