



## Complex Adaptive System and Dynamic Linguistic Studies

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The theory of Complex Adaptive System (CAS) in modern sciences emphasizes the agents in a system and the interactions between the agents. As a general theory CAS does not provide linguists any particular method or solution. However its fundamental viewpoint can help us to re-define and re-identify the objects in linguistic studies, especially in the dynamic studies.

First, we will show that language exists in idiolects, the language of individual speakers. In linguistic studies we are often confused by the books and dictionaries of well-known languages, such as Chinese or English, and feel that there is an abstract system which can exist independently from its individual users. However if we turn our attention to linguistic fieldworks for studying unknown languages or dialects, the linguistic data are always collected from individual speakers. There is no preexisting “language system”.

Second, using sound change as example, we will show that the importance of idiolectal data in the dynamic studies. Sound change is a main focus of historical linguistic. Many theories have been raised to account its basic mechanism, for example, the regularity theory and the theory of lexical diffusion. However from the viewpoint of CAS, should be based at the individual level instead of the system level of language. Trying to gain a better understanding of the change mechanism, we studied the two cases of phonological mergers in the Wu dialects at the individual level. The idiolectal data are complex. But the analyses of such data show the reason why sound change could be understood in various theoretical frameworks.

Third, we will show that individual’s language ability in second language acquisition can provide better explanation for the mechanism of dialect formation in the history of the Chinese language. The analyses provided in our study suggest that the main mechanism of dialect formation is actually the imperfect learning of the Chinese language by non-Chinese speakers. Since imperfect learning is a type of linguistic change caused by external reasons, the formation of

various dialects in the history of Chinese is thus the results of horizontal transmission, not the result of vertical transmission or even of a combination of vertical and horizontal transmission.

Under the light of the theory of CAS, linguistic activities of individual speakers should be and actually have always been the objects of linguistic studies. With such a realization of the objects of linguistic studies, it becomes possible that the dynamic nature of language and how such a dynamic system evolves can be better studied and understood.