

The diachronic chicken - the synchronic egg - the missing link

Dafydd Gibbon (Universität Bielefeld)

The chicken of diachrony lays the egg of synchrony from which the chicken of diachrony develops... But I will propose that *synchrony is diachrony*, and that there is an interlocked hierarchy of diachronies which need to be better explained and more explicitly modelled in a future linguistics than they are now.

My own fascination with spoken language has a lot to do with its happening in *time*. The philosophy of time holds a strong fascination for many people and has a long history. In the last century, Peter Strawson (1959) asked whether a purely acoustic world in which events are temporally, not spatially distributed, is conceivable, and empiricists such as Russell (1912) and Quine (1960) have investigated how we project our different perceptions of the world at different times on to temporally persistent, re-identifiable objects.

This is no different in linguistics. In trying to understand temporal properties of utterances, and in trying to apply this understanding to applications in speech technology, I introduced the concept of *time type* (1992; 2006), distinguishing between *categorical*, *relative*, and *clock* time. Linguistic descriptions are not so much synchronic as *asynchronous* – time is categorical, and plays no role as time: in phonological rules, durations are simply categories like voicing, and phonological processes are simply rules for which universality is claimed, and are not endowed with explicitly modelled temporal properties. On the other hand, in Bird & Klein's Event Phonology (1989), a more explicit and natural version of Autosegmental and Articulatory Phonologies is taken: temporal precedence and overlap are explicitly modelled as relations; however there is no statement about whether a syllable lasts 250 milliseconds or 250 years. In modern phonetics, psycholinguistics and speech technology, processes in clock time or real time are explicitly modelled: it matters whether a syllable lasts 150 or 250 milliseconds. Carson-Berndsen (1998) has demonstrated how to relate these time types, all of which are needed, in a formally explicit fashion.

So how does this relate to the concept of *diachrony*? Utterances and their rhythms and melodies do indeed take time, though not very much. The miracle of communication means that single utterances transform the knowledge of the participating interlocutors within a couple of seconds. In this process, the utterer introduces minimal variations in pronunciation, neologisms, slips of the tongue, editing; the channel introduces noise; the addressee introduces interpretations, interpolations, omissions, and misunderstandings. Slowly, over many utterances, many years and many generations, utterances change the language. This dimension of *microdiachrony* in utterances projects upwards through intergenerational language learning processes which may have massive results over quite short periods of time in situations of language contact, such as the most massive language changes possible, language death, or the phoenix of language birth and re-birth. The intergenerational diachrony of language learning I refer to as *mesodiachrony*. Oddly, “diachrony” in linguistics is still in general just the 19th century abstraction from this complex and subtle hierarchy of diachronies, referring to essentially to atemporal snapshots of distributed over centuries, and the description of their similarities and differences. This I refer to as *macrodiachrony*. I suppose that the phylogeny of language from grunts, howls, whistles, gesture and dance into the communication techniques of homo sapiens sapiens could be referred to as *megadiachrony*, but I do not want to labour the point.

So there is something which is very seriously missing in the simplistic *diachrony vs. synchrony* dualism: an explicit model of time which is powerful enough to embrace the span from the microdiachrony of utterances to the macrodiachrony of historical linguistics. My conjecture is that this missing link will be a form of formal *Chaos Theory* – utterances as the butterflies which trigger the storms of language change – applied to the prediction of macrodiachronic changes based on microdiachronic changes via mesodiachronic changes, and that the linguistics of the future – perhaps the distant future, globalisation and language death permitting – will turn its attention to this fundamental issue of theory-based formal modelling, with appropriate explicit data structures and

algorithms, rather than metaphors (Lass 1997), however stimulating the latter may be. Whether synchrony or diachrony is the chicken or the egg: *tertium comparationis* (i.e. an explicit theory of time) *non datur*.

This is the Hegelian twist to the chicken-and-egg conundrum, which is inadequately formulated. There is a third party: it takes two chickens to synthesise a fertilised egg. Permit me to introduce the third party in the guise of formal models.

Bibliography

- Bird, Steven & Ewan Klein,. 1990. *Phonological Events*. Journal of Linguistics, 26, 33-56, 1990.
- Carson-Berndsen, J. (1998): *Time Map Phonology: Finite State Models and Event Logics in Speech Recognition*. Dordrecht, Holland: Kluwer Academic Publishers.
- Gibbon, Dafydd. 1992. Prosody, Time Types, and Linguistic Design Factors in Spoken Language System Architectures. *KONVENS 1992*: 90-99.
- Gibbon, Dafydd (2006). Time Types and Time Trees: Prosodic Mining and Alignment of Temporally Annotated Data. In: Sudhoff, Stefan & al. (2006). *Methods in Empirical Prosody Research*. Berlin: Walter de Gruyter, pp. 281-209.
- Lass, Roger. 1997. *Historical linguistics and language change*. Cambridge: Cambridge Univ. Press.
- Quine, Willard van Ormen. 1960. *Word and Object*. Cambridge MA: MIT Press.
- Russell, Bertrand. 1912. *The Problems of Philosophy*. London: Williams and Norgate.
- Strawson, Peter. 1959. *Individuals: An Essay in Descriptive Metaphysics*. London: Methuen, 1959.