

Time for change

FRANS PLANK

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1. ABSOLUTE dating in historical sciences

1.1. Spectacular dating feats of geophysicists, astrophysicists, and physical cosmologists:

- origin of the Earth: 4.54 ± 0.05 billion years ago
- origin of the first generation of stars: c. 420 million years after BB, recently corrected to c. 560 million
- origin of the (our) Universe: 13.798 ± 0.037 billion years ago
(of which only the very first beginnings of the yet unstable Planck Epoch, lasting from 0 to approximately 10^{-43} seconds, seem somewhat in the dark)

How is such precise deep-time dating possible?

- (a) appeal can be made to immutable laws of nature
- (b) plausible developmental models have been worked out (rarely uncontroversial, but hopefully testable) which can accommodate the dates calculated
- (c) crucially, there are SIGNALS that can be observed and measured long after the events – such as temperature fluctuations in Cosmic Microwave Background radiation, light curves of supernovae, the decay products in radioactive isotope of meteorite material, spin speed of stars, or rock layering

1.2. Abysmal dating record of historical linguists

- origin of (major, well-studied, long-documented) LANGUAGE FAMILIES
e.g., Indo-European: vastly different dates for beginning and end of proto-language unity, differing by three millennia or more, for an event that only occurred some 5–10 millennia ago (allowing for some inherent fuzziness in the delimitation of “events” of this kind)
- first origin of GRAMMATICAL LANGUAGE
Ask your colleagues in genetics, palaeontology, and physical anthropology: they will tell you that this must have happened, one way or another, with the advent of *Homo sapiens sapiens* some 100 to 200,000 years before present. (And let’s wait and see what they’ll tell us about the capacity for Language of Neanderthals, Denisovans, and other hominids.)
- Supposing, for the sake of the argument, that a singular linguistic creation event isn’t to be taken for granted (once the monogenesis of *homo sapiens sapiens* is accepted) and that linguistic POLYGENESIS isn’t to be ruled out:

Lacking circumstantial information, the birth of a language not derivative of others, from some form of pre-language, could have happened 50 or 50,000 or 500,000 years ago, so far as historical linguistics could tell.

Actually, among historical linguists who reckon with polygenesis (of transmitted languages, not necessarily of the capacity for Language) as partly responsible for modern diversity, some envisage of the relevant independent origins as very ancient events, having occurred some 100–200,000 years ago and in fact constituting the multiple first linguistic origins (Nichols 2012), while others posit independent language origins among some groups of humans as late as 45,000 years ago or even later, on the assumption that existing and or attested language ISOLATES are real loners, not the solitary remnants of families that vanished without a trace and themselves of ultimately Proto-Human origin (Hombert 2010, Hombert & Lenclud 2014).

As far as dating is concerned, historical linguistics is at the mercy of OTHER DISCIPLINES which know how to date what falls in their own domains and these domains can plausibly be related to what is of linguistic concern (e.g., archaeological “cultures” ≈ speech communities):

- Populations which can be hypothesised to have been speech communities will hopefully have produced durable distinctive ARTEFACTS or other ORGANIC MATTER, which archaeologists can recover and date for us, courtesy of the decay rate of radiocarbon in dead organisms. (Unless they are older than some 50,000 years, in which case thermo-luminescence dating will help.)
- Also, linguistically significant events in the history of populations – such as ethnogeneses, genocides, movements, splits, and mergers – may have been chronicled by contemporary WITNESSES, or may indeed be so recent that we can ourselves observe and date them (for example, linguistic creation events as in newly devised sign languages in rural deaf communities – giving the lie to the myth of linguistic monogenesis.)

1.3. Am I exaggerating how inept historical linguistics is at dating?

Suppose a new language not derivative of others boasts elaborate inflectional morphology of the FLEXIVE type, could it really have originated as recently as 50 years, or two generations, ago?

Assuming that the CUMULATIVE (and usually VARIANT) exponents characteristic of this morphological type have originated through the FUSION of forms originally separate (with concomitant differentiation), such large-scale fusing (and differentiation) of entire inflectional systems would seem to need more time than that.

French preposition-cum-definite article *au* [o] from *à le* [a.lə]

Norwegian definite noun plural N-*ene* N-PL.DEF from N-*er-ne* N-PL-DEF.PL

gutt ‘boy’, *gutt-en* boy-DEF.SG.M – *gutt-er* boy-PL, ***gutt-ene*** boy-PL.DEF;

jente ‘girl’, *jent-a* girl-DEF.SG.F – *jent-er* girl-PL, ***jent-ene*** girl-PL.DEF

But then, if the choice is an origin of an inflectional system at either 500 or 5,000 years ago, we would be at sea again with our homemade linguistic dating efforts:

20 generations of language acquirers and speakers should comfortably manage to get quite some fusing done, while over 200 generations, what had once been fused may well have fallen victim to erosive phonology and/or imperfect learning and new morphology may have been created and fused once more, perhaps even several times over in repeated cycles of creating, compacting, losing, and re-creating morphology (like the crust of the Earth re-worked over and over again in the geostrophic cycle, where “we find no vestige of a beginning, no prospect of an end” (James Hutton 1788)).

1.4. Meanings of “age” in linguistics

- age = LIFESPAN of individual speakers

How old are your interdental fricatives? Your weak preterite tense?

The lack of an inclusive-exclusive distinction in your 1st person pronouns?

Your SVO basic clause order? Your nominative-accusative alignments?

An adult speaker of today’s English might, correctly, answer such questions that s/he has used these inflections and syntactic patterns practically all her/his speaking life, with perhaps the interdental fricative, superseding a dental stop or labiodental fricative of early childhood, as the latest acquisition over her/his lifespan.

In-depth study of acquisitional sequences would answer such lifespan questions conclusively.

- GENERATIONS: age calculated in terms of the CYCLES OF ACQUISITION over which forms, constructions, rules, systems have been reproduced unaltered

In this sense the answer would be that nominative-accusative alignment, the dental preterite, and the interdental fricative of today's English are older (with /θ/ older than /ð/), being of Germanic or earlier origin, than its basic SVO order, innovated much later, after English had split off from its West Germanic relatives.

But the question is again: Are linguists, on purely linguistic grounds and excluding the physical side of written records, able to date the historical entry or exit of a phonological, morphological, or syntactic unit or pattern? Lacking circumstantial non-linguistic evidence, could they tell whether interdental fricatives or nominative-accusative alignments were innovated one or 1,000 generations ago?

1.5. Why is historical linguistics so much worse at dating than geophysics and astrophysics? Is this a trivial question of SIGNAL PERSISTENCE/FADING, and nothing to be ashamed of?

- An event such as the Big Bang was of such a magnitude that despite its enormous distance in time it left measurable traces which ingenious physicists can translate into a time frame. Ditto for geological or other events in the material world.
- Speech sound (and equally the movement of body parts in the case of signing) is so elusive that the most sensitive tools and the most ingenious measurements will not pick up signals that would enable us to put dates to past events so ephemeral as utterances.
When a speech (or signing) act is over, nothing remains of it – unless recorded on the spot. But the recording of sound waves produced by speech only became possible in the mid-19th century, which is the blink of an eye ago even on a human time scale.
 The recording of speech through phonographic writing has a longer history, but the oldest signals of this kind, reaching back a respectable five millennia, only bear witness of a very few languages in one small area (Mesopotamia, Egypt, the Mediterranean).

However, blaming the dating failure of linguistics on the fact that (unrecorded, unwritten) speech sound lacks persistence would be misattributing responsibility.

Historical linguistics is not really about the history of evanescent sound and gesture AS SUCH. It is about the history of the human MIND, that part of it which is concerned with linguistic know-how (= mental lexicons and grammars). Impermanent sound and gesture as such are not the right kind of signals for historians of the human mind:

The relevant signals from the past are in today's lexicons and grammars.

But one needs to be able to read them, in order to devise measures of their age.

They need to be read in terms of the transmission of linguistic know-how across generations.

For one thing, to the extent that lexicon and grammar are transmitted GENETICALLY, which is probably small but important, there is continuity across generations, and genetic dating methods should be feasible, leading us back to very first human or homind or even primate origins for genetically programmed linguistic universals or to the times of relevant mutations.

To the huge extent that linguistic know-how is transmitted SOCIALLY, there is DISCONTINUITY between mental lexicons and grammars, but this discontinuity is mediated by speech acts: these provide the primary linguistic data which are processed by learners, and the ensuing lexicons and grammars represented in their minds/brains enable them to express thought and to engage in communication with those whose speech acts have informed their own lexicon-and-grammar constructing.

Over cycles of acquisition, the mental lexicon and grammar of every speaker of every generation is thus linked to antecedent mental lexicons and grammars.

There is no principled impossibility of tracing back the histories of lexical and grammatical units and systems over generations: the difficulty, however daunting, is merely practical.

WARNING!!!

Several attempts have been made recently to read the date and place of the FIRST ORIGIN OF GRAMMATICAL LANGUAGE off the SIZE OF PHONEME INVENTORIES of languages now spoken: Don't believe a phoneme of this! The assumptions about phonological development made in these studies concerning rates of phoneme accumulation and reduction (Atkinson 2011, Perreault & Mathew 2012) bear no relation to what historical linguistics has been able to establish about systems of phonemic contrasts and how they are changing.

Likewise, don't believe a word of the story that dates Indo-European divergence, from an Anatolian Urheimat, to 7,800–9,800 years BP (Gray & Atkinson 2003, Atkinson & Gray 2006)! However elaborate your phylogenetic statistics, COGNATE RETENTION RATES remain an insecure basis for inferring the date of LANGUAGE SPLITS, especially if you have no grasp of historical phonology and therefore no way of identifying cognates to begin with. Continue to put your money on the Kurgan hypothesis, which locates PIE in the Pontic steppe and dates divergence at least a couple of millennia later.

Archbishop James Ussher, dating the origin of the Earth to the eve of Sunday, 23 October, 4004 BC, can't have been more ignorant of future geophysics than such work is of contemporary linguistics.

2. Historical linguistics spectacularly successful at RELATIVE chronologies

- Although we can't date (e.g.) Proto-Germanic (non-negligible lexical and grammatical diversity within the family will not suggest a very recent date, on a population-historical time scale), we are able to determine – on purely linguistic grounds: through Comparative Reconstruction combined with plausible scenarios of change – the RELATIVE CHRONOLOGY of several of the changes which gave unity to the Germanic proto-language and distinguished it from other varieties of Indo-European:
 - the set of changes referred to as Grimm's Law,
 - first changing voiceless stops to continuants ($p, t, k, k^w > f, \theta, x, x^w$),
 - later voiced stops to their voiceless counterparts ($b, d, g, g^w > p, t, k, k^w$),
 - last aspirates to unaspirate ($b^h, d^h, g^h, g^{wh} > b, d, g, g^w$, via continuants)occurred BEFORE the change referred to as Verner's Law,
 - with continuants getting voiced when word stress fell not on the preceding but on a following syllable ($f, \theta, x, s > v, \delta, \gamma, z$);
 - the Verner's Law change in turn happened BEFORE word stress was morphologised, which meant prosodic prominence invariably fell on stem syllables instead of varying between stem and ending, as elsewhere in phonologically determined word stress in Indo-European at the time.

Hence, in this sense, since nothing else has happened to them afterwards over numerous cycles of acquisition and over the lifespans of individuals,

/θ/ in English *three* can be said to be older than /t/ in *ten*,

which in turn is older than /d/ in *daughter*, with /ð/ in *father* the youngest of the lot (on the assumption, no longer unanimous, that Verner's Law came after Grimm's Law; and there were subsequent further changes changing /z/ to /r/ (rhotacism) and back to /z/ (paradigmatic levelling)).

- Even without reconstructing the diachrony of particular languages and their “sound laws”, relative chronologies can also be figured out on UNIVERSAL grounds.
- OUTER affixes tend to be younger than coexisting INNER affixes
 e.g., Swedish *upptäck-te-s* discover-PAST-PASSIVE;
 the reason is that, when affixes are created from independent words through univerbation (such as, in the Swedish example, the weak past suffix from the verb ‘do’ in Proto-Germanic times and the passive suffix from the reflexive pronoun much later), they will not be added inside words, but at their margins, where they were when they were still parts of syntactic rather than morphological constructions.
- DECLENSION classes (relevant only unto themselves) tend to be older than co-existing semantically more transparent GENDER classes (= agreement classes); the reason: declension classes are the relics of, and can only (?) result from, earlier gender classes as these are losing semantic motivation and cease to be involved in agreement.
- VELAR nasals tend to be younger than co-existing ALVEOLAR nasals; the reason: alveolar nasal plus velar consonant are their historical sources, if not the only ones, but by far the most common.

Thus, signals from the past are not necessarily destined never to reach us in the domain of lexicon and grammar, either; but, as interpreted above, they reveal RELATIVE chronologies, not ABSOLUTE dates.

3. Why date at all?

- From CURIOSITY. If there IS something to be known, our species is curious to know it. There is probably a cline of inherent interestingness that guides curiosity, and on most people’s cline, lay and professional, the question of the origin of the universe (the origin of something, matter, where there was nothing) will rank higher than those about the origin of Indo-European or of English interdental fricatives or even of grammatical language as such.
- Can knowledge about dates and durations also be USEFUL? Can it be of CONSEQUENCE? Knowing the periods of time that were available for past states of affairs to have obtained and for past change-of-state events to have occurred affords us a perspective on the HISTORICAL PROFILES OF DEVELOPMENTS.

For example, given an age of the Earth of between 20 and 400 million years, as calculated by Lord Kelvin in the mid-1800’s on the basis of the time it takes for a molten mass to cool down to the current temperature of the Earth’s surface, would there have been enough time for life on Earth to originate and diversify? Evolution by Darwinian natural selection immediately militated against such a limited geological time frame.

Then the Molecular Clock for measuring the rate of genetic divergence of species and other taxa (suggested by Emile Zuckerkandl and Linus Pauling in the 1960’s) would date the ancestor of all living organisms to no more recently than 3.5 to 3.8 billion years ago. While Lord Kelvin’s Earth thus proved far too young to accommodate the evolution of life, this would prove to be consistent with an age of the Earth (4.54 ± 0.05 billion years) as later calculated on the evidence of radiometric age dating of meteorite material.

Analogues for uses of absolute dating in linguistics:

When did a proto-language end, and how much time did the daughter languages accordingly have to DIVERSIFY to the extent that can be observed?

How much time did a linguistic family or a geographical area need to spawn a given amount of language DIVERSITY?

How much time did a language need to produce the ALTERNATIONS that internal reconstruction thrives on?

Suppose the first origin of language can be dated to 100 to 200,000 years BP, does this provide the right time frame – or too little time or too much – for the development of CROSS-LINGUISTIC DIVERSITY as we know it? Or is crosslinguistic diversity as we know it only a random glimpse of what would have been humanly possible over the time given, had not events, natural or man-made, at some particular time(s) since, decimated whatever diversity then existed, robbing future generations of language acquirers of models and thereby curtailing future diversity? (The Mt. Toba supereruption, occurring $73,000 \pm 4,000$ years BP in Sumatra, and its regional and global aftermath would have been such a catastrophic event, drastically reducing the population of humans to possibly less than 10,000 individuals who could breed and genetically and socially transmit their lexicons and grammars.)

4. Life expectancy of lexicon and grammar

Questions of life expectancy, longevity, permanence, survival, persistence, immutability and such have long been prominent on the research agendas of disciplines that deal with just about anything existing in time, living or non-living – be it atoms and molecules, cells and bodies, individuals and species, people and their beliefs and artefacts, peoples and their customs and institutions, planets, galaxies, and this universe and perhaps others. By contrast, linguistics has been remarkably incurious about the temporal profiles of linguistic states and transitions.

In linguistics, what do we know about the life expectancy – over the lifespan of individuals and across generations – of forms and meanings, constructions, categories, paradigmatic systems, rules and constraints, processes, anything really about mental lexicons and grammars?

Focusing on generational time (that is, DIACHRONY) there are two sets of issues here, about non-change and change, and neither is especially well studied:

- TIME-STABILITY: Do some forms, meanings, constructions, rules etc. last longer than others? How long precisely? Are some so time-stable as to be eternal, hence perforce universal across all languages that have sprung from the same source?
- TEMPO: When forms, meanings, their matchings, constructions, rules etc. do change, are some changes faster than others? How long precisely do changes take?

4.1. Time-stability [OMITTED HERE]

4.2. Tempo of change: How long does change take?

- Preliminary problems
distinguishing kinds of change which are likely to have different temporal profiles:
abrupt vs. gradual, depending on whether there are discrete boundaries or continua for the units concerned; Neogrammarian vs. lexical or constructional diffusion;
individuating changes: distinguishing ELEMENTARY changes and CLUSTERS of interrelated elementary changes.
- A change is fastest when it is “COMMUNAL” (Labov 1994/2001/2010): i.e., when it happens over the lifespan of individuals, altering their lexicons and grammars simultaneously within a community. Labov assumes that lexical and syntactic change is “communal” and phonological and morphological change is “generational”. (???)

- The theoretical MINIMUM for a(n elementary) “GENERATIONAL” change to be initiated and reach completion has been suggested to be three generations:

first generation: (group of) individuals innovate

next generation: variation in the speech community,

with some following the innovators and others continuing in the old way

third generation: whole speech community following the innovators

- Actual examples of “fast” changes that appear to have taken just three generations:
 - loss of the dual number
 - (a) in Attic Greek, where dual forms were simply discontinued and plural forms were used instead for reference with cardinality 2, thereby eliminating the morphological category,
 - (b) in Icelandic, where dual 1st/2nd personal pronoun forms have been retained, being re-employed as informal plurals, with the erstwhile plurals now serving as formal/honorific plurals.

But: There are other languages where the demise of that same number category was drawn out much longer: e.g., over 600 years, or 25+ generations, were lying between early signs of precariousness of the dual in earliest Old English (indicated by the use of plural forms where the reference was to pairs) and its definitive discontinuation as an inflectional category of 1st/2nd person pronouns in early Middle English.

One dual historian (Cuny 1930: 52) concluded, not without reason, that dual loss, while in the long run always inevitable, can be “*lente ou rapide*”, with no measure for tempo given.

- What is the MAXIMUM duration of a change?
 - Grammaticalisations – spanning the full developmental gamut of lexical word > grammatical word > clitic > affix – are perhaps the best candidates for slow pace and long-drawn out progression, and they will be our testing ground presently.
 - But then, a grammaticalisation event is not an ELEMENTARY change, but a whole CLUSTER of connected semantic, syntactic, morphological, and phonological changes.

Even more composite, because it involves all of a language’s inflection, is the entire CYCLE of synthesis (inflectional morphology) > analysis (function words) > synthesis.

Such comprehensive cycling does take time: when it occurred in the history of Old Egyptian > Late Egyptian > Demotic/Coptic, it took 3,000 years overall (120 generations; Hodge 1970).

Episodes of intense contact and especially of pidginisation and creolisation in the histories of erstwhile inflecting languages would no doubt speed up such wholesale exchanges of grammatical technique.

- There is no denying that different languages, or the same languages in different periods of their history, can change slower or faster in the sense of undergoing only a few or quite a lot of SEPARATE changes (“hotspots” of change, Blust 2007).
 - Contact between speech communities and social instability and upheaval within communities are usually considered crucial catalysts and accelerators of wholesale change, basically by virtue of increasing the sheer amount of linguistic diversity facing a speaker/learner and thereby pointing up more options for the future.
- But this is a different issue from a rather more fundamental question: **Do the SAME kinds of changes, under the same circumstances, always take the SAME amount of time?**

Diametrically opposite opinions continue to be held about that seemingly simple question:

UNIFORMITARIANS (e.g., Kroch 1989, “constant rate hypothesis”) vs. DIVERSITARIANS (e.g., Cuny 1930, Traugott & Trousdale 2010: “Changes may occur at different times and at different rates [...] Sometimes such successive occurrences [of micro-reanalyses] may take place over many centuries, sometimes they may be fairly rapid”; Blust 2007: “sound change proceeds at very different rates in different languages”)

- Who is right about tempo, then, uniformitarians or diversitarians?
 ☞ **comparison of the SAME developments across the histories of DIFFERENT languages**

5. The tempo of grammaticalisation: From noun to adposition, within 16 generations

Example chosen for demonstration: a particular case of GRAMMATICALISATION, the reanalysis of a NOUN meaning ‘dwelling, home’ as a local ADPOSITION (and eventually, if a postposition, as a local CASE).

The best-known instance is French *chez* ‘at’, but there are parallels elsewhere – parallels not only as to INITIAL and END STATES, but also as to the MECHANISMS EFFECTUATING THE TRANSITIONS from ‘dwelling, home’ words and their constructions to ‘at’ words and their constructions.

How long do these developments take?

Do the mills of grammaticalisation, when such lexical words are reanalysed as grammatical words in tighter syntactic constructions, grind quickly or slowly, and equally quick/slow in each case in each language undergoing such reanalyses?

5.1. French

The story of French *chez* ‘at’ has often been told, and on one recent re-telling it took over 1,000 years, from ca. 500–1500/1600 CE, for the preposition to complete its metamorphosis from an ancestral noun, Late Latin/Old French *casa/chiés* ‘house’.

But this is probably an exaggeration of Longobardi’s 2001 analysis, which has the chain of change events begin with the lexical replacement of *casa* by *mansione* in early Old French, allegedly freeing *casa* for a “construct state” construction, which itself allegedly persisted over centuries, before the final steps in the reanalysis of *chez* as a proper preposition.

More straightforwardly, omitting the construct-state arabesque, only **some 400 years**, from the 8th–12th/13th century, were required by **some 16 generations** to reanalyse a lexical noun as a local preposition, with the following component reanalyses to be executed:

- (i) repeated lexical replacements of basic term for ‘house, home, place of residence’:
 - (a) *domus* > *casa* (originally ‘cottage, hut’),
 - (b) *casa* > *mansione(m)* (‘lodging place’) / *hospitale(m)* (‘guest-chambers, hostel’)
 - when? 3rd–5th and 10th–11th century;
- (ii) change of word-class category of *casa/chiés*, involving a range of individual inflectional and distributional properties, as well as of phrase-class category of construction headed by *casa/chiés*:
 - (a) count noun, with all properties associated with this word class
 > no number and case marking, indeed inflectionally inert;
 - (b) loss of the ability to take ADJ modifiers as well as determiners;
 - (c) loss of lexical gender (feminine), in the absence of modifiers and determiners that could agree in gender;
 - (d) an NP-complement becoming obligatory;
 - (e) NP-complement no longer in possessive (genitive, preposition *de*), but in oblique form, with personal pronouns the last to productively appear in this construction

(thus, examples like *chez le boulanger* ‘at the baker’s’ and *chez Paul* ‘at Paul’s’ with common nouns and proper names are earlier than *chez lui* ‘at his [place]’ etc. with pronouns), probably signalling completion of the N > PREP reanalysis on the formal side;

- (f) omissibility and increasingly strict rejection of a local/directional preposition such as *à*, *en*, or *de* for the whole construction (as formerly in *en chies son hoste* ‘at his host’s home’ or *je vais à chez les Dupont, je viens de chez les Dupont* ‘I go to/come from the Duponts’ [place]’, with orthographic fusion as an intermediate stage: *enchiés(e)*, *achiés(e)*, and with ablative *de* holding out longest;
- (g) rigid ordering with the complement after the head (modelled on the unmarked ordering in ancestral N–NP construction in Vulgar Latin and early Romance, as well as on established adpositions, which were prepositional);
- with changes (a)–(g) thus cumulatively severing all morphosyntactic ties *casal/chiés/chez* used to have with nouns (originally its near-synonyms) heading noun phrases and realigning it with prepositions heading prepositional phrases:
- | | | |
|---------------------------------------|-------|-----------------|
| <i>à/en ma maison, à/en mon ostel</i> | ----- | <i>chez moi</i> |
| <i>à/en la maison/l’ostel de NP</i> | ----- | <i>chez NP</i> |
- when? spread out over 8–12th/13th century, with text frequencies of full-fledged prepositional *chiés/chez* uses not rising significantly before the 13th century;
- (iii) discontinuation of the use of *chiése* as a noun (other than in the fixed expression *chiése deu* ‘house of God’);
- when? by 10th and 11th century;
- (iv) irregular phonological change of *casam* > *chiés*, rather than expected **chèse*;
- when? before the 12th century; but not the first change to occur: rather, apocope was licensed by *casa* being standardly atonic, which itself suggests a reanalysis of N as PREP was already incipient;
- (v) change, or rather extension (with old senses retained), of the lexical semantics of the word morphosyntactically reanalysed, although an inherently possessive relational meaning was a continuing common denominator (a home is always someone’s home): ‘house/home (of)’
- > ‘(at, also: to) the location of (somebody’s business, typically pursued at home)’
 - > ‘(at) somebody(’s place)’
 - > ‘people living in the house’ (a crucial metonymy)
 - > ‘entire family or lineage’ (an ASSOCIATIVE! *Chez Dupont sont venus* ‘The Duponts have come’ (Spitzer 1942))
 - > ‘entire country of origin’
 - ... > ‘at abstract location’ (such as literary works: *chez Plutarque* ‘(in) Plutarch(’s writings)’);
 - when? as long drawn out as the several morphosyntactic reanalyses of N as PREP (abstract location only since 16th century, probably signalling that the ‘house’ > ‘at’ reanalysis had been completed on the semantic side);
- (vi) protracted competition and negotiation of respective semantic domains of *chez* with Latin *apud* ‘at, near, among, in the presence of’, which would drop out of most Romance vernaculars, and after continuing as *od* ‘with’ in Old French was supplanted by *avec* ‘with’ (< Late Latin **abhoc* < *apud hoc=que* ‘at/with this=and’).

Similar developments, if not all equally successful, of other local prepositions from locality nouns in French or forms of French:

- Latin *ad latus*, *in latus* ‘side’ > Old French *lez* ‘next to’;
- Latin *per medio* ‘through the middle’ > French *parmi* ‘among’;
- Latin *in medio* > Old French *enmi*, ditto;
- Latin *de costa*, *in costa* ‘from/at the side’ > Old French *decoste*, *encoste* ‘beside’;
- Latin *ad/in mansione(m)* > Picard, Wallon (*a/è*)*mon* ‘chez’;
- French *côté* ‘side’ > Louisiana Creole, Cajun *kote* ‘chez’.
- Haitian Creole French *kay* ‘house’ > *ka* ‘at (the house of)’ (Hall 1953: 30-31)

5.2. North Germanic: East and West

5.2.1. Continental Scandinavian

Preposition, *hos* ‘at’ in the Continental Scandinavian Germanic languages Swedish, Danish, and Norwegian (Bokmål and Nynorsk) < Old Eastern Norse noun *hus* ‘house’, an *a*-stem neuter. The grammatical and lexical circumstances, hence the semantic, syntactic, morphological, and phonological reanalyses involved, were not very different from the French story. But there are also a few differences worth noting:

- *hūs* > *hös* (found in a variety of spellings: *hwoss*, (*h*)*oss*, *host*, *hots*, *hås*, *hoos* etc.) was a REGULAR phonological change in atonic position, nothing that would specifically distinguish an incipient preposition (except that prepositions would be even less likely than head nouns to receive phrasal stress);
- the source noun *hus*, which itself was not the original basic term for ‘shelter, dwelling, house’ in Germanic (**razn* was), but was to assume this status (like Late Latin *casa*), was RETAINED, with the tonic form of the stem vowel and with the core senses of ‘home’ and ‘house’, alongside the preposition *hos*, though increasingly alienated from it and felt to be an unrelated lexical item by contemporary naive speakers;
- the strictly prepositional ordering of *hos* was not strongly motivated by that of *hus* relative to its genitival dependents, which more commonly came before than after their heads; thus, the Genitive–Noun construction (with possessive pronouns either before or after their noun) came to differ sharply from the PREP–NP construction (illustrated from Norwegian):

<i>kjøpmann-en=s hus</i>	<i>hos kjøpmann-en</i>
grocer-DEF.SG.MASC=GEN house	at grocer-DEF.SG.MASC
‘the grocer’s house’	‘at the grocer’s’
<i>m-itt hus / hus=et m-itt</i>	<i>hos meg</i>
my-SG.NEUT house /	at me.OBJ
house=DEF.SG.NEUT my-SG.NEUT	‘at my place’
‘my house’	

- the most pertinacious trait of the erstwhile noun *hus* was the possibility of genitival marking of its complement, when a bare noun and referring to persons, through genitival *-s* (or rather *=s*, with the inflectional affix becoming an enclitic), surviving relatively speaking longer than its French counterpart:

hos Bergström(=s) ‘at Bergström’s’
hos prest=en=s ‘at the priest’s’

analogously, pronouns too are long able to appear in the possessive rather than oblique form:

hos mitt, alongside *hos mig*

- presumably through ellipsis of a contextually understood complement, *hos* could at some stage also be used as an adverb meaning ‘near, nearby’:
e.g., *han satte sig hos* ‘he sat himself nearby’

Time frame for this cluster of changes in Continental North Germanic remarkably similar to that of its French counterpart:

Beginning in the 10–13th centuries CE, after Old Norse had diversified into a Western and an Eastern group (with Westerly Norwegian acquiring/retaining many an Easterly trait), and completed at the early stages of Old Swedish, Old Danish, Old Norwegian in the 14th–15th century, they took around **400 years**, or **some 16 generations**.

5.2.2. Insular Scandinavian

Close analogue of *hus* ‘house’ > *hos* ‘at’ in Eastern North Germanic:

The insular Scandinavian languages, Icelandic and Faroese (and perhaps Norn, but that is extinct), have a preposition *hjá*, [çau:] and [tʃɔa] respectively, whose senses are locative (‘at (someone’s place)’, ‘beside’, ‘by’), comitative/instrumental (‘with’), and possessive or genitive/dative (‘of’, as in Faroese *húsini hjá mærl/Turið* ‘my/Turið’s house’).

Source: noun of Proto-Germanic (and earlier) provenance, **hīwq* ‘homestead, household, member of a family’ (cf. Latin *civis* ‘citizen’; possibly deriving from a Proto-Indo-European root **key* ‘lie, recline’).

It appeared in Old Icelandic as the neuter *n*-stem *hiá*, although this noun usually only occurred in analogically formed plurals *hión(a)/hiún(a)* ‘household, family, man and wife’. The singular form only survived in the prepositional phrase *í hiá* ‘in the household (of)’, which would then shed its locative preposition *í*, with *hiá* itself deprived of all credentials of nounhood and turned into a dative-governing local preposition, ‘at, beside’.

This was a separate development of Western descendants of Old Norse not shared with their Eastern relatives, which opted for grammaticalising a different, though semantically related noun; hence it cannot have begun before they began to separate in the 10th century.

Whereas in the mid-12th century, *hiá* in the expression *í hiá* retains many of its old nominal properties with the exception of its original ‘household’ meaning in examples such as (i), by late Old Icelandic times, in the 14th–15th century, we see examples such as (ii) where *hiá* on its own is a full-fledged preposition on all semantic, syntactic, and morphological counts:

- (i) *En þeir Gizorr fóro, unz þeir kuqmo í stap þann í hiá Ölfossvatne*
‘But Gizurr and his men travelled on until they came to a place by the side of/beside Ölfossvatn’ (*Íslendigabók*)
- (ii) *á stall hjá konungs hestum*
‘to the stable near/by the king’s horses’ (*Hrólfs saga kraka*)

Which once more adds up to a time frame of **some 400 years**, or **16 generations**.

5.3. Pāli, Sinhalese and Maldivian

Further analogue in Pāli and its continuation in Sinhalese and Maldivian (Indo-Aryan); differences:

resultant grammatical meaning was possessive/genitive rather than locative;
the adposition was a postposition rather than a preposition;
grammaticalisation continued further: postposition > enclitic > suffix.

To only mention the starting and end points of these developments and crucial steps in between:

- (i) Pāli *geha* ‘house’, *gehi* LOC.SG, *geyi* in Sinhalese
- (ii) *ge-yi* house-LOC.SG > *gē* house.LOC.SG > =*gē* > -*gē* LOC.SG > GEN.SG ‘connected with’, with this genitive marker, continually added to oblique stems, limited to personal names in early medieval Sinhalese, but extended to animate nouns in later Sinhalese; analogously, -*ge* in South Maldivian limited to human nouns; e.g., *goviyā-gē daruvō* farmer.OBL-GEN.SG children ‘the children in the farmer’s [house]’ > ‘the children of the farmer’s’
- (iii) North Maldivian -*ge* GEN of all nouns, completely supplanting the original genitive

The postposition stage had been reached by the 9th century, about a millennium after the first inscriptional attestations of Pāli in Sri Lanka (Prakrit group of Middle Indo-Aryan); the noun > adposition part of this grammaticalisation, thus, cannot have been executed brisker than in the French and North Germanic parallels;

It was only in Modern Sinhalese and Maldivian, not before the 19th century, that -*gē/-ge* got suffixed to nouns – with the adposition > affix sequel adding no less than another 1,000 or so years.

5.4. Elsewhere

Several further grammaticalisations of a noun ‘dwelling, home’ as an adposition ‘at’ are on record; but their known histories are insufficiently deep or too sparsely documented for purposes of the comparative-diachronic enterprise as envisaged here.

- Akkadian (extinct Semitic, in close contact with isolate Sumerian; 2,900 BCE, in decline since 8th century BCE, last cuneiform texts 1st century CE): *bītu* ‘house’ > preposition *bīt* ‘at’ (Stolz 1991: 18)
- Susu (Mande, Niger-Congo): *khönyi* (*khön* + *yi* nominal marker) ‘home, residence’ > postposition *khön(ma)* (= *khön* + -*ma* multipurpose particle) ‘to, toward’ (Friedländer 1974)
- Acholi (Luo, Western Nilotic, Nilo-Saharan): *paàco* ‘homestead’ > preposition *pà* ‘at’ (Claudi & Heine 1989: 5-7)
- Ngiti (Central Sudanic, Nilo-Saharan): adverb *i bha* ‘at home’ > postposition *bhà* ‘at, with’ (Kutsch Lojenga 1994: 154)
- Cagaba (aka Kog(u)i, = Chibchan, Northern Colombia, Arwako branch of Arwako-Chimila, within Kuna-Colombian, within Chibchan B): *hu* ‘hut’, *hú-vala* ‘in front of the hut’ > postposition *húvala* ‘in front of’ (Stolz 1991: 18)
- Chinese (Sinitic, Sino-Tibetan): *suǒ* ‘house, place’ (Old Chinese, c. 1100–250 BCE) > (i) classifier of buildings > (ii) locative and instrumental preposition (Middle Chinese, 6th–10th century CE, continued into Modern Chinese, but discontinued in Contemporary Chinese, 20th century onwards; *suǒ* continued as N ‘house, place’ alongside classifier and prepositional usages; N itself also marginal in Contemporary Chinese) (Tianhua Luo, personal communication)

Also militating against easy equation, the structural circumstances have been partly different here from the Romance, Germanic, and Indo-Aryan cases, where the nouns to be grammaticalised were richly inflected – and the more numerous the inflections to be gotten rid of, the more complex (and probably time-consuming) the reanalyses as adpositions.

6. What takes so much time?

- Despite some encouraging congruity, it would be premature to conclude that grammaticalisations of locative or similar adpositions from nouns for locations will ALWAYS take **around 400 years** or **just over 15 generations**.
- Nor do wish to imply that ALL adpositions will always take around 400 years to produce: they are not all grammaticalised from nouns, but also from verbs, adverbs, or interjections, and the kinds of reanalyses they have undergone are diverse, too – and such differences may contribute to the tempo of grammaticalisations being faster or slower.
- What is it about change that CAN take more time or less time?
 - (i) Ways of “actuation”: Are the conditions permitting or triggering an innovation simple or complex?
 - (ii) Is a change abrupt or gradual, without/with intermediate stages?
 - (iii) Is a change Neogrammarian (instantaneous across-the-board) or does it diffuse across the lexicon or across other structural domains (such as paradigms, word classes, clause or other construction types)?
 - (iv) Is a change elementary or composite, consisting of a cluster of elementary changes?
 - (v) Saliency: Is the difference a change makes perceptually conspicuous or subliminal?
 - (vi) Intra-individual consolidation: How long do individual innovating speakers show variation before they categorically decide on one or the other variant, in all speech styles? During adolescence only or over their whole lifespans?
 - (vii) Social diffusion: Is the speech community small, homogeneous or large, heterogeneous? Are social networks in the speech community strong or weak?

Change should be rapid, reaching completion within the minimum span of three generations, IF ALL IS EASY: simple actuation; abrupt transition; Neogrammarian mode of implementation; elementary change; discernible, high-profile difference; decisive individuals; small, homogeneous, well-connected community.

Everything else prolongs change. Change is prolonged MOST substantially if it is not elementary but COMPOSITE (iv) and if it needs to DIFFUSE through large and fragmented speech communities (vii).

It is arguably ONLY these two factors which are responsible for dragging out grammaticalisations such as those of local adpositions for ‘at’ from nouns for ‘dwelling, home’ to the remarkable length of around 400 years or 15 generations.

6.1. Social diffusion

- The long duration of such grammaticalisations is to a significant part due to the time it takes for the relevant innovations to spread through speech communities. This is trivial (further non-trivial discussion in Nettle 1999a, 1999b and Trudgill 2011, 2015, 2016), except that we are claiming, more specifically, that **the same kinds of change take the same amount of time to diffuse through populations of the same size and network structure**. Consequently, the same kinds of change should be completed faster in smaller, more homogeneous, more closely interconnected speech communities, or even slower in the opposite social circumstances.
- According to demographic estimates, the population which effectuated the reanalysis of the noun *casa/chiés* as the preposition *chez* – the **Old French** speech community – had less than 6 million members at its onset (8th–9th century) and around 18 million at its conclusion (12th–13th century, prior to a sharp population drop in Europe in the 14th/15th century).

The **Eastern Old Norse** speech community where the noun *hus* was population-wide reanalysed as the preposition *hos*, in between the 10th and 14th/15th centuries, was much smaller, peaking at around 2 million.

The **Insular Scandinavians** of Iceland, originating from Norway and branching out to the Faroe Islands and further to Shetland and Orkney, who instead concurred in reanalysing the noun *hiá* as a preposition over about the same period of time formed an even smaller population of around 50,000 speakers.

The **Indo-Aryan**-speaking communities in **Sri Lanka** and the **Maldives** who took part in the reanalysis of *gehi* ‘in the house’ as a locative-genitive postposition would probably not have numbered more than 200,000 over the relevant stages of Pāli and early Sinhalese and Maldivian; the subsequent reanalysis from postposition to suffix was to occupy millions.

- Thus, none of the speech communities effectuating these grammaticalisations within roughly the same time frames were either huge or tiny; still, their middling sizes were different from one another.

In relation to differential median speech community sizes as calculated by Nettle (1999a, 1999b) – ca. 17,000 for the Old World, less than 400 for the New World, 1,800 for Australia and the Pacific, with perhaps somewhat lower numbers in the past – all our ‘house, dwelling’ > ‘at’ grammaticalising populations are above average; the average grammaticalisation duration should therefore be assumed to be shorter, insofar as it is social diffusion that determines the tempo of change.

- For our claim of a constant diffusion tempo to stand, the COMMUNICATION CHANNELS would have to be faster in the larger populations, propelling the innovations to be replicated across the speech community. During the Middle Ages, population density was always substantially higher in France than anywhere in Scandinavia, and higher in Continental than in Insular Scandinavia: it seems plausible, therefore, that over the same time span innovations should have reached higher or lower numbers of speakers in proportion to how densely or sparsely populated the areas were that the speech communities occupied.

The less intense the interaction, the flatter and temporally more extended the S-curve along which innovations typically spread across speech communities: commencing slowly; picking up speed and progressing fast or not quite so fast depending on network density; reaching saturation slowly or petering out at the edges.

6.2. Composite change

- Change will be faster when the reanalyses to be effectuated are ELEMENTARY than when they are COMPOSITE. Since grammaticalisations are the prototype of composite change, comprising semantic, syntactic, morphological, and phonological “micro-changes”, it should not come as a surprise that they take relatively long to complete.
- On the other hand, if an entire cluster of interrelated reanalyses were executed simultaneously, all subserving the same master-plan, even highly composite changes could go as quickly as elementary changes. Ignoring many questions about the interaction of the individual reanalyses involved in grammaticalisations, the chief question here only is whether they occur SIMULTANEOUSLY or CONSECUTIVELY.
- For the kind of grammaticalisation at hand, our examples suggest that the component micro-reanalyses cannot be wholly consecutive nor wholly simultaneous.

We count close to 20 elementary lexical-grammatical parameters whose values have to be altered when an inflected noun ‘dwelling, home’ is to become a local adposition ‘at’.

Assuming the minimal duration of three generations per elementary reanalysis, CONSECUTIVE changing would keep some 60 generations busy – but 1,500 years is decidedly too long a gestation period even for adpositions.

SIMULTANEOUS changing would be far too rapid, even allowing for ponderous diffusion across populous and poorly connected speech communities.

Thus, to be consistent with the rather spacious time frame as established here, the individual steps in composite changes will PARTLY have to be taken SIMULTANEOUSLY and to some considerable PART CONSECUTIVELY.

While this mode would be consistent with a gradualist as well as a catastrophist overall scenario, the most apposite image is that of a CASCADE of elementary changes, beginning with a trigger change and culminating in a categorial threshold change.

Some of these cascading reanalyses will perforce be simultaneous: thus, when number and case are cumulated, the inflection for these two categories cannot but be discontinued together when a noun is remodelled as an adposition.

With some reanalyses others will not be long in coming. For example, there is a connection, dictated by universal grammar, between inflecting like a noun and being able to occur as the complement of an adposition, but it is asymmetric: if a lexeme inflects for number and case, it can be the complement of an adposition, but not vice versa; thus, in accordance with this implicational universal, it should be possible for a noun to lose its inflection and continue to occur as the complement of adpositions (as in Old French *en chies son hoste* ‘at his host’s home’) – but unless the process of adpositionalisation is halted, this distributional behaviour will sooner or later be realigned too.

Other than excessive prosodic weight of grammatical formatives being discouraged, phonological modifications of nouns when adapted for adpositional service would seem independent of morphological and syntactic reanalyses, and could be expected at any time in a cascade of grammaticalisation.

7. Spin

- Astronomers have proved that they can accurately tell the age of a star from how fast it is spinning and from other long-lasting signals from the past, answering a central question in astronomy – much like the dating of fossils is crucial to studying evolution.
- Linguists have proved that, whenever new local adpositions ‘at’ have come about through cascades of micro-reanalyses, they can be dated to have been some 400 years, or roughly 15 generations, in the making, including the time the cascading elementary metamorphoses of nouns for ‘dwelling, home’ have taken to diffuse through speech communities arduously crafting an adposition out of this kind of material.

This means that whenever two languages have different adpositions created in this same manner, then they must have been leading separate lives for the time such grammaticalisations take, 400 years or 15 generations. (Unless the difference is due to one of the languages having replaced a ‘dwelling, home’-derived adposition ‘at’ which it had originally shared with the other language.)

Work is under way to measure just how time-stable such new local adpositions are likely to be. Current estimates (impressionistically made on the basis of the time distance between levels of “primary” and “secondary” adpositions) are that, in clement environments, they will survive for a few thousand years before they will be replaced or become unrecognisable.

- Sadly, the first origin of grammatical language remains (linguistically) undated as well as unlocalised, notwithstanding reports to the contrary in *Science*, *Nature*, *PLoS one*, *Proceedings of the Royal Society*, amidst much media hype.

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Abstract

In order to get an angle on deep-time historical relationships between languages, beyond what can be fathomed by the Comparative Method, and in order to model and thereby understand the evolution of typological diversity, attention is increasingly being paid to the question of TIME-STABILITY of lexical as well as of grammatical traits. Proceeding by inference rather than through longitudinal study, their distributions across the members of language families have been interpreted as revealing how stable or unstable particular traits are. Despite all methodological sophistication, the conclusions that have been reached about time-stability in this indirect way are alarmingly contradictory. As a corrective, I suggest that this research programme be reoriented and that time-stability be studied directly, namely diachronically.

Within this general context, the particular issue addressed here is the TEMPO OF CHANGE: linguistic traits will appear relatively time-stable, not only if they are wholly resistant to change, but also if the tempo of changes affecting them is slow. But how slow or fast is change? Equally slow or fast each time a change occurs? Again, when this matter is addressed at all, opinions are found to differ.

A particular development, the grammaticalisation of a local adposition ‘at’ from a noun ‘dwelling, home’, will be examined in detail here with the aim of determining the length of time this kind of change takes and of comparing its tempo across several languages where it has occurred. Relevant instances are French *chez* ‘at’ from Late Latin *casa/chiés*; Swedish, Danish, Norwegian *hos* ‘at’ from Old Norse *hus*; Icelandic and Faroese *hjá* ‘at, next to, by, with; of’ from Old Norse *hión* ‘family, household’; and late Pāli *gē* ‘at; of’ from Prakritic Indo-Aryan *geha* (with the postposition subsequently turned into a suffix in Sinhalese and Maldivian). All four occurrences of this change have indeed taken about the same length of time: approximately 400 years, or some 16 generations, 16 cycles of acquisition. I conclude that grammaticalisation of this kind is very slow, and *ceteris paribus* proceeds at a uniform tempo. Among the factors that determine the time profile of change these appear to be the most significant: (i) Is a change elementary or does it consist of a whole cascade of individual reanalyses? (ii) What are speech communities like through which innovations need to diffuse: small, homogeneous, well-connected or the opposite?