2. GRAMMATICALISATION

Grammaticalisation is an old notion. The term has been with us since 1912 (Meillet 1921 [1912]), but the concept was adumbrated in work by historical linguists in the previous century (see Heine, Claudi & Hünnemeyer 1991; Hopper & Traugott 1993 for a historical review). It can be rather a diffuse notion; if not constrained in a principled manner, it can end up vacuously encompassing all of historical change. And it is a challenging notion: it has cast doubt on the Saussurean dichotomy between the diachronic and the synchronic in language, and the ideal of discrete grammatical categories. Instead, it offers a dynamic model of language, in which discourse and grammar interact, and in which process is as important as endpoint in accounting for the career of linguistic forms.

In this chapter, I outline the contemporary understanding of grammaticalisation, and note some of the current issues in the field (§2.1). I then describe the various formal criteria for grammaticalisation, drawn from work by Lehmann (1985) and Hopper (1990 [1987]), and show how they apply to *pu* (§2.2). After outlining the cyclic nature of grammaticalisation (§2.3), another salient aspect of the phenomenon, I discuss the major outstanding theoretical issue in grammaticalisation pertaining to this work: whether metaphor or metonymy should be regarded as the driving force behind grammaticalisation (§2.4).

2.1. What is grammaticalisation?

Grammaticalisation is the process whereby novel function words come into being in a language, arising out of the reanalysis of content words or less abstract function words. As a result, these words become incorporated into the language's grammar; hence, *grammaticalisation*. Thus, the Modern English future auxiliary *will* grammaticalised out of the Old English content word *willan* 'to want' (Hopper & Traugott 1993:92); the Modern French negator *pas* grammaticalised out of the Old French content word *pas* 'step' (Hopper & Traugott 1993:58); the Modern Greek future particle *θa* grammaticalised out of the Middle Greek phrase *tʰélo hína* 'I want to' (Hopper & Traugott 1993:24), and the Modern Greek negator *ðen* grammaticalised out of the less abstract function word *oudén* 'nothing'.

A resurgence in grammaticalisation theory[1] occurred in the 1970s and 1980s, thanks to work by researchers such as Givón (1979), Lehmann (1985; 1995 [1982]), and Heine (1984). The upsurge in work in the field, however, has also meant divergence in the primary interests of researchers involved. The most

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[1]The theory itself is also loosely termed *grammaticalisation*.

noticable split is between those who, like Traugott (1986) and Heine, still regard grammaticalisation as primarily a diachronic phenomenon, and those who, like Givón and Thompson (1991 [1988]), reinterpret grammaticalisation as a dynamic synchronic phenomenon, interrelating discourse and morphosyntax.

Grammaticalisation is of import to linguistics for several reasons.

1 The grammaticalisation pathways followed in expressing various grammatical notions recur cross-linguistically with remarkable regularity; researchers therefore hope that the study of grammaticalisation may reveal more about how humans conceptualise the world, and internally represent abstract notions. This aspect of grammaticalisation is investigated at length by the more typologically-oriented proponents of the theory, such as Heine, Lehmann, and Bybee (1985).[2]

2 Grammaticalisation tends to display a uniform directionality along several clines: from the more concrete to the more abstract, from the more linguistically autonomous to the more linguistically dependent, and from well-defined linguistic categories to decategorialisation, in which the lexeme holds diffuse membership of sundry minor grammatical categories. The recurrence of these identifying characteristics has been the focus of Lehmann's work on grammaticalisation, which I appeal to in §2.2, giving a brief rationale for considering the development of *pu* a grammaticalisation. Moreover, these characteristics have led researchers like Traugott to adopt a hypothesis of unidirectionality with regard to grammaticalisation (discussed below)—with all the cognitive consequences this entails.

3 Grammaticalisation adopts a gradualist model of linguistic change. As a result, it challenges the validity of most synchronicist models of language, which insist on discrete grammatical categories. Grammaticalisation theory opens up the possibility of more fuzzy notions of categoriality, and of the cline rather than the binary opposition as a classificatory mechanism. It breaks the Saussurean deadlock, and admits diachrony as an explanatory parameter in synchronic linguistics, particularly where the categoriality of grammaticalising lexemes is difficult to resolve. This can serve to provide better explanatory adequacy in accounts of linguistic forms.[3]

4 Grammaticalisation can be regarded as a synchronic mechanism, linking discourse with morphosyntax. This provides a means of integrating pragmatics (implicature in particular) into the account of linguistic forms. This illuminates not only synchronic linguistics (in showing how deeply discourse and pragmatic processes affect language structure), but also diachronic linguistics, extending the explanatory mechanisms available to it.

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[2]Indeed, particular grammaticalisations show a tendency to recur even within a single language; this is discussed in §2.3.

[3]Lord (1993) provides an excellent illustration of this potential of the theory in her account of West African serial verb constructions.

Grammaticalisation theory is well suited to account for the development of linguistic forms like *pu*. Being diachronicist, it can help make sense of the synchronic heterogeneity of such forms, where purely synchronic accounts fall short. In addition, it provides motivation for the recurrence of similar grammaticalisations both across languages and within languages. (Such recurrences are characteristic of *pu* with respect to equivalents in older stages of Greek, and cross-linguistically; they are brought up in passing throughout this work.) Finally, by going to the heart of the issue of where grammatical forms originate, grammaticalisation theory makes significant headway in answering one of the larger questions in linguistics: why is language the way it is?

The most prominent disagreement amongst contemporary grammaticalisation researchers is whether grammaticalisation is primarily a diachronic or a synchronic object of study.[4] But the dispute most relevant to my object of study is that outlined in §2.4: whether the mechanism effecting grammaticalisation should be regarded as metaphorical or metonymic.

2.2. *How is* pu *a grammaticalisation: a checklist*

I here outline the various definitional parameters of grammaticalisation, as identified by various researchers, and briefly illustrate them with instances from the diachrony of *pu*. The applicability of these parameters to *pu* is elaborated to some extent in later chapters. These parameters, as noted, are almost universally clines, rather than binary features.

The first set of parameters discussed is drawn from Lehmann (1985; 1995 [1982]), and are of major significance historically, although they have been regarded as overly schematic by some researchers. The exposition here is of Lehmann's parameters, which form a coherent taxonomy on their own; but the mechanisms he identified for effecting those parameters are supplemented here with mechanisms identified by other researchers. I then consider other characteristic parameters of grammaticalisation.

2.2.1. Lehmann's parameters

According to Lehmann, the primary feature of grammaticalisation is a loss in autonomy of the linguistic sign—which thereby makes the transition from being a content word to being a function word. Lehmann defines three aspects of linguistic autonomy: **weight** (the sign's distinctiveness), **cohesion** (the extent to which the sign contracts relations with other signs), and **variability** (the shiftability of the sign with respect to other signs). Lehmann defines a syntagmatic and a paradigmatic parameter corresponding to each feature, and names processes through which each feature loses in autonomy. The resulting set of pa-

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[4]Some researchers (Hopper & Traugott 1993:xvi) make a terminological distinction between the two, reserving *grammaticalisation* for the former, and using *grammaticisation* for the latter.

rameters and processes (which, as Lehmann himself notes, are *a priori,* and make no empirical taxonomic claim) are summarised in Table 6.[5]

	Parameter		Weak grammaticalisation	Process	Strong grammaticalisation
paradigmatic	weight:	*integrity*	bundle of semantic features; possibly polysyllabic	*attrition*	few semantic features; oligo- or monosegmental
	cohesion:	*paradig-maticity*	item participates loosely in semantic field	*paradigma-ticisation*	small, tightly integrated paradigm
	variability:	*paradigmatic variability*	free choice of items according to communicative intentions	*obligatorifi-cation*	choice systematically constrained, use largely obligatory
syntagmatic	weight:	*structural scope*	item relates to constituent of arbitrary complexity	*condensation*	item modifies word or stem
	cohesion:	*bondedness*	item is independently juxtaposed	*coalescenece*	item is affix or even phonological feature of carrier
	variability:	*syntagmatic variability*	item can be shifted around freely	*fixation*	item occupies fixed slot

Table 6. Parameters and processes of grammaticalisation (after Lehmann 1985:309)

In the following, I give the parameters, their associated processes, uncontroversial instances of these processes in other grammaticalisations, and their applicability to *pu:*

- The **integrity** of an autonomous linguistic sign is its semantic and phonological content. Through **attrition**, the sign loses both semantic content (a process named **semantic bleaching** elsewhere in the literature), and phonological content. One of the most well-known examples of phonological attrition is the reduction in Greek of *t^h(élo hín)a* 'I want to' to *θa* 'FUTURE'. Semantic bleaching is illustrated by the same grammaticalisation: there is no longer a volitive component to the meaning of *θa*, although it originates in a volitive verb.

For *pu,* phonological reduction has clearly occured from its classical antecedent, *hópou*. However, of the changes between *hópou* and *pu,* only one can be attributed to attrition: the loss of sentential stress. The other phonological changes in the form of *hópou* were all regular. Loss of sentential stress was orthographically represented by shifting stress to the final syllable: ὅπου (ˈopu)↠ὀποῦ (oˈpu). One can conclude that ὀποῦ was unstressed from such evidence as the obligatory notation of stress in disyllabic words in Greek orthogra-

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[5]These parameters are not intended to apply to single linguistic signs in their development, but to compare two commensurable linguistic systems; for example, the complementation system of Ancient Greek and Modern Greek. They yield an answer as to which system is more grammaticalised, as opposed to whether or not a particular word is grammaticalised.

phy; the lack of sentential stress on the modern Cretan cognate *apu* (απού), and other CSMG disyllabic function words, such as the causal conjunction *yiati* (γιατί)—both of which are orthographically stressed on the final syllable; the metrical behaviour of ὁποῦ; and the lack of sentential stress on *pu* itself in CSMG.[6]

The initial unstressed syllable of Early Modern Greek (EMG) *opu* was dropped according to a regular phonological rule of Middle Greek (Browning 1983:57);[7] however the form ὁποῦ remains prevalent in Greek texts until *xx* AD, and is also quite frequent in Greek dialect. The phonological changes in *hópou→pu* proceeded as follows:

hópou		
hópǫː	monophthongisation of /ou/	by *v* BC
hópu	raising of /ǫː/ and elimination of vowel length	*ii* BC
ópu	deletion of /#h/	*ii* BC
ꞌ*opu*	shift from pitch accent to stress accent	*ii* BC
opu	*loss of sentential stress: phonological attrition*	by *xi* AD
pu	deletion of initial unstressed vowels	*xi–xix* AD

Semantic bleaching can be discerned in that, while *hópou* had explicit spatial content ('where_REL'), *pu* has an extraordinarily wide range of meanings, few of which have anything to do with location *per se*. Whatever semantic feature is claimed to currently bind the various functions of *pu* together (be it factivity, presupposition, eventhood, and so on—see §4) is much more abstract and general than spatial location.

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[6]Hatzidakis (1990 [1907]:152–153) has this to say on unstressed disyllabic clitics in Modern Greek:

> There is great confusion [as to the location of stress on such words], but the true cause is that in any case no distinct stress is usually uttered, because pronouncing our speech in sentences as is natural, and not with each word stressed separately, we tie the small and insignificant elements with the directly following word tightly, and say them without stress, and just as we say *yeronꞌtaki* 'old man (DIM)'— *yerontopaꞌlikaro* 'bachelor' ('old.man–lad'), *tu papaðoꞌpulu* 'of Papadopoulos' ('of.the priest-son'), so too do we say *oxꞌjalo* 'no more' (ꞌ*oxi* ꞌ*alo*), *xoriꞌsalo* 'without doubt' (*xoꞌris* ꞌ*alo*), *naꞌpas* 'you should go' (*na pas*), *opunaꞌpis* 'that you should say' (*opu na pis*) etc. So it is procliticisation, namely elision of stress, and not stress movement that is concealed under the seeming dislocation of stress in the aforementioned words.

[7]The first instance of the bounded relativiser *(o)pu* in Modern Greek—already phonologically reduced to *pu*—occurs in a land deed in Sicily:

(1) (1042)

οι δε γιρεοί είπον πάντες ομού εμοίς γιγνόσκομεν ότι από το λιθόστρωτον ο χαλείτε καπηνδούρα και κατεβαίνει τον μέγα ρύακα έως ού εις τας κόγκας εις τον ρύακα ***που*** κατεβαίνει εκ τον φαρχούνιν εις το ζευξορύακον

i ðe ɣirei ipon pades omu emis ɣiɣnoskomen oti apo to liθostroton o xalite kapinðura ke kateveni ton meɣa riaka eos u is tas koɣas is ton riaka ***pu*** kateveni ek ton farxunin is to zefksoriakon

And the old men said all together: "We know that from the cobbled road called Kapindoura, and it [the boundary] goes down along the great stream until the valleys up to the stream ***which*** descends from Farḥun to the confluence (Cusa; *Diplomi della chiesa di Monreale* vii)

- The **paradigmaticity** of an autonomous linguistic sign is the degree to which it enters into paradigms, and how well integrated it is in the paradigm (through such clearly defined relations as opposition and complementary distribution.) As an example, French verbs *avoir* and *être* are much more tightly integrated into the conjugational paradigm than their Latin antecedents *habere* and *esse*.[8] Through **paradigmaticisation**, the form becomes integrated into homogeneous and typically smaller morphological paradigms. Since paradigmaticisation reduces the semantic motivation for the use of the sign, it is characteristically accompanied by an increase in irregularity in the paradigm.

  Although this is not stated explicitly by Lehmann, increase in paradigmaticity appears to correspond to **decategorialisation** (Hopper 1991 [1988]:30–31): the passing of lexemes from major to minor syntactic roles (content words to function words), with the attendant loss of syntactic attributes. An example is the shift of English *thanks* from a noun to a prepositional formant in *thanks to*—where it cannot be pluralised, qualified by a possessive, and so on. Decategorialisation occurs along 'grammaticalisation chains' (Heine 1992), best characterised as a cline of properties clustering around points corresponding to traditional discrete grammatical categories. The major characteristic of these chains is that the transition from one stage of the chain to another is gradual: adjacent stages share some linguistic features, but their categoriality can be diffuse, with prototypical members of grammatical categories (e.g. full lexical verb and auxiliary verb) situated only at the endpoints of the chain.

Modern Greek *pu* has higher paradigmaticity than *hópou* had, simply by virtue of the fact that it is involved in many more paradigms than *hópou* ever was. Even for the paradigms where *hópou* was already in use in Classical Greek, *pu* is more tightly integrated into the system. For example, the obligatory relativiser–correlative of pseudo-relatives like *tote pu* 'then that (= when)' does not have a good equivalent in Classical Greek; each demonstrative would usually be relativised by its own correlative. There are several paradigms in which *pu* is very tightly integrated indeed; for example, its use in temporal collocations, after prepositions like *mexri* and *me to*, where it is in clearly defined complementary distribution with *na*. And certain key paradigms in which *pu* is involved have become more homogeneous than they were in Classical Greek; for example, temporal expressions in late Classical Greek could be constructed using subordina-

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[8]The French verbs are fully-fledged auxiliaries, and are obligatory in forming all perfectives and passives; Latin *esse* is only used as a formant of a few tenses (perfective passives, subjunctive futures), and *habere* only starts being used as a tense formant in Late Latin.

tors, participles, or determiners and infinitives, whereas their modern equivalents (in which *pu* figures prominently) use only subordinators.

- The **paradigmatic variability** of an autonomous linguistic sign is the possibility of other signs (including ∅) substituting it in the paradigm; in other words, the number of signs the given sign is in a paradigmatic relation with. The number of such signs is reduced through **obligatorification**, as a result of which paradigmatic choice becomes grammatically constrained, and the grammatical category represented by the sign becomes increasingly obligatory in the grammar. As an example, while Latin *de* was to some extent intersubstitutable with *ab* 'from' or *ex* 'out of', and omissible (replaced by ablative case morphology), French *de* is typically neither omissible nor substitutable, and encompasses the genitive as well as the ablative. Obligatorification is also associated with the systematic encoding in grammaticalisations of what were hitherto statistical tendencies in morphs—for example, the association of the Late Latin demonstrative *ille* with noun definiteness, eventually giving rise to the (obligatorified) Romance definite articles.[9]

  Another process reducing paradigmatic variability, not mentioned explicitly by Lehmann, is **specialisation** (Hopper 1991 [1988]: 25–28; Hopper & Traugott 1993:113–116), whereby one member of a paradigm becomes semantically generalised, and displaces all other members of its paradigm. An example of this is French negation, where the variety of emphatic forms in Old French was reduced to *pas, point, mie* and *goute* by *xvi* AD, and to *pas* as the unmarked negator in contemporary French (with only *point* remaining as a marked negator.) Hopper considers specialisation more general than obligatorification, in that forms become obligatory only in the final stages of grammaticalisation, and specialisation is a general linguistic process not specific to grammaticalisation.

Some functions of *pu* have displayed specialisation; for example, one can contrast the large number of Classical Greek relativisers, both general—*hós, hósper, hóstis*—and locative—*éntʰa, hópou, hópeːi, hópoi, hópotʰen, hótʰen, hoû, hoî*—with Early Modern Greek *opu* doing the work of all of the above.[10]

There is no known variant of Greek, diatopic or diachronic, in which *pu* has become obligatorified in the complementiser or adjunctiviser paradigms (with the exception of certain adjunct functions, such as resultatives and imprecatives.) In this respect, *pu* differs from the development of similar particles,

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[9]This is a characteristic of grammaticalisation considered by other researchers as pragmatic strengthening, and discussed as such below.
[10]External factors have since added a second general relativiser to CSMG, and layering (see below) has distinguished the locative and non-locative relativisers.

Romance **quod/quia* and Germanic **ðæt*. But as is often pointed out by gram-
maticalisation researchers, nothing in a grammaticalisation inherently propels it
to run to completion in a language; there are many examples of grammaticalisa-
tions of long standing in language which have not reached a putative endpoint.
The fact that other complementisers and adjunctivisers also came into being in
Late Middle/Early Modern Greek has contributed to keeping *pu* in check.

On the other hand, the wide-spread use of *pu* in most clause subordinations in
CSMG is characteristic of obligatorification, and is an instance of **expansion**,
the tendency of a sign to drop contextual restrictions on its occurence, and to
become ubiquitous in a language. In Modern Greek, *pu* and *na* take up a large
component of the work of subordination; the restriction of the paradigm to
those two elements accords both great textual frequency. Expansion is a feature
caused by grammaticalisation, and typical of its late stages.

Paradigms are significantly affected by the introduction of newly grammati-
calising forms. As Bybee (1988:253) points out,

> a developing gram [grammatical morpheme] surely must constrict the domain of
> application of existing grams of similar meaning, for every time it is used another
> gram is not.

Bybee illustrates this with the English future system: *shall* has not ended up a
marker of obligation (but for 1.SG) because of its own grammaticalisation, but
because of the grammaticalisation of *will* (and *going to)* into the predictive fu-
ture function at the expense of *shall.* So the system into which a form grammati-
calises is as important for its eventual meaning as the form's etymon, particu-
larly since a major component of grammatical meaning is paradigmatic
(although see Bybee (1988) for refutation of some of the stronger claims made
by structuralism about meaning-as-opposition, in the light of grammaticalisa-
tion theory.) I believe this to have been a major factor in the semantic develop-
ment of *pu*.

- The **structural scope** of an autonomous linguistic sign is the size
  of the syntactic constituent it helps to form. Through **condensa-
  tion**, the size of the constituent is reduced, until it ultimately
  reaches the level of the morpheme. For example, *habere* in Latin
  could take nominalised VP's—that is, it operated at the clause
  level. Its reflex, French auxiliary *avoir,* operates at the VP level.

There has been some condensation between *hópou* and *pu,* but it has not oc-
curred in a consistent manner. Thus, both *hópou* and its modern reflex ˈ*opu*
quite often introduce clauses containing non-zero subjects; *pu* does so only in-
frequently, in oblique relative clauses, adjuncts, and complements; the subject
is usually dropped.[11]

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[11]The construction *p anaθema ton* 'damn him!' (§7.7.4) arguably displays further condensation,
in that *pu* here governs an exclamation (which however still acts like a verb, in taking a clitic ob-
ject); but this construction is too idiosyncratic to count.

- The **bondedness** of an autonomous linguistic sign is the closeness with which the sign is connected to another sign in a syntagmatic relation; through **coalescence**, bondedness can increase from juxtaposition to merger, and takes place at both a phonological and morphological level. Coalescence involves one of the better-known clines of grammaticalisation: *juxtaposition > cliticisation > agglutination > fusion.* **Univerbation**, wherein a phrase is reduced to a single word, is also an instance of coalescence.[12]

Whereas *hópou* was clearly an independent lexeme, one could make a case for *pu* having become cliticised. One of the more tangible instances of this is the phonological phenomenon present in many varieties of Greek (although not CSMG), whereby /u#e/→/o/ (Andriotis 1951). In most variants of Greek this phenomenon occurs only when the first word is either *pu* or the clitic pronouns *mu, su,* and *tu* (§B.4.1). Phonologically, in these varieties *pu* is patterning with pronominal clitics. Similarly, in CSMG, the rule $V_2 \to \emptyset$ /V_1#_ applies only when V_1 is the final segment of *pu,* 'pu, a personal pronoun (either clitic and full), *θa,* or *na;* this set of words is less clearly clitic than the previous set (if only because of the inclusion of full pronouns), yet is still indicative.[13]

- Finally, the **syntagmatic variability** of an autonomous linguistic sign is the readiness with which the sign can be shifted around in its syntagm; through **fixation**, the sign becomes fixed to one slot in the phrase. For example, while Latin admitted word orders like *epistulam scriptam habeo* and *habeo epistulam scriptam* for 'I have a letter (which is) written', its Italian counterpart, meaning 'I have written a letter', admits the reflex of *habeo* only before the verb: *ho scritto una lettera.*

In CSMG, *pu* is pretty much fixed to the beginning of its clause; exceptions exist, but are rare, and usually associated with poetic register. However, Ancient *hópou* seems to have been no less fixed as a clause-initial marker.

Clearly *pu* scores better on the paradigmatic criteria for grammaticalisation than on the syntagmatic. This is because *pu*, and grammaticalisations like it, are not prototypical: they involve not a change from the lexical to the grammatical,

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[12]Traugott (1995) has recently argued that grammaticalisations like Japanese *demo* and English *indeed,* in which affixes or noun phrases become discourse connectives, violate constraints on the directionality of coalescence.

[13]There is a catch in talking of clitics in Greek: phonologically, every monosyllabic grammeme in the language is clitic. So Joseph & Philippaki-Warburton (1987:216):

> In fact, virtually all monosyllabic elements which modify a phrase and precede the head of the phrase are unstressed proclitic elements. [...] Also among the proclitic elements of Greek are the indicative complementisers *pu* and *pos,* both meaning roughly 'that'.

Furthermore, as Haberland & van der Auwera (1990:153) point out, if *pu* had become fully cliticised as *na* and *ðen* have, then its should be able to appear as a preverbal clitic, in the word order S *pu* V (cf. S *na* V, S *ðen* V); but this is not the case, and Haberland & van der Auwera conclude "there is reason to suspect that there is a *Endstation* Clitic for *pu,* which it has not yet reached."

but from the grammatical to the more grammatical.[14] Since the origin of *pu* was itself a function word (all the way back to Proto–Indo-European, as argued in §5), there is not much room for the structural scope of the morpheme, in particular, to be further restricted.

2.2.2. Other characteristics

A problem with Lehmann's parameters pointed out by Hopper (1991 [1988]) is that they are characteristic of late grammaticalisation, by which time grammaticalisation is unambiguously recognisable. Hopper (1990 [1987]; 1991 [1988]) supplements Lehmann's parameters with a further five, which he is careful to characterise as 'heuristic', rather than definitional. Of these, *Specialisation* and *Decategorialisation* have already been discussed as counterparts to Lehmann's postulated processes, and *Layering* ('Accumulation' in Hopper (1990 [1987])) is discussed in §2.3. *Divergence* and *Persistence* are discussed in this section. There are also other features of grammaticalisation, which are not necessarily definitional, but are nonetheless characteristic of it.[15]

Frequently, when a word undergoes grammaticalisation, its etymon continues its life in the language as an autonomous lexical unit. As a result, one can speak of **divergence** between the lexical form and the grammaticalising form (Hopper 1991 [1988]:24–25): the two forms are cognate, but belong to different grammatical categories, and thus develop differently. An example of this is Old English *an* 'one', which diverged into the Modern English numeral *one* and the indefinite article *a(n); a(n),* being unstressed, was not subjected to the Great Vowel Shift as *one* was. Closer to home, divergence has taken place between ˈ*opu* and *pu,* both reflexes of Ancient *hópou*—with ˈ*opu* continuing on from *hópou,* and not subjected to the attrition *pu* was.[16]

Persistence (Bybee & Pagliuca 1986; Hopper 1991 [1988]) accounts for the current meaning and function of a grammaticalising form in terms of its ety-

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[14]While grammaticalisation was considered to involve change from the lexical to the grammatical, change from the grammatical to the more grammatical has been included rather late; the standard definition is Kuryłowicz (1965:69): "Grammaticalization consists in the increase of the range of a morpheme advancing from a lexical to a grammatical or from a less grammatical to a more grammatical status, e.g. from a derivative formant to an inflectional one."

[15]A persistent problem with defining grammaticalisation is that few of these parameters by themselves can be claimed to be exclusive to grammaticalisation, as opposed to semantic or syntactic change in general. (Hopper (1991 [1988]:32–33) points out that all five of his parameters apply to the change from *mistress* to *Mrs/Miss,* which few would characterise as a grammaticalisation!) These appear to be necessary but not sufficient conditions for grammaticalisation; what is additionally required is that these parameters give rise to morphs deeply integrated (by some measure) into the grammatical system of a language—which *Mrs* is not: the endpoint, as well as the process, is definitional.

In all, grammaticalisation seems to be more of a gestalt notion, or defined by Wittgensteinean family resemblence, than amenable to formal definition—at least as currently understood.

[16]A related phenomenon is **polygrammaticalisation** (Craig 1991 [1988]), in which one etymon can give rise to two independent grammaticalisations; the example Craig discusses is the lexeme *bang* 'go' in Rama, which has given rise (independently, as Craig claims) to both the goal postposition *ba* and the prospective aspect marker *bang.*

mology as a lexical form. Persistence accounts for restrictions or extensions in the usage of a form, which would otherwise seem unmotivated. Lord's (1993: 65–114) extensive discussion of the polysemy of the Twi particle *de,* which can mark a variety of case functions including patients, instruments, accompaniments and factives, is grounded explicitly in its etymology as the lexical verb 'take'. This explains, *inter alia,* why some Twi ditransitives mark patients with *de* (as in 2a), but others do not (as in 2b):

(2a)   *o-*   *de gya* *bere*   *ne*   *nua*
             he   *de* fire   bring   his   brother
             He brought fire to his brother (Lord 1993:75)

(2b)   **o-* *de nhṓma* *kyérew̱* *mè*
             he   *de* letter   write   me
             He wrote me a letter (after Lord 1993:94)

The arbitrary-seeming restriction follows straightforwardly from the semantics of *de* 'take' as a serial verb in older Twi: one takes fire to bring it to someone, in both temporal and syntagmatic order, but one does not take a letter before it is written, since it is the writing that brings the letter into being.[17]

What is crucial to recall about persistence is that it does not operate by means of long-forgotten lexical meanings reaching across the aeons to steer the development of grammaticalising forms. This is impossible, given that the speakers of a language have no memory of the etymology of their grammatical forms.[18] (Indeed, it is this fact which led Saussure to draw the synchronic–diachronic dichotomy which has underlain much of twentieth-century linguistics.) Rather, persistence arises through the polysemy of the grammaticalising form in its early stages—that is, before divergence, when the lexical and grammaticalising forms still act as allosemes of the one meaning: one alloseme is imbued with the semantic properties of the other, before it becomes a distinct sign.[19]

So in the Twi example, the restrictions on *de* resulted from the earlier serial-verb usage of *de,* when *de* was polysemous between its meaning 'take' and its grammatical functions, and the subcategorisation restrictions on 'take' still applied to the form *de* as a whole. In the case of English futures, the natural mechanism whereby persistence eventuates is metonymy and the semanticisation of

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[17]Similarly, Bybee & Pagliuca (1986) account for the semantic differentiation between the Modern English future markers *will, shall, be going to* in terms of their etymologies.

[18]Unless, that is, the etymology is synchronically available to them through divergence. The account of the diachrony of *pu* is complicated by the fact that divergence has made available to the Greek linguistic system a distinct locative ˈ*opu,* which has a discernable link with older *opu,* and etymological and phonetic connections allow a connection between CSMG *pu* and the interrogative locative ˈ*pu.* So any locative-like behaviour in the grammaticalisation of *pu* might have resulted from synchronic interference from ˈ*opu* and ˈ*pu,* rather than persistence *per se.*
The phenomena of folk etymology and back-formation are additional proof that speakers have no memory of etymology.

[19]The mechanism which carries lexical meanings across to grammaticalising forms is still not universally agreed upon, and is discussed in §2.4.

implicatures (§2.4), which constitute an important extension to grammaticalisation theory.

Persistence is a crucial contribution of grammaticalisation theory to linguistic theory; it explains the modern meaning of grammaticalising forms in terms of their etymology, and provides a mechanism for this retention of etymological meaning to have taken place. Since the research undertaken here is primarily on the meaning shifts of *pu,* this is the property of grammaticalisation most frequently appealed to.

Another characteristic of grammaticalisation, and language change in general, is that it is not **teleonomic** (McMahon 1994:325–334). That is to say, language changes do not 'know' ahead of time their future careers; particular changes do not happen in order to facilitate later developments. Rather, later developments take advantage, after the fact, of previous developments. For example, homorganic clusters develop because of phonological assimilation having already occurred, rather than with the anticipatory aim of making articulation easier and to simplify the language's phonology. Furthermore, as already mentioned, there is nothing inherent in language change compelling it to run to completion.[20] A grammatical form need not grammaticalise all the way down a cline: it need not be reduced to phonological emptiness, or become the only member of its paradigm. As a corollary, one cannot predict a language change with certainty, although there are strong expectations of possible pathways.[21]

Teleonomy is an easy trap to fall in to in talking about language change; it provides an intuitive solution to the problem of how change arises, in anthropomorphising linguistic forms. Such solutions are, nonetheless, false, and necessarily so: neither linguistic forms nor, indeed, language speakers should be imbued with such intelligence or forethought. And one must constantly be on guard to avoid such solutions.

The **hypothesis of unidirectionality**, finally, is pervasive in grammaticalisation theory, and claims that the direction of change in grammaticalisation is cross-linguistically unidirectional and irreversible. The hypothesis underlies Lehmann's parametric definitions; for each parameter, there is an assumption that change will only occur in one direction: from less to more paradigmaticity, from more to less paradigmatic variability, and so on.

Unidirectionality involves shifts not only along the clines already discussed, but also along certain semantic clines identified in work by Traugott (1982; 1989; 1990 [1987]). The tendencies considered, which are held to extend to general semantic change, and not only grammaticalisation, include:

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[20]There is a good case to be made for the Hebrew locative *'asher* running further in its grammaticalisation than *pu,* though starting from very similar etymology; I detail this claim in §8.1.
[21]There is huge intuitive appeal to teleonomy, which is why much of the terminology of language change has a teleonomic tinge—'renewal', 'run to completion', 'endpoint', and so forth. The linguist needs to be careful that the use of this now-accepted terminology does not lead to a covert acceptance of teleonomy—a problem I believe underlies the notion of language change as problem solving (see below).

I. Meanings based in the external described situation [i.e. truth-conditional meanings related to the real world] > meanings based in the internal (evaluative/perceptual/cognitive) situation. Amelioration and pejoration are examples of this.

II. Meanings based in the external or internal described situation > meanings based in the textual and metalinguistic [i.e. illocutionary] situation. For example, the development of Old English *þa hwile þe* 'the time that' (referring to the real world) to connective *while* 'during' (which operates in the domain of textual cohesion).

III. (As a result of tendencies I and II) Meanings tend to become increasingly based in the speaker's subjective belief state/attitude towards the proposition; this tendency is called **subjectification** by Traugott, and incorporates the development of evaluative (or in Hallidayan terminology, interpersonal) meaning.[22] An example of this is the shift of *while* from temporal (dealing with objective reality) to concessive (involving speaker attitude, and thus subjective).

These tendencies apply trivially to *pu: pu* codes cognitive evaluation in its role as a marked complementiser, and contributes to textual meaning as a relativiser.

These principles are held to be general (though not exceptionless), although the semantic derivations invoked are not always obvious.[23] Indeed, the general principles of unidirectionality can be exploited to embark on internal reconstruction of polysemous lexemes in a language, tracing the relative priority of their various meanings (Traugott 1986). Counterexamples have been adduced to unidirectionality (such as the lexicalisation of *up* in *to up the ante*). Grammaticalisation theorists hold that the counterexamples are statistically insignificant; this is not a contention universally accepted in the field. The unidirectionality of grammaticalisation is probably best regarded as comparable to the unidirectionality of lenition in phonological change: a much better than chance occurrence in language change, which may be invoked in linguistic explanation, but which also admits exceptions, casting uncertainty onto the reconstructive enterprise. In the account given here, unidirectionality is accordingly used only in very general terms, in working out the likely ordering of developments.

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[22]Properly, interpersonal meaning subsumes evaluative meaning. Traugott (1982) had made use of a cline of PROPOSITIONAL (IDEATIONAL) > TEXTUAL > INTERPERSONAL meaning, appealing to the three types of meaning identified by Halliday in systemic grammar (Eggins 1994). In her newer formulation, the first part of the cline is subsumed by tendency II, and the second part by tendency III.

[23]For example, the cline *Chomsky's **very** words > the **very** back of the room > the **very** thought of writing a dissertation puts me into a cold sweat* is held by Traugott (1990 [1987]) to proceed from less to more subjective, because the extremity being asserted by the speaker is less and less subject to external verification.

2.3. The cyclicity of grammaticalisation

Two characteristic and interrelated traits of grammaticalisation are **renewal** *(renouveillement)* and the **cyclical** nature of grammaticalisation. Both these traits were first discussed by Gabelentz in 1891, although they were more fully developed later by Meillet, whose definition of *renouveillement* has been influential (Hopper & Traugott 1993:20). Renewal involves the replacement of old grammatical forms, subject to attrition and no longer distinctive, by new, periphrastic expressions. Meillet in particular emphasised the need for renewal to provide more vivid articulation to grammatical categories than was provided by the 'worn out' older forms (compare the recent history of English intensifiers— *awfully, frightfully, incredibly, pretty, really*).[24] An example of renewal is given by the Latin future: it originates in a combination of an Indo-European verb nominalisation and a copula, e.g. **vidē bʰwō* 'see I.am—I am to see'.[25] By Classical Latin, the form had undergone attrition to *videbo,* and was renewed by the new development of the form *videre habeo* 'I have to see'. Renewal is involved in *pu,* and expressions based on *pu,* taking root in novel paradigms and dislodging earlier expressions; since renewal is not in itself a causal factor, however, I do not pay this aspect much attention in my account.

The synchronic result of renewal is **layering** (Hopper 1991 [1988]:22–24): the coexistence in a grammar of successive grammaticalisations conveying the same grammatical function. It is usual for a novel grammaticalisation to coexist with its antecedents in a language, before specialisation makes one or the other predominate. Thus the Modern English tense system features Ablaut *(take, took),* the 'weak' alveolar suffix *(look, looked),* modal auxiliaries *(will take),* and several newer auxiliary-like formations *(is going to take, kept on taking).* There can also be coexistence of earlier and later stages of the same grammaticalisation—akin to divergence, as discussed above. Thus in Cretan, the future particle *θa* or *ða,* equivalent to CSMG *θa< θelo na,* coexists with the non-univerbated (and thematically marked) *na V θelo* 'to *V* I want'. There can even be contamination between the two layers: thus, one occasionally encounters in Cretan *θa V θelo*:

(3)   Ναίσκες συντεκνάκι **θα** τηνε βάλω **θέλει**.
        neskes sideknaki **θa** tine valo **θeli**.
        Yes, compadre, I **will** put it. (GrigA 29; Hania)

Frequently, some semantic, pragmatic or register distinction is made between the coexisting forms; for example, there is a register distinction between *je prendrai* and *je vais prendre,* while persistence contributes a distinction in im-

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[24]However, later research has stressed that grammaticalisation arises spontaneously, without being called upon to fill some hole in a grammatical system—and without waiting until such a hole arises; see discussion below.

[25]"Thus, in Latin the imperfect and future of the denominative stative *rubēre* are *rubēbam* and *rubēbō,* respectively, which are most simply analyzed as an "infinitive" **rubē* followed by inflected forms of the root **bheuh₂*- 'be, become'." (Jasanoff 1978:121)

mediacy and intentionality between *I will take* and *I'm going to take.* In that form, layering is very significant in an account of *pu,* as it is almost always used in the same paradigm as earlier and later equivalents; determining the semantic nuancing between the layered forms is the major component to determining the unifying semantics of *pu*.

Gabelentz's other insight was that renewal was not a linear process, as was previously assumed by linguists (whereby the classical Indo-European languages represented an evolutionary endpoint.) Renewal, rather, is **cyclical**: particular forms are renewed again and again in a language, so that a grammaticalisation, having 'run its course' and undergone attrition to zero, can never result in a language losing a way of expressing its grammatical function. Renewals are seldom identical to the forms they replace (for example, the Indo-European 'be'-future was renewed by a Vulgar Latin 'have'-future, which is now being renewed in Modern French by a 'go'-future); so Gabelentz spoke of spirals, rather than cycles of renewal.[26]

While it is accepted that cyclicity is necessary to balance out unidirectionality in language, the mechanism whereby cyclicity is effected has not yet been agreed upon (Heine, Claudi & Hünnemeyer 1991:245–247). For example, it has not yet been determined whether it is an instance of the 'push chain' or the 'drag chain' effect. (That is, whether the novel form fills in a gap left by the attrition of its precedent, or arises while the precedent is still extant, and displaces it.) The increasing tendency to regard grammaticalisation as spontaneous rather than as problem-solving, however, favours a 'drag chain' account.[27]

Cyclicity is pertinent to *pu,* in that many developments of *pu* recapitulate earlier developments in the language—of which some, indeed, occurred independently to *hópou* (§5.1.5). When an older and a younger form have comparable functions in a language, the question arises whether this is an instance of cyclicity, with the two forms independently innovated, or whether there is continuity between the two functions. This issue arises with *pu,* particularly in its parallels with the Ancient participle.

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[26]This is different to the kind of cyclicity addressed in Katz (1996), in which the same lexeme grammaticalises from A to B, and then 'back' to A. (The particular case considered by Katz is the proto-Semitic copula grammaticalising to the Biblical Hebrew 3SG pronoun, which in turn is grammaticalising in Modern Hebrew into a copula.) Given unidirectionality, the grammaticalising changes brought onto a form cannot be completely undone: Semitic **haja/ hawa* is not the same morpheme as Modern Hebrew *hu*.

[27]The difficulty in distinguishing between 'push chain' and 'drag chain' causation obtains in the diachronic accounts of many other linguistic systems; the Middle English Great Vowel Shift is a classic instance. The strongest statement that grammaticalisation is incompatible with problem-solving has been by Bybee & Pagliuca (1985:75): "We must dispose of the notion that communicative necessity motivates the development of grammatical categories. This cannot be so, because not all languages grammaticize the same categories."

2.4. Metaphor and metonymy

2.4.1. Reanalysis and analogy

There are three primary mechanisms bringing about language change (Harris & Campbell 1995). Of these, **language contact** is a language-external factor, and is not considered in this section. The other two have complementary roles to play. **Reanalysis** (Langacker 1977) involves a change in the internal analysis by a language-hearer of the structure of an utterance (be it syntactic, semantic, morphological, or phonological);[28] while this gives rise to a novel linguistic structure, the utterance itself remains unaltered. Reanalysis results from the structural ambiguity of such utterances: they licence a novel interpretation of their structure.[29] (Note that there need not be a *semantic* ambiguity in such utterances.) **Analogy** is the process whereby this novel linguistic structure is extended to contexts where it was not previously admissible.

In Saussurean terms, reanalysis involves syntagmatic change, while analogy involves paradigmatic change. Since the surface structure of an utterance is not altered by reanalysis, reanalysis is not detectable in historical texts; a researcher can only realise a linguistic innovation has occured when analogy takes place, and the novel linguistic structure is used in a context which would not admit the prior, unreanalysed structure. By definition, only reanalysis creates novel grammatical structures; analogy is what makes the structures gain ground in the language.

To illustrate, consider the reanalysis of Greek *pôːs* from a causal connective ('how') to a complementiser ('that') (Nicholas 1996). In (4a), both the 'how' and 'that' interpretations of *pôːs* are possible:

(4a)   (~70 AD)
> Οὐκ ἀνέγνωτε ἐν τῇ βίβλῳ Μωυσέως ἐπὶ τοῦ βάτου **πῶς** εἶπεν αὐτῷ ὁ Θεὸς λέγων
> «Ἐγὼ ὁ Θεὸς Ἀβραὰμ καὶ Θεὸς Ἰσαὰκ καὶ Θεὸς Ἰακώβ;»
> ouk anégnoːte en têːi bíbloːi moːuséoːs epì toû bátou **pôːs** eîpen autôːi ho tʰeòs
> légoːn "egò: ho tʰeòs abraàm kaì tʰeòs isaàk kaì tʰeòs iakóːb"?
> *Have you not read in the book of Moses, in the passage about the bush,* **how**
> *God said to him, 'I am the God of Abraham, and the God of Isaac, and the God*
> *of Jacob'?* (NT Mc 12:26)

This phrase could be read as either *have you not read* **how** *God said* or *have you not read* **that** *God said*. Therefore, reanalysis of *pôːs* from 'how' to 'that' may well have taken place in such a clause. However, since the reanalysed and unreanalysed versions of the clause are identical, it is impossible to detect

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[28]However, Hopper & Traugott (1993) in their discussion limit reanalysis to morphosyntax; see below.

[29]The novel analysis is not necessarily the optimal analysis a linguist would adopt, as Joseph (1992b) points out. The most direct evidence of this are folk etymologies like *woodchuck* for Cree *oček;* but reanalysis can also result in such effects as the effacement of the relation between *let's* and *let us* in such expressions as *Let's you and I go* (cf. **Let us you and I go*). So reanalysis can have the effect of increasing, as well as decreasing, opacity in the language: it is not always motivated by some notion of communicative efficacy or linguistic economy.

whether the reanalysis had already occurred when this sentence was written, and whether in Mark the Evangelist's mind this instance of *pô:s* was a complementiser or not.

As I have argued elsewhere (Nicholas 1996:199), (4b) constitutes an analogical extension of *pô:s* to a context where the old, manner reading of *pô:s* is inadmissible: *see [**that**] it does not bite,* not *see **how** (=the manner in which) it does not bite.*

(4b)   (100~120)

Θάνατος τί ἐστιν; Μορμολύκειον. Στρέψας αὐτὸ κατάμαθε· ἰδοῦ, **πῶς** οὐ δάκνει.
tʰánatos tí estin? mormolúkeion. strépsas autò katámatʰe; idoû, **pô:s** ou dáknei.
What is death? A bugbear. Turn it about and learn what it is; see, ∅ it does not bite. (Epict II 1:17)

Instances of the reanalysis and analogical extension of *hópou*, both from locative to relativiser, and from relativiser to its other functions, are discussed in §5.

Reanalysis and analogy are the nuts-and-bolts of language change in general; as such, they are essential to grammaticalisation (*qua* language change), but are not specific to it. For instance, the textbook cases of analogy involve such non-grammaticalisations as the generalisation of the English *-s* plural, forming *shoes* instead of *shoon*, and *books* instead of **beek*, by analogy with *stone/ stones*.[30]

An important logical feature of reanalysis is that it is **abductive**; in fact, abduction is characteristic of language change (see Andersen 1973).[31] Abduction is logically fallacious, since it admits false conclusions.[32] Precisely for that reason, however, abduction is essential in language change, since it is the only way novel concepts can be introduced into the system. In the theory formulated by Andersen, a child learning a language abduces, from the Result (the speech of its elders) and a Law (its innate Universal Grammar), the Case (the grammar of its native language). When the child abduces incorrectly, it formulates a different grammar from the same utterances, and language change results.

Similarly, people abduce the meaning or syntax of an utterance (the Case) from what they physically hear from their interlocutor (the Result) and their knowledge of the language (the Law). When they abduce incorrectly, a mis-

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[30]Heine, Claudi & Hünnemeyer (1991 [1988]:169) claim that grammaticalisations like demonstrative→definite article and 'one'→indefinite article do not involve reanalysis, since "the syntactic status of the determiner–head phrase remains unchanged." But the authors have clearly invoked a much narrower, explicit syntactic understanding of reanalysis than espoused by, say, Hopper & Traugott (1993).

[31]Abduction, together with induction and deduction, are types of logical strategy. **Deduction** is the inference of a Result given a Law and a Case (e.g. *All men are mortal; Socrates is a man; therefore Socrates is mortal*), and **induction** is the establishment of a Law from Cases and Results (e.g. *Socrates is a man; Socrates is mortal; (so are Plato and Aristotle); therefore all men are mortal).* Deduction is the logical strategy underlying mathematics and logic, while induction underlies the sciences (laws established by experimentation.) **Abduction** involves establishing a Case given a Law and a Result (e.g. *Socrates is dead; All men are mortal; therefore Socrates is a man.*)

[32]e.g. *Socrates is dead; All fruit flies are mortal; therefore Socrates is a fruit fly.*

match obtains between the speaker's intended meaning or syntax and the hearer's interpretation. The hearer's novel interpretation of the utterance constitutes reanalysis.

2.4.2. Implicature and grammaticalisation

When reanalysis is syntactic or morphological, the source of the reanalysed meaning inheres in the linguistic structure, which is subject to two analyses. The kinds of reanalyses involved in the grammaticalisation of *pu,* however, are primarily shifts in meaning. The source of these alternative readings does not inhere in the linguistic raw materials in the same way. Indeed, following the synchronic perspective of the discourse–morphosyntax connection, one of the more interesting developments in recent grammaticalisation theory has been the link made between grammaticalisation and pragmatic and discourse processes. These processes, it is believed, deliver the alternative readings triggering meaning-based reanalysis.

In particular, many of the reanalysed meanings of grammaticalising morphemes are held to originate in **implicatures** associated with the morphemes—that is to say, default assumptions about a situation, which can be cancelled out by further information (**defeasible**), rather than being truth-conditional entailments inhering in lexical semantics.[33] Traugott (1988) has argued that semantic bleaching is only a feature of late grammaticalisation, and early grammaticalisation is rather characterised by pragmatic strengthening, as hitherto pragmatic information becomes semanticised—incorporated into the morpheme's lexical semantics.

Modern English *since,* for example, which has both a temporal and a causal meaning, is a reflex of Old English *siþþan,* used exclusively in its temporal meaning (Hopper & Traugott 1993:75–77; Traugott & König 1991 [1988]:195–199). Nonetheless, *siþþan* occasionally appears in texts with what might be construed as a causal meaning:[34]

(5)   (~880)
    *Ac ic þe wille nu giet getæcan þone weg **siþþan** ðu ongitst þurh mine lare*
    hwæt sio soðe gesælð bið, & hwær hio bið.
    But still I will now teach you the way **since** you see that true happiness comes

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[33]Cole (1975) and Dahl (1985) seem to have been the first to formulate this view. However, Dahl's treatment is programmatic, and Cole's treatment has a different focus to subsequent attempts, stressing the role of syntactic congruity with the reanalysed meaning. The hypothesis is more fully elaborated in the later writings of Traugott and colleagues, on which this discussion is based.

[34]Readers familiar with Greek may notice the similarity with the development of Greek *ap hoû* 'from which'→ *afu* 'since (TEMPORAL); since (CAUSAL); but (DISCOURSE CONNECTIVE)'. As grammaticalisation theorists would argue, this is not accidental: it is characteristic of grammaticalisation that the same pathways recur across languages, since they involve the same reanalyses. Traugott & König (1991 [1988]:195) mention instances in German, French, Spanish, Swedish, Rumanian, Dutch, Estonian, and Finnish.

through my teaching, and where it is. (Boethius; cited in Hopper & Traugott (1993:76))[35]

However, full extension of *since* to causal contexts occurs only as late as *xv* AD.

The implicature-based account for this reanalysis runs as follows. The abduction *post hoc ergo propter hoc* (temporal succession implies causality) is a commonplace, stereotypical implicature.[36] The *post hoc ergo propter hoc* implicature can be invoked for any temporal sequence expression—including *siþþan*. The difference between sporadic Old English causal *siþþan* and *xv* AD causal *since* is that only in *xv* AD did the implicature become conventionalised, and associated with the particular linguistic form *since.*

So, novel semantics in grammaticalisation is held to derive from implicatures associated with the particular linguistic form: these implicatures are conventionalised, and pass from pragmatics to the lexical semantics of the form.

2.4.3. Metaphor

Metaphor is considered a major mechanism in meaning change in general; as such, it would be expected to play a role in grammaticalisation. In the particular context of meaning change, metaphor can be described as the mapping of meaning from one semantic domain to a domain somehow isomorphic with it; the isomorphism is analogical or iconic in nature. In more lay language, "The essence of metaphor is understanding one kind of thing or experience in terms of another." (Lakoff & Johnson 1980a:455)

One of the best examples of metaphorical semantic change is illustrated in expressions like *behind the times* or *behind schedule*. The preposition *behind* is primarily spatial; but its meaning became extended to temporal meaning in such expressions, with spatial posteriority conceptually mapped onto temporal posteriority through an isomorphism between space and time. It has been argued (primarily by Lakoff) that such metaphorical extension increases the expressivity of language, as humans conceptualise abstract semantic domains in terms of more familiar domains. Such metaphorical mappings are discussed extensively in past work by Heine and Bybee; Heine, in particular, has articulated a view of grammaticalisation akin to such usage of metaphor:

> One of the main claims made here is that underlying grammaticalization there is a specific cognitive principle [...] By means of this principle, concrete concepts are employed to understand, explain or describe less concrete phenomena. In this way, clearly delineated and/or clearly structured entities are recruited to conceptu-

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[35]In this case, *siþþan* translates Latin *quoniam* 'because', and the causal meaning is consistent with the choice of the stative verb *bið* rather than the contingent verb *is*.

[36]For example, one derives from *I pushed him; then, he fell* the reading *he fell because I pushed him.* As an implicature, the abduction does not inhere in the lexical semantics of temporal expressions; it is rather established contextually, and is defeasible—that is, it can be cancelled out by the addition of further context. (For example, *I pushed him; then, he fell, because he tripped as he was moving back*.) Entailment, on the other hand, is not defeasible, and is the kind of inference involved in lexical semantics; for example, *I am a bachelor* entails *I am not married,* and under no context can this inference be cancelled out.

> alize less clearly delineated or structured entities, non-physical experiences are understood in terms of physical experiences, time in terms of space, cause in terms of time, or abstract relations in terms of kinetic processes or spatial relations, etc. (Heine, Claudi & Hünnemeyer 1991 [1988]:150)[37]

Under this view, grammaticalisation is problem-solving, facilitating the conceptualisation of abstract notions. Metaphor thus becomes the natural semantic mechanism for grammaticalisation. The major thrust of research done by Heine and his fellow researchers (Heine 1992; Heine, Claudi & Hünnemeyer 1991; Heine & Reh 1984) has been to identify the types of source concepts and propositions giving rise to grammaticalisations cross-linguistically; for example, body part terms like *back* giving rise to spatial terms, giving rise in turn to temporal terms. This type of metaphor is much more abstract than its commonplace phrasal equivalent: it maps between domains like SPACE and TIME, rather than, say, CUNNING PEOPLE and FOXES. Also, this type of metaphor is held to hold primarily in a psychological, cognitive domain, whereas metonymy (discussed below) operates in a pragmatic domain.

This work is related to the earlier work by researchers such as Anderson (1971) and Lyons (1977), on the **localist** hypothesis. This hypothesis maintains that spatial expressions are somehow linguistically more basic than other expressions, and therefore serve as templates for developing other expressions. Localism resembles the research programme undertaken by Lakoff & Johnson (1980a; 1980b), in which metaphor is taken to be a basic cognitive mechanism for conceptualising the world: many of their conceptual metaphors are spatial in nature.

In the strongest form of the hypothesis, spatial expressions are held to be the basic source for the development of all linguistic categories. Typological work has established that this cannot be the case. Thus, in Heine's framework, location is not the most basic category, but is an essential component of the basic grammaticalisation chain PERSON > OBJECT > PROCESS > SPACE > TIME > QUALITY. This chain is interpreted as licensing conceptualisations (**categorial metaphors**, in Heine, Claudi & Hünnemeyer's terminology) such as SPACE IS AN OBJECT and TIME IS SPACE. But this does not mean that expressions drawn from this chain underlie all reanalysis without exception—let alone that spatial terms underlie all reanalysis.

So while the spatial expression 'X is next to Y' is a common source of possessive constructions cross-linguistically (applying, for instance, to Russian *u X.DAT Y.NOM* 'Y is by X'), PROCESSES such as 'acquire' and 'seize' are just as plausible a source (as in English *have,* cognate with Latin *capio* 'seize')—and are not primarily spatial in nature. And spatial terms themselves frequently arise from more basic terms in the grammaticalisation chain, such as body parts; for

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[37]Heine, Claudi & Hünnemeyer add the proviso that grammaticalisation is not necessarily motivated by the lack of sufficiently expressive resources in a language.

example, Ewe *megbé* 'back (of body)→behind (spatial)' (discussed in Heine, Claudi & Hünnemeyer 1991:65–69).

This suggests that localism as a hypothesis must be so weakened, in order to match typological data, as to no longer constitute an autonomous theory. SPACE is *an* origin for grammaticalisation—and an origin worth looking at in the context of the grammaticalisation of *pu*, given its etymon. But outside the domain of case marking (which was Anderson's (1971) particular concern), it is not an especially privileged source, and can be subsumed in discussion under the more general mechanisms applying in grammaticalisation.

2.4.4. Metonymy

While metaphor has an established place in grammaticalisation theory, some researchers—notably Traugott (1991 [1988])—have questioned its primacy. In particular, since metaphor is analogical, it is held to belong to the analogical phase of grammaticalisation, and not its reanalysis stage. That is to say, the proper semantic/pragmatic counterpart to analogy should be metaphor. But if a counterpart to morphosyntactic reanalysis is to be found, metaphor will not serve.

The semantic mechanism proposed for this function has been called **metonymy** (Traugott & König 1991 [1988]:210)—by extension of its namesake semantic shift, whereby physical contiguity links prior and novel referents (for example, *The Crown* referring to royal authority, or Old English *gebed* 'prayer' > [rosary] *beads* > generic *beads*.) The term *metonymy* here refers to conceptual contiguity, between the previously accepted reading of an expression and the implicatures arising from the expression used in specific linguistic contexts. Whereas metaphor is iconic, relying on isomorphism between two semantic domains, metonymy is indexical, pointing to contextual relations between established and novel meanings.[38]

As an example of the distinction between metonymy and metaphor, consider Hopper & Traugott's (1993:82–84) discussion of the English *going-to* future.[39] A metaphorical account would simply point to the isomorphism between motion-towards-a-goal in space, and time passing up to an event on a timeline. Hopper & Traugott, however, point out that intentionality arises as a defeasible conversational implicature from utterances involving *go*. Thus, *I was going (=on my way) to be married* generates the implicature *I intended to marry,* which in turn generates the implicature *I will marry in the immediate future;* and the implication is defeasible *(I was going (=on my way) to be married, but*

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[38]The discourse process giving rise to the semantic expansion in metonymy is called **Context-Induced Reinterpretation** by Heine, Claudi & Hünnemeyer (1991:71–72). The distinction between metonymy and context-induced reinterpretation is rather fine, and I do not adopt it in this work.

[39]Readers familiar with Greek might wish to recast these examples with *piɣeno* 'go'—bearing in mind that a fully-fledged *go*-future/inchoative has developed in some Greek dialects, and has a limited presence in CSMG, in expressions like *pao na trelaθo* (I.go to become.crazy) *I'm going crazy.*

on the plane I changed my mind and decided to join the Army.) Hopper & Traugott believe the future interpretation of *going to* arose from (a) the (pragmatic) contiguity of the literal meaning of *go to* and the implicature, and (b) the (morphosyntactic) contiguity of *go* and *to,* each contributing its own implicature of futurity.[40]

So in (6), reference is still made to spatial motion: in Christian theology, sinful souls embark on a journey to hell after death.

(6)   (1482)

    Thys onhappy sowle... **was goyng to** *be broughte into helle for the synne and oneleful lustys of her body.* (Monk of Evesham; cited in Hopper & Traugott (1993:83))

However, this motion is undertaken unvolitionally, as implied by the use of the passive *broughte;* and the destination *helle* is not the immediate object of *goyng,* but is syntactically removed from it. The latter fact weakens the spatial content of *goyng to,* and the former weakens its intentionality. As a result, the implicature of futurity gains in prominence against the meanings of directionality and intentionality.

So the shift towards futurity in Late Middle English utterances like this occurs, not as a result of metaphorical analogy (which would operate on *go* alone), but in the semanticisation of implicatures (pragmatic contiguity) arising out of specific phrasal contexts (morphosyntactic contiguity). Full grammaticalisation ensues when metaphorical analogy, as Hopper & Traugott term it, extends the *going-to* future to contexts which do not admit intentionality, such as *I am going to like Bill.* But by this stage, the metaphor Hopper & Traugott are talking of is not the same metaphor researchers like Lakoff had in mind. The conceptual, Lakoffian leap from directionality to intentionality to futurity was already made (in rather less dramatic fashion) in metonymic terms, in expressions like (6); the extension of this future to *I am going to like Bill* through metaphorical analogy is no more dramatic an analogical shift than the innovation of the plural *shoes* instead of *shoon,* at around the same time.

Metonymy can also help give a principled account of how persistence is effected, and how the semantics of the etymon are related to the semantics of the grammaticalising form. There are three major hypotheses dealing with this. The first is the **containment hypothesis** (so called by Willett 1988:80–84), which features in earlier work on grammaticalisation (e.g. Givón 1973), and predicts that the novel meaning of a grammaticalising form is contained within its etymon.[41] This means that the etymon is semantically richer than the grammati-

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[40]Morphosyntactic contiguity was not considered in Traugott & König (1991 [1988]), the original paper where metonymy is discussed; but it is included in their definition of metonymy, whereby "the contiguity involved is based in the discourse world."

[41]Specifically, Givón refers to the transfer of the temporal traits of verbs like *come* and *go* ('contained' in their lexical semantics, as they are non-defeasable) into their grammaticalised functions. For instance, with *come* one is at the reference point *before* one is at the deictic

calising form, so the type of semantic change involved is associated with semantic bleaching.[42] The second is Traugott's (1988) hypothesis of **pragmatic strengthening**, also termed the 'loss-and-gain model' (Sweetser 1988); this underlies the metonymy model, and postulates that the grammaticalising form, while losing some lexical meaning, gains meaning through its transfer to a new grammatical domain, typically as a result of the semanticisation of implicatures.

Lastly, as an extension of the loss-and-gain model, the **implicature model** allows that "the entire conceptual substance may be eliminated in favor of a completely new conceptual structure" (Heine 1993:94). Heine's formulation is an expansion on Dahl's (1985) earlier model, which was a starting point for metonymy: the new meanings added to the grammaticalising form are secondary meanings not contained in the etymon, but added through conventionalising implicatures; therefore a succession of such additions can result in the etymological meaning being entirely effaced. For example, in the discussion of the *going-to* future in this section, the main semantic component influencing its career was intentionality, which itself was an implicature added on to the etymological meaning of motion. As a result of its further grammaticalisation, the *going-to* future now has no semantic component involving motion at all: it only contains the secondary meaning of intentionality, and the tertiary meaning of futurity.

The three hypotheses on meaning retention are summarised elegantly by Heine (1993:88−95), who schematically points out the interrelatedness of the three models as follows:

ab > b	Bleaching (semantic component *a* is bleached, *b* remains)
ab > bc	Loss-and-gain model
ab > bc > cd	Implicature model

For the example of the *going-to* future, *a* can be considered physical motion, *b* directionality (approaching a goal in either time or space), *c* intentionality, and *d* futurity. As this formulation shows, each hypothesis is relevant to understanding meaning shift, although only the implicature model accounts for the full range of possible shifts in grammaticalisation, including the complete elimi-

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centre; this notion of anteriority is part of the lexical definition of *come,* and should apply to any grammatical usage of *come.*

In fact, Givón (1973) reads like an anticipation of metaphoricist accounts of grammaticalisation: his account of the development of allative and venitive tense markers explicitly says that the grammaticalisation "preserves the presuppositional scheme of 'come' and 'go', but transfers its medium from space to time." (p. 918)

[42]Willett in his paper considers both containment and implicature implausible mechanisms for grammaticalisation; for implicature in particular, he believes "it appears unlikely that one member of a paradigm could somehow imply all of the others." (p. 81)

However, Willett is only considering Dahl's (1985) early and sketchy proposal, which had not yet incorporated the notion of analogical extension; and the current formulation of metonymic change treats it as only an early component of grammaticalisation, considering semantic generalisation (which Willett points out it does not handle in a principled way) independently, as bleaching.

nation of the etymological meaning, as well as its persistence at least at earlier stages.[43] Clearly it is metonymy, in the guise of the semanticisation of implicatures, which serves as the source from which novel meanings concretely originate in the grammaticalisation process.[44]

2.4.5. The relative status of metaphor and metonymy

As should be clear from §2.4.4, the integration of metaphor and metonymy sought by Hopper & Traugott (1993) is flawed; and this is because of vagueness in the notions of both metaphor and metonymy. In the following, I elaborate on the conflicting notions involved, and on the need for a resolution, before describing what seems to be the most plausible resolution currently formulated.

The notion of metaphor in their discussion of *going to* is much weaker than the conventional notion: it is little more than analogical extension in a paradigm. In addition, Hopper & Traugott's refutation of metaphor as a mechanism for reanalysis is faulty: they posit that, since metaphor is an analogical process, it must be restricted to the analogical, paradigmatic phase of grammaticalisation. But the reanalysis of a form, being a reinterpretation, can be motivated by a cognitive metaphor just as much as by structural ambiguity. Metaphor is effected by drawing an analogy; but Hopper & Traugott infer that the source of the analogy in the metaphorical extension must be the same grammaticalisation as its target: that you need *I am going to get married* to analogise a future onto *I am going to like Bill.* This is untrue: the source of the metaphorical analogy can just as well be a cognitive schema, like SPACE IS TIME. In that instance, metaphor can indeed operate in reanalysis.

Also, the concept of metaphor Hopper & Traugott argue against is not what Heine, Claudi & Hünnemeyer (1991; 1991 [1988]) currently espouse. The model of metaphor they describe is explicitly defined as complementary to metonymy, and has been refined to cope with divergence and reanalysis, by means of polysemous forms and clines of metaphorical categories—so that there can be enti-

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[43]As a corollary of this, there can be cases where the various grammaticalised reflexes of a single etymon no longer share any single semantic feature, in which case it is more appropriate to speak of *heterosemy* than polysemy; see discussion in Lichtenberk (1991), and compare the discussion of serial verb polysemy in Lord (1993) and grammaticalisation chains (Heine 1992).

[44]Sweetser (1988) proposes an explicitly metaphoric basis for the loss-and-gain model, whereby metaphorical mapping preserves certain salient inferences associated with the etymon, projecting the schematic/topological structure of the source domain into the target domain. In the *going-to* future, for instance, the inferences preserved are the linearity of motion, the location of ego at the source of the path, and movement towards a distal goal—all falling out from the topology of *go.*

But the metaphorical account of persistence seems forced: it is redolent of speakers remembering etymologies, requiring people to reflect on typological schemas in the abstract when planning their vocabulary. Contrast this to the metonymic model, where inferences are preserved in the lexeme because it is simply the same lexeme, used in a particular context. This requires people simply to reinterpret the discourse they are given, and appears to be a more natural way for persistence to be effected.

ties, for instance, intermediate between OBJECT and SPACE (although this does not explain the specifics of how the transition from OBJECT to SPACE is made.)[45]

To be fair, Hopper & Traugott do not make a concerted 'attack' against metaphor; they acknowledge it serves a complementary role to metonymy, but other than attributing to it a paradigmatic role, they do not say explicitly how the two processes are complementary. Traugott & König (1991 [1988]) contend that metaphor is primary in the development of inflections (including aspect, tense and case markers), while metonymy is primary in the development of connectives. But Hopper & Traugott (1993) choose to illustrate the superiority of metonymic over metaphoric accounts of reanalysis with the *going-to* future—a tense/aspect marker. In fact, Traugott (pers. comm.) has since come to the conclusion that in almost all cases metaphor is a result of semantic change, and not a motivation for it.[46] So if one is disinclined to regard the mechanism of language change as involving reflective problem-solving (as I am), then one would disprefer metaphor as an account of this mechanism.

Furthermore metaphor, as an aid in conceptualisation, fits more naturally with the claims that grammaticalisation is a form of problem-solving than does metonymy; Traugott & König's (1991 [1988]:212) claim that metonymy, in conceptualising something in terms of something else available in the discourse world, also counts as problem-solving, is not convincing. Problem-solving is a reflective activity, which would be expected to conscript deliberate analogical, metaphorical leaps. The kind of casual 'inference-hopping' involved in metonymy does not fit in with problem-solving. It does, however, fit in with the spontaneous, unbidden initiation of grammaticalisation, increasingly pointed to in the literature.[47]

Metonymy is defined by Hopper & Traugott in a somewhat diffuse manner, encompassing both pragmatic and morphosyntactic contiguity in a manner not explicitly delimited. Nonetheless, it does the work of creating novel linguistic meanings, in the same way as reanalysis does the work of creating novel linguistic structures. Furthermore, metonymy does this in a more realistic manner than a purely metaphoric model would predict, encompassing pragmatic and discourse processes—a much more concrete and credible source for the reanalysed readings of utterances than the fairly abstract cognitive schemata espoused by the metaphoric theory.

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[45]The notion of an entity intermediate between object and space ties in, for example, with the arrow paradox, as my colleague Christina Eira points out to me.

[46]This fits in with the view I espouse below, that metaphor is best regarded as an epiphenomenon of grammaticalisation.

[47]Radden's (1985) observation that English has recruited eleven spatial prepositions to do causal work, which it has held on to even after acquiring five exclusively causal prepositions from French and Latin, is an excellent illustration of this: there was no problem in expressing causality, to be 'solved' by these spatial connectives.

What is left for metaphor to do?

The question is, if metaphor is not the natural analogue of analogy, then what is the relative status of metaphor and metonymy in grammaticalisation? Does metaphor still have an explanatory role to play, and to what extent should it be invoked in accounts of grammaticalisation?

While metaphor does not have much left to do in Hopper & Traugott's account of *going to,* it undeniably has an explanatory role in grammaticalisation. This is particularly so for the more concrete links in the grammaticalisation chain, such as spatial terms, as described at length in works like Heine & Reh (1984) and Heine, Claudi & Hünnemeyer (1991). A meaning shift like *back of body→ back of house* can still be understood in terms of reanalysis: the word *back* is arguably reanalysed in *back of body* from an anatomical designation to an abstract spatial term, which can then be extended to *back of house* by straightforward analogy. But unlike *going to,* this reanalysis is not contingent on linguistic context, and can be explained as conceptualisation; the role of contiguity in this process is much less prominent.

And in a grammaticalisation like that discussed by Emanatian (1992), where Chagga *icha* 'to come from' is an incipient future in phrases like *naíchéálika mkoóngi* 'he'll marry another wife' (lit. 'he's *coming* to marry another wife'), reanalysis has little visible role to play at all. In Emanatian's account, the verb *icha* is used because motion towards a deictic centre is indicated (in time rather than space); only the deictic centre is not the speaker's here-and-now, but the point in time at which the event will be realised—something that would be made explicit in tense terms in an expression like 'he *will have come* to marry another wife'. It is implausible to attribute this generalisation of the deictic centre of *icha* to reanalysis: in normal utterances, discourse would have overwhelmingly the here-and-now as a deictic centre. This is clearly metaphorical extension, and since only this shift enables the future use of a *come*-verb (as opposed to a perfective use, as in French *je viens de*), one cannot speak of the analogical extension of an established future usage, either.[48]

Nevertheless, not all grammaticalisations require metaphor in its full, Lakoffian sense. As seen, the grammaticalisation of *going to* required only a simple analogical extension, the conceptual leap having taken place in the met-

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[48]The Chagga venitive future belongs to a group of linguistic formations in which ego is not viewed as moving forwards in time (*Moving-Ego* model), but rather time is viewed as moving backwards, towards ego (*Moving-World* model; cf. e.g. English *when tomorrow **comes; this coming** Friday,* and Greek *tin **erxomeni** paraskevi* 'this *coming* Friday'; it can also engender allative pasts, as in Catalan *vaig* + INF) (Fleischman 1982).
There is no obvious reanalysis which could transfer motion from an animate participant in a sentence onto time; this is metaphorical transfer of the quality of motion, from animates to time, from the outset. The fact that constructions following the Moving-Ego model are much more frequent than those following the Moving-World model is significant, however, and suggests that the Moving-Ego model is somehow more 'natural'; its reinforcement by reanalysed motion-verb utterances, with a normal, ego-centric deictic centre (ego conceived of as the entity moving), would certainly contribute to this.

onymic reanalysis—much more gradual than Lakoffian metaphor. And as pointed out by Emanatian (1992:23) herself, expansion grammaticalisations, involving development from the grammatical to the more grammatical (as is the case with *pu* itself), frequently do without metaphorical extension.

Another reason the relative role of metaphor and metonymy needs to be established, more methodological in nature, arises with the granularity of accounts of grammaticalisation. Consider a likely pathway for the grammaticalisation of *pu* from relativiser to complementiser: an utterance like (7a) could readily undergo both syntactic reanalysis, giving (7b), and metonymic semanticisation of implicature, as shown in (7c).

(7a)   Είδα   την αρκούδα   ***που***   χόρευε
        iða   tin arkuða   ***pu***   xoreve
        I saw   the bear   REL   was dancing
        I saw the bear who was dancing.

(7b)   Είδα   την αρκούδα   ***που***   χόρευε
        iða   tin arkuða   ***pu***   xoreve
        I saw   the bear   COMP   was dancing
        I saw the bear dancing (Complement raising)

(7c)   *(I saw the bear who was dancing) +> (I saw the bear while it was dancing) +>*
        (I saw that the bear was dancing)
        Defeasibility: ΕΙΔΑ την αρκούδα ***που*** έτρωγε, αλλά δεν την είδα ***ότι*** έτρωγε [**iða** tin
        arkuða *pu* etroγe, alla ðen tin iða *oti* etroγe] *(I saw the bear **who** (pu) was*
        *eating, but I didn't see **that** she was eating;* intonation is required to preclude
        the complement reading of *pu* here.)

The problem is, what do we now do with the fact that *pu* has become a complementiser in these utterances? In Hopper & Traugott's model, 'metaphor' is now employed to extend the lexeme to novel contexts, just as *going to* was 'metaphorically' extended to non-intentional contexts. But *going to* did not displace the *will-* or *shall*-futures; rather, other implicatures, such as expectation and imminence, underwent persistence in the *going-to* future, and lent it a distinctive function in the paradigm. Yet analogical extension shifts forms *away* from their usual contexts, and their attendant implicatures. So what is the mechanism that ensures persistence, when analogical extension operates?

To speak of the 'metaphorical' extension of *pu* from utterances like (7b) to other complements, says little. What kind of complements is the transition of *pu* licenced to? All complements? This has occurred in only a limited number of Greek dialects. All factive complements? Something akin to this has happened in the bulk of Greek dialects; but the factors unifying the various instances of *pu*_{COMP} in CSMG have proved elusive for researchers (§4.) All perception-verb predicates? But then we still need to account for the emotive and cognitive predicate usages of *pu*. If metaphor is driving the extension, there is no obvious mechanism in place that limits how far the extension goes. As the very similar development of Hebrew *'asher* shows (Givón 1991 [1988]), it is possible for a locative to end up covering all complementation, realis and irrealis—something

which clearly has not taken place in Greek. But if metaphor is an extension of some much more local and less wide-ranging analogies, then one would expect different ranges of expansion in different linguistic variants—as indeed is the case for Greek.

Level and metalevel

So the relative role of metaphor and metonymy remains at issue. Various opinions have been expressed on this; Papadopoulou, for example, considers metaphor the synchronic manifestation of metonymy, while Lichtenberk (1994:824) considers metaphor a 'conceptual background' for metonymy.[49]

At any rate, clearly the same grammaticalisation phenomena are being explained on two levels—as metaphor and as metonymy. Of the two, metonymy seems to have a better handle on the nuts and bolts of actual reanalysis; metaphor is more of an after-the-event account of reanalysis, on a more abstract conceptual level. So for instance, one can describe the origin of causal *since* in metonymic terms, as Traugott & König (1991 [1988]) do, by pointing to the semanticisation of causal implicatures in utterances like *Since Susan left him, John has been very miserable*. Alternatively, one can describe it in metaphoric terms, as an instance of the TIME-TO-CAUSE metaphor (Heine, Claudi & Hünnemeyer 1991:75; 1991 [1988]:166).[50] But the metaphoric account is clearly more abstract, and more removed from the realities of language use (if not *langue*). Indeed, in positing metaphor and metonymy as coexisting in grammaticalisation, Heine, Claudi & Hünnemeyer (1991:74) state that "conceivably, metonymy is the more basic component of this process in that metaphor is grounded in metonymy."

There are two apparent alternatives as to how the two mechanisms integrate:
- Metaphor, as an underlying cognitive framework, delimits the possible directions metonymic change can occur in, and thus steers the reanalysis process.

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[49]Lichtenberk also points out, quite perspicaciously, that metaphor has received much more attention than metonymy in the literature for the simple reason that it is easier to identify: it does not require extensive diachronic attestation of a language, and painstaking examination of those texts to identify plausible contexts for reanalysis.

Haspelmath (1992), on the other hand, doubts that either metaphor or metonymy are essential to grammaticalisation, as opposed to semantic change in general, and holds that the crucial semantic change in grammaticalisation is semantic bleaching. This is the original approach to meaning shift in grammaticalisation, identified above as the containment hypothesis; however, it is vague as to the precise mechanism of reanalysis, and tends to be consigned by many researchers to late grammaticalisation. Furthermore, as Willett (1988:81) points out, it cannot be taken as a given that all components of grammatical meaning derive in embryo from some lexical etymon.

[50]Traugott & König (1991 [1988]:209) question the applicability of 'metaphor' to TIME-TO-CAUSE, since "it is difficult to see in what sense a causal is an analog of a temporal." While a mapping of sorts can be devised between time-lines and causality-lines (more accurately, causality-trees), it is not immediately obvious. It might still be argued that temporal precedence is the easiest way of conceptualising causality (particularly given that philosophers have not agreed on any other definitional characteristic of causality)—but the point has been made: the schemas Heine, Claudi & Hünnemeyer appeal to are not purely metaphors.

For *since,* the presence in cognition of schemas like TIME-TO-CAUSE constrains the possible metonymic extensions *since* can undergo in actual utterances. This is the approach taken by Lichtenberk (1994), and hinted at by Heine, Claudi & Hünnemeyer:

> It might turn out that it is [the metaphoric component in the process of grammaticalization] which is responsible for defining the direction of conceptual change, but this is an issue that requires much further research. (Heine, Claudi & Hünnemeyer 1991 [1988]:167)

- Metaphor is an epiphenomenon, an emergent layer of interpretation of metonymic extensions. As an epiphenomenon, metaphor does not steer the grammaticalisation process at all: speakers do not embark on reanalyses with schemas like TIME-TO-CAUSE in mind. Metonymy thus has the primary explanatory function, while metaphor provides a secondary, more abstract analysis of grammaticalisation which, while psychologically plausible, is not causal in most (if any) cases. This is consistent with Heine, Claudi & Hünnemeyer's (1991:74) view that metonymy is associated with the micro-level of analysis, and metaphor with the macro-level; but it stresses that the chain of metonymies ultimately resulting in a metaphoric, conceptual shift proceeds without any external cognitive input—at the most, it is an 'invisible-hand'–type phenomenon, of the kind described by Keller (1994 [1990]). See also Traugott & Schwenter's (1995) recent proposal, marking the logical endpoint of Traugott's preceding research:

> [...] metaphor is predominantly a product where meaning change as opposed to individual, often creative innovations, is concerned. By contrast, metonymy, being associative and pragmatically involving context-induced inferencing, is an ongoing process which may result in a new product (Heine *et al.*'s term for it is "context-induced reinterpretation"), but is potentially present in all language use [...] This new product may look like metaphor (hence the intuitive appeal and validity of metaphorical approaches as espoused by Heine *et al.*, Sweetser, and others), but has resulted from the process of context-induced reinterpretation. (Traugott & Schwenter 1995:264–265)[51]

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[51]The question remaining is, if metonymy is not 'steered' by some notion of metaphor, and one cannot appeal to teleonomy, then how is one to account for the unidirectionality of grammaticalisation? While there has been some speculation on the role of the principle of Informativeness and Relevance theory (e.g. Traugott & König 1991 [1988]:191), a fully elaborated theory has yet to be developed.

Indeed, there are several phenomena pointed out in the metaphor framework which the metonymy framework is yet to account for fully; for example, the tendency for grammaticalising lexemes to be generic rather than basic-level terms (GO rather than WALK, WANT/WILL rather than VOLUNTEER, etc.)

Noam Chomsky likes to justify his approach to linguistics (doing formal syntax to account for the language acquisition device; his analogy was made e.g. in his talks in Sydney, January 1995) by drawing an analogy between nineteenth century physics and chemistry; however dangerous the analogy between linguistics and the 'hard' sciences, it is instructive here. As a more abstract analysis of real world phenomena, Mendeleev's Periodic Table explained the behaviour of the elements in chemistry some seventy years before physics caught up with it, and itself explained the Periodic Table in terms of Quantum Theory. Likewise, the metaphor framework has ac-

To suggest that conceptualisation is always irrelevant to grammaticalisation, and is not involved in at least steering it in some cases, goes too far: the metaphorical Moving-World model directly underlies venitive futures and allative pasts, and in general the TIME-IS-SPACE model seems to be present in everyday thinking. Nonetheless, the epiphenomenal view describes the grammaticalisation of *pu* better, particularly given the problem discussed above of how to constrain the 'metaphorical' expansion of *pu*COMP, and the fact that *pu* is a 'late' grammaticalisation—involving motion from the abstract to the more abstract, rather than from the concrete to the abstract. In grammaticalisations of the type discussed here, analogical leaps are required to spread the novel usage into a paradigm; but these leaps cannot be too wide, because persistence must still be allowed to operate. The usage must still be able to carry with it the bulk of its associated implicatures, in order to constrain its subsequent development. The picture which best matches the development of *pu* is one of many metonymic extensions, each extending usage further, but each retaining enough of the implicatures associated with *pu* or *hópou* to ensure persistence.

This contrasts with the established grammaticalisation account of *pu* by Christidis and Papadopoulou, in which the sundry usages of *pu* are unified as one great metaphorical leap from STATIONARY-IN-SPACE to GIVEN-IN-DISCOURSE. There are obvious attractions in such an account: it makes a single story of a great heterogeneity of data, it gives a secure grounding to a notion of polysemy of *pu,* and gives a cognitive justification for a seeming quirk in the factive restriction of complementiser-*pu,* compared to its Romance and Germanic counterparts. But this account does not do the data justice. There are instances of *pu* in CSMG which are clearly not given (or factive, or assertive, or whichever other label is used to unify the diverse usages); and the dialects in which complementiser *pu* has been generalised are left out in the cold by such an account. And (at least to my intuition) the metaphor GIVENNESS-IS-STATIONARITY does not have the same immediate cognitive reality as TIME-IS-SPACE.

A series of minor metonymies fits such data better than one great, sweeping metaphor;[52] and purely in terms of explanatory adequacy, it offers a more detailed and illuminating story of what transpired. The SPACE-IS-DISCOURSE metaphor can here be considered an epiphenomenon, resulting from the persistence of givenness (or factivity or assertivity) in the metonymic extension of *pu,* but not itself a causal factor in the current distribution of the particle. It would

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counted for various phenomena in grammaticalisation; it now remains for the metonymy framework to catch up, and account for these phenomena in its own, more micro-level terms.

[52]In fact, 'many metonymies' are what Heine has recently argued give rise to the 'sweeping metaphors': "the macro-level [associated with metaphor] perspectivizes the fact that, given enough micro-level extensions [metonymies], conceptual shift will cross boundaries between cognitive domains, like that between the domain of concrete, 'real-world' phenomena and that of abstract grammatical functions." (Heine 1995:40–41)

not be useful, in accounting for the totality of dialectal data, to think of it as 'steering' the grammaticalisation.[53]

2.5. Conclusion

We have seen that grammaticalisation is a process encompassing a range of phenomena, conspiring (McMahon 1994:325–330) towards the result of integrating linguistic signs more tightly into the grammar of a language. These phenomena recur from grammaticalisation to grammaticalisation, although they are not in themselves definitional. They are characterised by statistical unidirectionality and gradualism; as a result, grammaticalisation theory represents a challenge to synchronicist thinking on grammatical categories, and allows for fuzzy or clined categoriality. Grammaticalisation theory also provides a diachronically-driven, more coherent account of the polysemy of morphs, and thereby allows diachrony to be readmitted into the domain of grammatical explanation.

There are two major and interrelated issues current in grammaticalisation theory: the way in which pragmatic processes of semantic enrichment contribute to grammaticalisation, and the interaction of metaphor and metonymy (including context-inducted semantic enrichment) in grammaticalisation. The controversy between metaphor and metonymy is of particular relevance to an account of *pu:* existing accounts are metaphoricist, whereas the account I provide here distances itself from such all-encompassing semantic generalisations, and is metonymicist instead.

Grammaticalisation is not an all-encompassing theory of language change, and recently linguists have challenged its theoretical underpinnings. As may have already become obvious, some aspects of the theory are still in need of elaboration and refinement: grammaticalisation has tended to be primarily empirical, and Lehmann's commendable attempt at formalisation has several

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[53]A similar view should be adopted towards the prototype structure of language change (e.g. Aijmer 1985; Winters 1989), which Papadopoulou appeals to as an explanatory parameter. It is true that the diachronic evolution of linguistic forms, and the resulting polysemies, can (and often should) be conceived of as prototype-structured domains, in which certain elements are more prototypical, and have more of the defining features of the particular linguistic form (though the etymon need not be a prototypical element (Heine 1992:352)), while others are more distantly related, exhibiting something like Wittgenstein's family resemblances. But this prototype-based structure does not in itself explain the development, and is a consequence of phenomena like Heine's (1992) grammaticalisation chains, which in turn are a result of the gradualness of grammaticalisation, particularly as it is mediated through mechanisms like metonymy and semantic bleaching.
So while prototype theory provides a very good model for sketching the results of grammaticalisation, it cannot provide a causal model for grammaticalisation; its relation to the mechanisms of grammaticalisation is, again, epiphenomenal:

> It should be pointed out at this stage that, rather than forming an explanatory parameter for grammaticalization, family resemblance can be viewed as an *outcome* of grammaticalization, resulting from the cognitive and pragmatic manipulation leading to the emergence of new grammatical uses of erstwhile lexical forms (Heine 1992:350).

problems with it. The interaction between pragmatics and grammaticalisation is even more in need of formalisation; although this is not an aspect of the theory I am able to pursue in this piece of work, it is a fertile field for future research.

More recently, Joseph (1997) has challenged grammaticalisation as providing the unique origin for grammatical morphemes; his counterexample is the Modern Greek nominative clitic pronoun, which he contends arose purely by analogy with its accusative counterpart. As it turns out, the origin of *hópou* is an even stronger counterexample to the origin of grammatical morphs in grammaticalisation (§5.1); yet its subsequent career is quite typical of grammaticalisation.