Suppletion and syntactic theory

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1. Introduction
Suppletion has elicited two sharply contrasting reactions in the literature. One view sees it as marginal and of minimal significance to the working morphologist. Thus Halle & Marantz (1993: 113) write: '… suppletion is not of central importance in the morphology of English or of any other language …', and therefore dismiss its evidential value in deciding questions of morphological theory. The alternative view, articulated among others by Carstairs-McCarthy (1994) and to which we also subscribe, acknowledges the relative marginality of suppletion in morphological systems but nonetheless recognises its considerable diagnostic value in understanding the structure of those systems in which it is found.

If there has been diversity amongst scholars as to the significance of suppletion, there has been unity in seeing it as an exclusively morphological phenomenon. We will suggest instead that suppletion in its classic sense shares important properties with periphrasis, and that the study of suppletive patterns in this wider sense can have important consequences for the overall architecture of a grammar.

After a brief theoretical prelude (§2), we will first argue the case for suppletion as a morphological diagnostic (§3), then show how the same line of argument can be extended to periphrastic formations (§4), before concluding with a more complex case in which both suppletion and periphrasis are interwoven in an intricate historical scenario (§5). The burden of the empirical data adduced in §§3-5 will be to support a model of morphology and syntax based on features rather than projections, and our concluding §6 will elaborate this theoretical consequence in more detail.

2. The syntax-morphology interface
Suppletion is one of a number of phenomena that have led researchers over the years to challenge the validity of a universally applicable morpheme-based theory of morphological representation (cf Matthews 1972, Anderson 1992, Beard 1995). The latter is more appropriate the nearer a language approaches the agglutinative ideal, in which complex morphological items are readily segmentable into smaller parts ('items' in the famous terminology of Hockett 1954) whose co-occurrence is guaranteed by distributional statements ('arrangements'). Within early transformational grammar, some of the problems posed by non-agglutinative morphology could be handled by a two-stage model which attributed a key role to the phonology. First, the syntax delivered essentially IA representations. Then, a phonological component equipped with enough power in terms of boundaries, extrinsically ordered rules, and abstract underlying representations effected the necessary changes to yield the final surface phonetic representations. This is essentially the position adopted in *The Sound Pattern of English* and much work of that era.

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More recently, attention has concentrated on the syntactic side of the problem, and a model has evolved in which seemingly every morphosyntactically relevant feature heads its own functional projection. Items belonging to the lexical categories N, V, and A then move through a succession of functional heads picking up all the morphologically relevant properties as they go. (See Williams 1996 for an effective diagnosis and critique of the analytical strategies involved.) Either way the goal is to reduce morphology to syntax or to phonology or to some interaction of the two rather than recognising it as an independent domain with its own structure and organizing principles (see Déchaine 1996 for a particularly vigorous endorsement of this research strategy, and Börjars, Vincent & Chapman 1996: §1 for a brief response).

The present paper is in part a sequel to Börjars, Vincent & Chapman (1996), and offers further support for the conclusions reached there, namely:

(i)   that it must be recognised that some, if not all, morphological systems require to be analysed in terms of morphosyntactc representations which consist of feature bundles rather than X-bar projections;

(ii)   that nonetheless there is an inevitable continuity between morphology and syntax both synchronically and diachronically;

(iii) that, in consequence of (i) and (ii), the best model of the morphology-syntax interface will be featural rather than configurational.

Put another way, we seek to exploit the shared recognition by word-and-paradigm morphology and feature-based syntax that the common and universal metalanguage of morpho-syntactic description is one involving values and attributes (f-structure). By contrast, as has consistently been recognised in work within LFG, configuration in syntax and linear arrangement in morphology (c-structure) are aspects of the realizational system. They may be appropriate to (some parts of) some languages but there is neither evidence nor need for them to be generalized to all aspects of all languages.

3. Suppletion
Two examples will serve to show how suppletion may reveal the dimensions of a morphological system in a way more regular formations do not.

3.1 The English verb 'be'
Consider Table I, which sets out the forms required for an adequate morphosyntactic description of the English verb.[1]

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[1] See for example Huddleston (1984: 77-88) for detailed justification of this analysis. There may be a case for extending this list, e.g. by distinguishing the base form from what is sometimes called the subjunctive (as in *I demand that he* ***answer*** *my question*) or by distinguishing various uses of what we have here called the *-ing* form such as gerund, present participle, etc. Our point is simply that the list in Table I is the irreducible number of morphophonologically distinguishable forms.

	WALK	TAKE	GO	BE
BASE	*walk*	*take*	*go*	*be*
PRES NON 3SG	*walk*	*take*	*go*	*am/are*
PRES 3 SG	*walks*	*takes*	*goes*	*is*
PAST	*walked*	*took*	*went*	*was/were*
PAST PART	*walked*	*taken*	*gone*	*been*
-ING FORM	*walking*	*taking*	*going*	*being*

<div align="center">Table I: The forms of the English verb</div>

A regular verb such as WALK does not formally distinguish the Past Participle and the Past Tense forms, but both irregular verbs like TAKE and the suppletive GO do so. However, when it comes to distinguishing the base form from the present non-3rd person singular, the only verb in the language which realises that distinction in overt morphology is the suppletive BE (Huddleston 1984: 85).

3.2 The Romance verbs 'go'

Romance languages and dialects show a wide range of suppletive patterning in the verb meaning 'go', built up in various waves of morphological change and replacement from three etymologically distinct verbs:[2] *ire, vadere,* and a third verb of controversial origin which shows up in French as *aller* and Italian as *andare*.[3] The first stage of the change was phonologically driven and involved replacement of those forms of *ire* that regular sound changes had reduced to monosyllables by forms of *vadere*. Hence, we find in Old Spanish, for instance, the present indicative sub-paradigm as follows:

(1)

	Old Spanish		*Proto-Romance*		*Colloquial Latin*		*Classical Latin*
1PSG	vo	<	vado	<	jo	<	e.o
2PSG	vas		vadis		is		
3PSG	va		vadit		it		
1PPL	imos		imus		imus		
2PPL	ides		itis		itis		
3PPL	van		vadunt		junt	<	e.unt

At this stage the non-finite forms *ire* (infinitive) and *itum* (past participle), being polysyllabic, are not affected and come through into Spanish as *ir* and *ido*.[4]

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[2] Inevitably, in presenting our argument here, we will not to be able to reflect the full historical and dialectal complexity of the problems raised by Romance 'go'. For recent discussion and references to the philological literature, see the excellent study by Aski (1995).

[3] To avoid the etymological cruces here, we will refer to this in what follows as the *a*-stem.

[4] Note that subsequent reduction to monosyllabic status within Spanish is not relevant to the argument here. This is an internal development within the history of Spanish and does not impinge on the proto-Romance stage at which suppletive replacement takes place.

In the next stage of the development, the surviving *i*-stem forms are replaced — in Spanish by *v*-stem forms but only in the finite series, and in French and Italian by *a*-stem forms for both finite and non-finite series. Hence the following (partial) patterns in Modern Spanish, Italian and French:

(2)

	Spanish	*Italian*	*French*
1PSG.PRES	voy	vado	vais
2PSG.PRES	vas	vai	vas
3PSG.PRES	va	va	va
1PPL.PRES	vamos	andiamo	allons
2PPL.PRES	vais	andate	allez
3PPL.PRES	van	vanno	vont
INF	ir	andare	aller
PPART	ido	andato	allé

These changes suggest that what were in origin independent lexemes with their own PRED features have merged into a single lexeme with a single PRED feature, say for French PRED = 'aller <(SUBJ)>'.[5] It is also clear that the viability of the morphosyntactic representations (MSR) of the forms in question are not affected by the changes in their phonological realization (PR). It is this independence of MSR and PR which lies behind the arguments of Anderson (1992), Aronoff (1994) and Beard (1995) for so-called 'separationist' morphology (Aronoff 1994: 8), a conclusion in morphology which is very much in the same spirit as the syntactic arguments within LFG for the independence of f-structure and c-structure.

The diagnostic value of suppletion is revealed in a further aspect of the development of the Romance 'go' verbs. Compare the future forms set out below:

	ITALIAN	SPANISH	FRENCH
INFINITIVE	*andare*	*ir*	*aller*
FUTURE	*andrò*, etc	*irè*, etc	*irai*, etc.

Table II: Infinitives and futures in Romance

Etymologically, we know that this series derives from the infinitive plus the present tense of the Latin verb HABERE 'to have':

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[5] This situation is rather different from the case of English *go/went*. There the past of WEND was somehow transferred to GO, but WEND as an independent lexical item with its own PRED feature survives to the present day. In Romance, by contrast, the *i*-stem, *v*-stem and *a*-stem forms of modern ALLER/ANDARE/IR converge into a single lexical item and cease to exist as separate lexical entries.

(3)

amare	+	habeo	>	aimerai	'I will love'
amare	+	habes	>	aimeras	'you (sg) will love'
amare	+	habet	>	aimera	'he/she will love'
amare	+	habemus	>	aimerons	'we will love'
amare	+	habetis	>	aimerez	'you (pl) will love'
amare	+	habeunt	>	aimeront	'they will love'

The transparency of the connection between infinitive and future stem in Modern Spanish reflects, as we have seen, their shared historical source. The fact that this historical connection is still discernible in Modern Italian reveals that, for that language, at the point at which the *a*-stem replaced the *i*-stem, the construction must still have been synchronically analyzable as one in which the future was built out of the infinitive either as a true periphrasis or as what Matthews (1972: 85-6) calls a 'Priscianic' or 'parasitic' formation. Now the French data are crucial. The fact that the future stem remains as *ir-* even though the *a*-stem replaces the infinitive and the past participle exactly as in Italian shows that the French future[6] was at the relevant time an independent morphological formation and not a periphrastic or Priscianic form. In other words, the suppletive form is a valuable indicator of an earlier periphrastic formation which has become, as it were, fossilized inside a separate sub-paradigm and thus reveals — in a way non-suppletive forms could not — the historical links between periphrastic and inflectional forms. The synchronic consequence of the existence of such links will be developed in the next section.
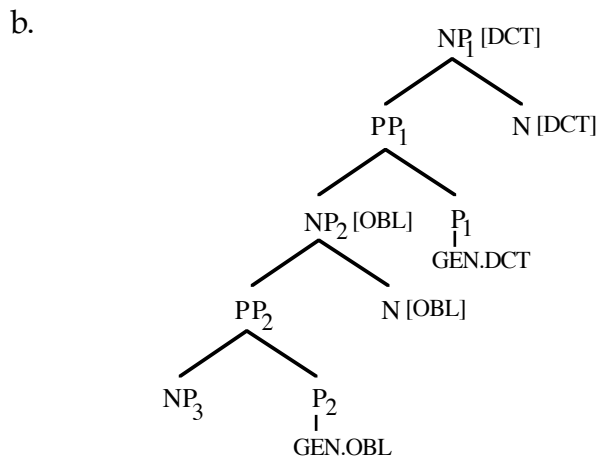
4. The analysis of periphrases
In Börjars, Vincent & Chapman (1996) we used the pronoun system of certain English dialects and the Latin passive to illustrate the way in which syntactic and morphological elements can share crucial properties. Here we will make a similar point by discussing some striking data from Kashmiri.

Most of the modern Indic languages and also Kashmiri (a member of the Dardic family) provide examples of inflecting postpositions (Payne 1995). In these languages, two types of case are usually distinguished, traditionally referred to as Layer I and Layer II case. Using the Hindi examples discussed by Payne (1995:283–287) the phenomenon can be schematically illustrated as in (4) below. In this example, the Layer II case marker is the Possessor, and the Layer I cases Direct (DCT) and Oblique (OBL) are used.

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[6] What goes for the future also goes for the conditional, which is etymologically simply the past of the future.

(4) a. Rām   ke   bhāī   kā   bhātījā
       Ram   GEN=OBL.SG.M   brother=OBL.SG.M   GEN=DCT.SG.M   cousin.DCT.SG.M
       'Ram's brother's cousin' (direct case)

   b.

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                        NP₁ [DCT]
                       /         \
                    PP₁           N [DCT]
                   /    \
            NP₂ [OBL]    P₁
            /    \       |
         PP₂      N [OBL]  GEN.DCT
        /    \
     NP₃     P₂
              |
            GEN.OBL
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Here we can see how the postposition of the modifying possessor phrase agrees in case (and also in number and gender, but that is not our concern here) with the modified noun — for NP₁ this is DCT, and for NP₂ it is OBL. So, the postposition which is a Layer II case marker is itself marked for a Layer I case. The Layer I cases can be described as grammatical, DIR is the case used for instance for subjects of intransitive sentences and indefinite objects, OBL noun phrases are governed by a Layer II case marker/ postposition. Hence the case of NP₁ in (4b) indicates the NP's grammatical function within the sentence and the case of NP₂ results from the governing postposition. The Layer II cases can be described as semantic cases, defining more subtle relationships, like instrumental, location or possessor.

However, it is not the phenomenon of double case marking in itself — or *suffixaufnahme* — fascinating though it is, which is the main focus of the present paper.[7] Our point here rather is the way in which syntax and morphology interact in the paradigm for the inflected postpositions in one of the languages discussed by Payne (1995), namely Kashmiri.

In Kashmiri, the picture sketched in (4b) is made more complex by the fact that the form of the genitive marker depends not only on the case, number and gender of the modified noun, but also on the type of noun which heads the possessor noun phrase. Four genitive markers are relevant (Payne 1995:290):

(5)   *u n*   with animate masculine singular proper nouns
       u k   with inanimate masculine singular common nouns
       u n d   with animate masculine singular common nouns
       h u n d with feminine and plural masculine nouns

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[7] We refer the reader to Plank (1995) for excellent descriptions of *suffixaufnahme* in a wide variety of languages. LFG accounts of the phenomenon have been provided for instance by Simpson (1991) and Andrews (1995).

Examples of the use of these case markers are provided in (6). In (6a), *ɨk'* is a form of *uk,* the choice of marker being motivated by the fact that *šahr* is an inanimate singular count noun. In (6b), we find *und* since the possessor is an animate masculine singular common noun.[8]

(6) a. šahr-ɨk'   šur'[9]
     town(OBLII)-GEN=DCT.PL.MASC children=DCT.PL.MASC
     'children of the town'

    b. mɔl'ɨs   **und**   kār
       father=OBLI   GEN=DCT.SG.MASC   case
       'father's case'

The four markers in (5) can then be said to fill the same semantic function, they are all case markers, particularly, they are case markers which can be said to be semantic in that they have a PRED feature (cf. discussion in Andrews (1995)). This PRED feature can be captured by the simplified representation in (7).

(7)   [PRED @POSS *(OBLI / II)*⟩

The markers differ in one important respect, however, as indicated in (6). *Und* and *hund* show the syntactic behaviour of postpositions. The behaviour of *un* and *uk*, on the other hand, appears to be governed by morphological rules. The clearest evidence for this distinction is found in noun phrases where the modifying noun phrase consists of a co-ordinated phrase. *Und* and *hund* can modify the entire noun phrase, as in (8a). When the head nouns of each conjunct are taken from different categories of nouns, the postposition is selected on the basis of the last one. Hence in (8a), *hund* is used, since this is the appropriate form for the second noun *mɔjɨ* 'mother'. *Un* and *uk*, on the other hand, behave more like genuine affixes in that they have to be repeated on each conjunct (Payne 1995:290–2).

(8) a. mɔl'ɨs   tɨ   mɔjɨ   **hund**   kār
       father=OBLI   and   mother=OBLI   GEN=DCT.SG.MASC   case
       'father and mother's case'

    b. šahr-**ɨk'**   tɨ   gām-ɨk'
       town(OBLII)-GEN=DCT.PL.MASC and   village(OBLII)-GEN=DCT.PL.MASC

       šur'
       children=DCT.PL.MASC

       'children of the town and the village'

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[8] Payne (1995) translates *und* and *hund* as 'of' for reasons that will become clear later, but since both are referred to as case markers and in order not to prejudge the issue, we translate all four markers in (5) as GEN in these examples.
[9] *Un* and *uk* are traditionally said to govern an oblique case which we refer to as OBLII. Payne (1995:291–292) proposes an alternative analysis, but for the purpose of our example here, we will adopt the traditional view.

What we have here is then another example of how a morphological formation, namely a noun and *-uk* or *-un*, and a syntactic construction, a noun phrase and *und* or *hund*, can fulfil the same function. The existence of these constructions thus reinforces the need for a syntactic theory to allow morphological elements and syntactic constructions to be represented, at least partly, in terms of the same theoretical devices. An obvious way to do this within a 'Principles & Parameters' type of framework would be to identify both *-uk/-un* and *und/hund* as heads of similar functional projections so that configurationally the two examples (8a) and (8b) would look the same. Indeed, the functional parallels Payne notes between the two constructions would be taken as strong motivation within such a framework that this was indeed the right way to proceed. An alternative would however be to provide equivalent featural characterisations of the two sets of data, something which is easy to do within a unification-based approach like LFG. We would propose the representation in (9a) for example (8a) and (9b) for (8b). (9b) is an f-structure of a familiar kind for a single inflected word form, whereas (9a) contains two separate f-structures for the two syntactically independent constituents of the periphastic, postpositional construction. Assuming an appropriate P-S rule (not stated here) to ensure that the structures in (9a) are unified however, as in (9c), the parallelism between (9c) and (9b) is immediately obvious, and hence the functional equivalence of the two forms in (8) is accounted for.

(9) a. māl'ɨs
$$
\begin{bmatrix}
\text{PRED} & \text{'father'} \\
\text{NUM} & \text{SG} \\
\text{GEND} & \text{M} \\
\text{CASE} & \text{OBLI} \\
\text{NTYPE} & \text{COM} \\
\text{ANIM} & +
\end{bmatrix}
\quad \text{und} \quad
\begin{bmatrix}
\text{PRED} & \text{'POSS (OBLI)'} \\
\text{OBLI} & \ldots
\end{bmatrix}
$$

b. šahrɨk'
$$
\begin{bmatrix}
\text{PRED} & \text{'POSS (OBLII)'} \\
\text{OBLII} &
\begin{bmatrix}
\text{PRED} & \text{'town'} \\
\text{NUM} & \text{SG} \\
\text{GEND} & \text{M} \\
\text{CASE} & \text{OBLII} \\
\text{NTYPE} & \text{COM} \\
\text{ANIM} & \pm
\end{bmatrix}
\end{bmatrix}
$$

c. māl'ɨs und
$$
\begin{bmatrix}
\text{PRED} & \text{'POSS(OBLI)'} \\
\text{OBLI} &
\begin{bmatrix}
\text{PRED} & \text{'father'} \\
\text{NUM} & \text{SG} \\
\text{GEND} & \text{M} \\
\text{CASE} & \text{OBLI} \\
\text{NTYPE} & \text{COM} \\
\text{ANIM} & +
\end{bmatrix}
\end{bmatrix}
$$

The Kashmiri data illustrate how there can be equivalence between a periphrastic and an inflectional formation. In §3 we also saw how there could be equivalence between a suppletive formation and an inflectional one. What we shall see in §5 is the missing link, namely equivalence between a suppletive and a periphrastic formation. Given the obvious undesirability of representing suppletions configurationally, it will then follow that, faced with the choice between c-structure and f-structure as the locus of the grammatical equivalences we have identified, there is little doubt but that we should pick f-structure.

5. Comparative adjectives and adverbs in Latin and Romance
In this section we return to Romance and consider a complex historical scenario in which periphrasis and suppletion (in the narrow sense) intertwine, and thus where the modelling of the stages needs free passage in both directions across the morphology-syntax boundary. This example therefore combines the lesson of the Romance 'go' verbs that suppletive and non-suppletive formations must be treated as equivalent with the lesson of the Kashmiri data that inflectional and periphrastic forms must likewise find a common mode of representation in the grammar. We will characterise the developments from Latin to Romance in a series of stages.

STAGE I: *The Latin morphological system for adjectives and adverbs*
A Latin base such as *alt-* 'high, deep' could enter into a four-way morphological opposition as indicated in the following table.

	POSITIVE	COMPARATIVE
ADJECTIVE	*altus, -a, -um*	*altior, -ius*
ADVERB	*alte*	*altius*
Table III: Forms of *alt-* 'deep, high'		

Establishing f-structures for these forms gets us into two very difficult areas, namely the characterization of the adjective-adverb distinction and the proper treatment of comparison, to neither of which can we do justice here. In what follows, in the interests of a succinct presentation of the general argument, we will simply assume an archi-category called ADCAT with two values, AJT and AVB. We will also assume a feature DEG(ree) with a value COM(parative). This will permit the following f-structures:

(10) a. altus[10] $\begin{bmatrix} \text{PRED} & \text{@alt-©} \\ \text{ADCAT} & \text{AJT} \end{bmatrix}$ b.   altior $\begin{bmatrix} \text{PRED} & \text{@alt-©} \\ \text{ADCAT} & \text{AJT} \\ \text{DEG} & \text{COM} \end{bmatrix}$

   c. alte $\begin{bmatrix} \text{PRED} & \text{@alt-©} \\ \text{ADCAT} & \text{AVB} \end{bmatrix}$ d.   altius[11] $\begin{bmatrix} \text{PRED} & \text{@alt-©} \\ \text{ADCAT} & \text{AVB} \\ \text{DEG} & \text{COM} \end{bmatrix}$

Now for some adjectives the comparative series is suppletive - e.g. *bonus* 'good', which forms the comparative from what is in origin a different base, viz. *mel-*, cognate with *multus* 'many'. There is also a semi-suppletive, lexicalised vowel shift in the adverb form, thus:

	POSITIVE	COMPARATIVE
ADJECTIVE	*bonus, -a, -um*	*melior, -ius*
ADVERB	*bene*	*melius*
Table IV: Forms of *bon-* 'good'		

The f-structures here will correspond exactly to those set up for *altus*. In particular, they will all have the PRED feature value 'bon-' since the distributions of the suppletive and lexicalised forms are from a

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[10] Adjectives but not adverbs agree with nouns in gender, number and case. For simplicity we will not indicate these feature values here since they are not germane to the argument we are presenting.

[11] Readers familiar with Latin will know that the form *altius* is also the neuter singular of the comparative adjective. It is presumably non-coincidental that this form doubles for both functions, and one way to express this would be to treat *altius* as the unmarked, default form in the same way that third singular is the default verb form for weather and impersonal verbs. This is supported by the fact that a perfect passive impersonal takes the neuter form of the past participle: *pugnatum est* 'it was faught, *i.e.* there was a battle'. However, this solution will not generalize to the positive (non-comparative) where the relevant form is, as we have seen, *alte* and not *altum*. Another solution might therefore be a rule of referral triggered by the constellation of features [AVB, COM]. We leave the matter unresolved in what follows and simply treat adverbial *altius* as an autonomous form. The nature of our argument is not in any case affected.

morphosyntactic and a semantic point of view precisely parallel to those for the regular formations *alte, altior* and *altius*. In the change from Latin to Romance two changes affect the state of affairs we have just described.

STAGE II: *Emergence of periphrases*
First, the inflectional comparative yields place to a periphrastic one in which the basic form of the adjective combines with a degree word, either *plus* (whence French *plus* and Italian *più*) or *magis* (whence Spanish *mas* and Rumanian *mai*).[12] Second, the inherited pattern of forming adverbs by bound suffixes is gradually replaced by a periphrasis involving the ablative case form of the noun *mens* 'mind, spirit': e.g. *sana mente* 'lit. with a healthy mind' (Cicero); *caeca mente* 'blindly, lit. with a blind mind' (Gregory of Tours) (for further examples and discussion see Tekavčić 1980: Ch 14).

STAGE III: *Morphologization of the adverbial periphrasis*
With the passage of time the originally independent noun form *mente* undergoes the classic stages of grammaticalization (Hopper & Traugott 1993: ch 1). Its meaning generalises so that, whereas the Ciceronian (1st cent BCE) *sana mente* still means 'with a healthy mind' and not 'healthily', Gregory's (6th cent CE) *caeca mente* means 'blindly'. It also passes from being an independent item to being a bound suffix. This difference is reflected very clearly in the contrast between Modern Spanish or Portuguese where a co-ordinated adverb is expressed with only one occurrence of *-mente* — e.g. Port. *intensa e constantemente* 'intensely and constantly' — and Italian or French where there must be a suffix for each adverb — e.g. Ital. *intensamente e costantemente*. Old French and Old Italian by contrast exhibited the same pattern as the modern Ibero-Romance languages.

Table V sets out the results of these changes, using examples from Italian.

	POSITIVE	COMPARATIVE
ADJECTIVE	*alto, -a*	*più alto, -a*
ADVERB	*alta + mente > altamente*	*più altamente*
Table V: Italian forms deriving from *altus*		

Following the proposals set out in Börjars, Vincent & Chapman (1996), according to which a periphrastic form has a PRED feature for the main lexical item but not for the grammatical word, and assuming that the value of the whole periphrasis is achieved by unification, we can envisage the following f-structures:

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[12] For those whose background is not in Romance, it is as if English had passed from a stage in which all adjectives formed their comparative in *-er* to a stage in which all adjectives — except suppletive forms like *better* and *worse* — expressed the comparative by means of the *more*-periphrasis.

(11) a. più $\begin{bmatrix} \text{DEG} & \text{COM} \end{bmatrix}$ alto $\begin{bmatrix} \text{PRED} & \text{@alt-©} \\ \text{ADCAT} & \text{AJT} \end{bmatrix}$

    b. alta $\begin{bmatrix} \text{PRED} & \text{@alt-©} \\ \text{ADCAT} & \text{AJT} \\ \text{GEND} & \text{FEM} \end{bmatrix}$ mente $\begin{bmatrix} \text{ADCAT} & \text{AVB} \end{bmatrix}$

The two representations in (11a) unify in a straightforward manner to yield an f-structure equivalent to that given above for *altior*, thus expressing the morphosyntactic equivalence between periphrasis and inflected form. At first sight, however, the two f-structures in (11b) will not unify since they have conflicting values for the feature ADCAT. What is needed here, rather than simple unification is a formal operation such as 'priority union' (Kaplan 1987/1995: 365). This in effect makes the adverb suffix the head of the complex, so that its ADCAT value takes precedence over the ADCAT value of the adjectival base. The feature GEND is required since the input to this morphological formation is the feminine form of the adjective, a synchronic residue of the fact that the originally independent noun *mens* in Latin was feminine.

    Granting the preceding analysis of *più alto* and *altamente*, it is a straightforward matter to put them together to generate an f-structure for *più altamente* 'more highly', namely:

(12) $\begin{bmatrix} \text{PRED} & \text{@alt-©} \\ \text{ADCAT} & \text{AVB} \\ \text{DEG} & \text{COM} \end{bmatrix}$

This in turn, as desired, corresponds to the structure set up for the inflected Latin form *altius*.

    To sum up, so far we have seen a system for regular formations which has developed from being purely affixal to one involving two independent periphrases replacing the functions of earlier affixes, after which one of the periphrases has in turn re-morphologized. To model this we have sketched a system of f-structures which can express the necessary morphosyntactic equivalences.

    While all these changes were taking place in the regular sub-system, the remarkable thing about the *bonus/melior* series is that nothing changed.[13] Hence, what at the outset was a relation between a suppletive and non-suppletive series within the bound morphology becomes a relation between a bound suppletive series and two periphrastic series, one of which subsequently returns to being bound.[14] This means that whatever stage in the development of a given periphrasis or grammaticalization has been reached, there will always be at least one

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[13] One is reminded of Sherlock Holmes' famous observation in another context that the important thing was that the dog did not bark!

[14] Again to give a pseudo-English parallel, it is as if the past of English regular verbs was replaced by the *do* construction, so that instead of *she walked* we said *she did walk*, but we still continued to say *we went* and not *we did go*.

corresponding item in the language where the same f-structure information will be derived from an autonomous lexical entry.[15] The parallel situations patterns are represented in synoptic form in Table VI:

	Regular Formations	Suppletive Formations
I	altus/alte/altior/altius	bonus/bene/melior/melius
II	altus/alta mente plus altus/plus alta mente	bonus/bene/melior/melius
III	altus/altamente plus altus/plus altamente	bonus/bene/melior/melius
	Table VI: Suppletive and non-suppletive forms compared	

In fact, the development is even more striking due to the cumulative effects of sound change. Table VII displays the modern Italian forms that derive from Latin *bonus/bene/melior/melius*.

	POSITIVE	COMPARATIVE
ADJECTIVE	*buono, -a*	*migliore*
ADVERB	*bene*	*meglio*
	Table VII: Italian forms deriving from *bonus*	

While the morphosyntactic changes described above were taking place, one of the consequences of regular sound change was to make the form *meglio* even more morphologically opaque than it had previously been. Compare the status of Latin *melius* 'better (adv)' vis-à-vis its Italian reflex *meglio*. The base of the former may be suppletive but the morphological formation is in other respects regular. Thus, the suffix *-ius* is common to all comparative adverbs, and so the word is susceptible of internal morphological segmentation along the same lines as *alt-ius*. By contrast, Italian *meglio*, while still realizing the same constellation of morphosyntactic features, has no internal morphological structure,[16] but is simply an unanalyzable string of phonemes following the entirely regular operation of sound changes (loss of final [-s], palatalization of the medial cluster [-lj-] and raising of final unstressed [-u] to [-o-]). It is at one extreme therefore of morphological opacity, while a double periphrastic formation such as *plus alta mente* represents maximal syntactic transparency. The morphosyntactic equivalence of two such different types of formation

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[15] In fact there are some other forms which show similar developments, though each with additional complexities. Thus, Latin *peior* 'worse (adj)' and *peius* 'worse (adv)' survive in Italian as *peggiore* and *peggio* respectively, though they would now be treated as the suppletive forms of different bases, vis *cattivo* 'bad (adj)' and *male* 'badly (adv)'. There are also modern reflexes of *maior* 'bigger', viz. Ital. *maggiore*, Fr. *majeur*. etc., and of *minor* 'smaller' and *minus* 'less'.

[16] We assume that there is no case for identifying the final *-o* of *meglio* as an adverbial suffix; it certainly does not have the same status as other adverbial items ending in *-o* — e.g. *certo, poco, troppo, molto*, etc. — to all of which there is a corresponding adjective and for which it is therefore reasonable to see the adverb as being the default masculine, singular form (cf the argument re the Latin neuter in footnote 8 above).

provides a strong argument for seeking a shared mode of representation, one that we would argue only a feature-based system such as LFG can offer.[17]

6. Theoretical conclusion
Viewed in this way, suppletion can neatly be fitted into a larger typology of ways in which the expected correlations between MSRs and PRs do not hold, all of which may be regarded as 'suppletions' in the etymological sense that the expected form is 'supplied' from elsewhere (Vincent 1987). The various possibilities are:

    (i)   syncretisms ('referrals'; cf Zwicky 1985)
    (ii)   minor or major irregularities of various kinds
    (iii) suppletion proper (cf Plank 1996)
    (iv) defectiveness (cf Morin 1996)
    (v)   periphrastic formations

Suppletion in the traditional sense is the lexical limit case, where a form may have no internal structure of any kind to match its morphosyntactic feature composition, cf Italian *meglio*. Periphrasis can be seen as the syntactic limit case where the requisite form is imported from what is often considered a separate module, namely the syntax (Matthews 1991: 219-221). Finally, defectiveness is the absolute limit case in which there is simply no available mechanism to supply the missing forms.

What this kind of patterning shows is that there needs to be a single metalanguage in which information can be freely passed between the lexicon, the morphology and the syntax. Viewed from this perspective, the argument for features over X-bar configurations, i.e. for f-structure over c-structure, as the appropriate universal grammatical metalanguage seems overwhelming. Only in this way can the commonalities be stated while preserving the independent differences that inhere in morphology as opposed to syntax, and in the lexicon as opposed to either. *Pace* Déchaine (1996), the non-universality of morphology does not require it to be handled as a kind of pseudo-syntax. Paradoxically, it is suppletion — surely one of the least universal, most idiosyncratic aspects of linguistic structure — that provides a crucial piece of evidence for undermining the hegemony of configurationality not only in morphology but also, by parity of reasoning, in syntax.

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[17] The alternative within a Minimalist-style account would presumably be to provide *meglio* with the same kind of functional suprastructure as the periphrasis, and then to raise *meglio* through a number of layers of functional heads in order for it to pick up/check the relevant morphosyntactic features, a solution for which there is not a shred of independent evidence.

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