

Welsh Soft Mutation and the Case of Object NPs*

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1. The problem. Among the many environments in Welsh in which the morphophonemic alternations traditionally known as 'Soft Mutation' occur (replacing the voiceless stops /p t k/ and the voiceless liquids /L R/ by the corresponding voiced phonemes, /b/ and /m/ by /v/, /d/ by /ð/, and /g/ by zero) is one that appears to be particularly troublesome for any reasonably restrictive theory of syntactic conditioning in phonology: As the handbooks have it, direct objects of inflected (that is, finite) verbs are mutated, but direct objects of periphrastic (that is, infinitive) verbs are not: [1]

- (1)W Gwelodd y dyn gi.
saw-3sg the man dog
'The man saw a dog.'
- (2)W Yr oedd y dyn yn gweld ci.
PRT was-3sg in to-see dog
'The man saw a dog.'

The problem is that Welsh is a V-S-O-X language, so that the syntactic 'trigger' for mutation in (1), the initial finite verb *gwelodd*, is not adjacent to the phonologically affected constituent, the object *ci*. Periphrastic verb constructions like (2) are of the form V1-S-Pt-V2-O, where V1 is a form of *bod* 'to be' (here the past *oedd*, with a preceding affirmative particle *yr*); where Pt is a marker homophonous with the preposition *yn* 'in' (marking what can roughly be described as the progressive), the preposition *wedi* 'after' (marking what can roughly be described as the perfect), or the preposition *ar* 'on' (marking what can roughly be described as a proximate future, translatable with 'about to'); and where V2 is an infinitive main verb (in (2), *gweld* 'to see'). Consequently, in the periphrastic construction the verb V2 and its object are adjacent, but there is no mutation, while in the inflected construction the verb V and its object are nonadjacent, but there is mutation.

A version of the traditional analysis of these facts is developed in Awbery (1976: ch. 1), where a feature of mutation is distributed by transformational rules.

Lieber (1983) objects in principle to phonological mutation rules conditioned by syntactically nonadjacent material, and rightly so; one hopes that conditions like

'there is a verb earlier in the sentence' and 'the second word preceding this one is an adjective' are not available in general linguistic theory, not to mention the other sorts of conditions that can be encoded in transformational rules. Lieber's solution for Welsh involves (a) assignment of (abstract) Case à la Stowell 1981, which will fail to Case-mark direct objects of inflected verbs; (b) insertion of a preposition P (analogous to English *of*) to NPs that do not otherwise get marked with Case; (c) triggering of soft mutation on this NP by the adjacent P, via the assumption that the only phonological content of P is a floating autosegment (McCarthy 1981) that will affect the first segment of the NP.

This analysis is tied very closely to specific assumptions about Government and Case—a fact that could be taken either as justification of these assumptions or as a criticism of the analysis, depending on your point of view. Its weak point is the preposition P, which has no phonological content of its own. If such 'silent morphemes' are permitted in a transformational framework, then the effect of phonological action at a syntactic distance is easily achieved. Notice that Lieber's analysis predicts that *some* preposition should be inserted, but not that this particular one should be; a silent morpheme could be distributed in the same way as some preposition of substance and so could have all manner of phonological effects in sentences.

2. Constructing an alternative. An elegant analysis is available that requires neither the syntactic power of transformational grammar (but uses only phrase-structure rules) nor the phonological power of silent morphemes like P.

2.1. VP in Welsh. The first step in constructing a satisfactory alternative is to observe that there are arguments for a VP, that is V+O+X, constituent in Welsh, despite the fact that the verb and its direct object are often discontinuous. These arguments parallel those for a TVP (transitive verb phrase) constituent in English, comprising V+X, the verb and its complements other than the direct object (for example, *persuade to leave town* in *persuade Robin to leave town* or *give to Elizabeth* in *give a counterexample to Elizabeth*).

The first type of argument depends on the observation that most idioms are syntactic constituents. Just as English is rich in TVP idioms like *keep company*, so Welsh is rich in VP idioms like *cadw sŵr* 'to make a noise'; indeed, Welsh seems to lack idioms consisting only of a verb and its subject, with a direct object as an open nonidiomatic slot.

The second type of argument is more directly syntactic. In the English case, it has been argued

(most forcefully in Bach 1980) that TVPs, for instance *persuade to go*, are the constituents to which passivization applies. In Welsh, passivization affects the objects of inflected and periphrastic verbs in the same way; consider the following examples, adapted from Awbery (1976: ch. 2): [2]

- (3)W Rhybuddiodd y dyn Ifor.
warned-3sg Ivor
'The man warned Ivor.'
- (4)W Cafodd Ifor ei rybuddio gan y dyn.
got-3sg his to-warn by
'Ivor was warned by the man.'
- (5)W Y mae y dyn wedi rhybuddio Ifor.
is-3sg after
'The man has warned Ivor.'
- (6)W Y mae Ifor wedi (cael) ei rybuddio gan y dyn.
to-get
'Ivor has been warned by the man.'

Finally, the very facts of Welsh morphophonemics we began with suggest that an inflected verb and its direct object ought to be part of the same constituent. (I know of no English parallel involving TVP.) The generalization at issue, a strengthening of the condition proposed by Lieber, is the Trigger Constraint:

- (7) The trigger determining a rule feature for a morphophonemic rule must be adjacent to the affected word and c-command it.

2.2. Some side issues. There are a number of complexities here. To begin with, the surface phrasing of sequences like *yn gweld ci* in a periphrastic construction is as in (8a) rather than as in (8b).

- (8) a. [yn gweld] [ci]
b. [yn] [gweld ci]

Two consequences follow from this observation, given the Trigger Constraint: *yn*, *wedi*, and *ar* are potential triggers for some mutation of the infinitive; and the infinitive is not a potential trigger for any mutation of the object NP. Both predictions are correct.

The preposition *wedi* requires no mutation of its object, nor does the Pt *wedi*. The preposition *yn* requires the nasal mutation of its object, but the Pt *yn* occurs with an unmutated object. (This is a reason for saying that Pt is a different category from P.) Both the preposition and the Pt *ar*, however, require the soft mutation of their objects:

(9)W Y mae y dyn ar weld ci.
'The man is about to see a dog.'

The lack of any mutation on the object in (2) above is now sufficiently explained by the phrase structure of the sentence and the Trigger Constraint. Of course we still need an account for the soft mutation of the object in (1).

I will not attempt to defend here an assignment of categories to the words and constituents in (8a): *yn* to Pt (as McCloskey (1983) does in his analysis of the corresponding construction in Irish) or P (following Awbery); *gweld* to N (McCloskey) or V (Awbery); and *yn gweld* to V (McCloskey) or PP (extending Awbery's analysis). In what follows I will simply assume the Welsh translation of McCloskey's Irish analysis.

2.3. Discontinuous constituents. How are we to get the effect of TVP in English, or VP in Welsh? Especially, how are we to get these effects in phrase-structure theories of syntax?

Two proposals are already on the market. In one, due to Emmon Bach (1980), the idea that some number of constituents combine to form a construct A' is preserved--but the assumption that the only available operation for combining the constituents is concatenation is abandoned. In particular, Bach proposes that a constituent A, with subconstituents A1...An, can be wrapped around a constituent B, the result of this operation being the construct A' with constituents A1 B A2...An.

A different, but still phrase-structure, approach is that of GPSG (Generalized Phrase Structure Grammar; see Gazdar et al. (1981)), which would hypothesize A as a 'phantom category' branching into A1 through An, but not introduced as a subconstituent of any other category. Instead, an implicational principle (a 'metarule') says that for any branching of A into a sequence of categories beginning with A1, there is a branching of A' into A1 followed by B followed by the remaining constituents of A. The implicational principle achieves the effect of wrapping A1...An around B.

Both proposals say that A1 B A2...An are the constituents of A', and both also say that A1...An form a constituent A separate from B.

Let me sketch a GPSG account of the central facts. VP is the phantom category. It branches into V + (NP) + (...). For each branching of VP into V + X, there is a corresponding branching of S into (PRT) + V + NP + X; this metarule accounts for the inflected verb constructions. For the periphrastic verb constructions, we need a second metarule: For each branching of VP into V + X, there is a corresponding branching of S into

(PRT) + *bod* + NP + V[+Pt] + X; V[+Pt] itself branches into Pt and an infinitive V.

2.4. Government. Within phrase-structure frameworks like GPSG, there is really only one way to say that the object of a finite verb in Welsh has one phonological treatment, while the object of an infinitive verb has another. What is at work must be a relationship between coconstituents within VP, a relationship that has to be expressed in the rule describing the subconstituents of VP. That is, we are looking at some sort of government of (morphosyntactic) case: NP in construction with a finite V has one mark--let us say [+X]--while NP in construction with an infinitive V has a different mark--let us say [-X].

The evidence of pronominal objects in Welsh makes it clear that [+X] is simply the Acc(usative) case, while [-X] is the Gen(itive) case. Pronoun objects of inflected verbs have Acc forms, usually identical to the Nom(inative); but pronoun objects of infinitives are Gen modifiers of the verb, composed of a Gen pronoun preceding the infinitive and (optionally, but usually) a Nom copy of the pronoun after the infinitive. [3] With a first-person plural pronominal object, the correspondents to (1) and (2) are

(10)W Gwelodd y dyn ni. 'The man saw us.'

(11)W Yr oedd y dyn yn ein gweld (ni). 'The man saw us.'

I refer to *ein gweld (ni)* in (11) as Gen because the form of such NPs is identical to the form of clearly possessive constructions, including those in subject position, like *ein llyfr (ni)* [4] in

(12)W Yr oedd ein llyfr (ni) ar y ddesg.
 book on desk
'Our book was on the desk.'

The proposal thus far, then, is (a) that finite verbs govern Acc objects; (b) that infinitive verbs govern Gen objects, which is to say that if the infinitive verbs are categorized as Ns, their modifiers are marked Gen; (c) that the Acc mark on a noun is realized as the soft mutation of that noun; and (d) that the Gen mark on an object of a verb is realized as the Gen form of this object as a modifier of that verb.

3. Predictions and details. All parts of this proposal, except perhaps (d) (which comes together with (b)), require further comment or development.

3.1. Accusative objects of finite verbs. It is clear from what I have just said that the case of objects of finite verbs is different from the case of objects of infinitive verbs. What is perhaps not so

clear is that finite-verb objects are in the Acc--rather than the Nom. In written Welsh, there is no shape difference between the NPs I have labeled as Acc and those I have labeled as Nom. In spoken Welsh, however, the two are formally distinct in one instance, the first person singular personal pronouns.

I follow here the exposition of Jones and Thomas (1977: 195-8), who observe first that in written Welsh the single form *mi* serves as the 'simple' 1 sg pronoun. In spoken Welsh, however, there are three corresponding forms, *mi*, *i*, and *fi*. Disregarding a few minor ripples in the pattern, the distribution of the three forms is as follows: *mi* serves as the object of the preposition *i* 'for, to', and so might well be classified as Dat(ive); [5]

(13)S Mae rhaid i mi fynd.
necessity for to-go
'I must go.'

i serves as the grammatical subject and also as the appended pronoun with possessives and with inflected prepositions, and so should be classified as Nom; [6]

(14)S Mi welais i Jac neithiwr.
PRT saw-1sg Jack last-night
'I saw Jack last night.'

(15)S Mae hi wedi colli 'n llyfr (i).
she after to-lose my
'She has lost my book.'

(16)S 'Roedd hi'n dod ata' i.
was-3sg in to-come to-1 sg
'She was coming to me.'

and *fi* serves the remaining, or Acc, grammatical functions.

(17)S Mi welodd Jac fi. 'Jack saw me.'
saw-3sg

(18)S Mae hi'n hyn na fi.
older than
'She's older than me.'

So in the one instance in which there can be a shape difference, namely for 1sg pronouns in spoken Welsh, it is clearly the Acc form that turns up as the object of a finite verb.

3.2. Objects of prepositions. I am claiming that the soft mutation is an exponent of the Acc case, and I have illustrated this claim with objects of finite verbs. But if this proposal is correct, then other syntactic contexts in which we would expect Acc case-marking should also show soft mutation;

nonpronominal objects of prepositions, in particular, ought to be mutated.

Many prepositions--especially those with inflected forms when they have pronominal objects--do indeed require the soft mutation, though a few require the spirant mutation, one the nasal mutation, and a considerable number an unmutated object. [7]

An analysis of these facts that is consistent with my treatment of objects of finite verbs and with the Trigger Constraint would treat objects of prepositions as being marked Acc; the default exponent of Acc would then be the soft mutation, and the other exponents (nasal mutation, spirant mutation, no mutation) would be predicted by rules, triggered by particular prepositions, distributing morphophonemic rule features on NPs.

3.3. Genitive objects of infinitive verbs. As for infinitive verbs, I have claimed that their objects are marked Gen, and I have supported this claim with the observation that pronominal objects of infinitive verbs clearly are Gen in shape. For this analysis to succeed, it must also be the case that nonpronominal object NPs have the same form as nonpronominal Gen modifiers.

This is indeed the case. Nonpronominal Gen modifiers are simply postnominal NPs, as in *llyfr bachgen* 'a boy's book'. Note that *bachgen* is unmutated here.

The relationship between objects of infinitive verbs and Gen modifiers of nouns (which is what suggests to some analysts that infinitives are Ns rather than Vs) is explicitly recognized by some grammarians of Welsh. Williams (1980: 80), for instance, maintains that 'The same grammatical relationship exists between a noun + noun (*geiriau cân* 'the words of a song') and a verb-noun + noun (*dysgu cân* 'learning a song'), and in each case the second element is in the genitive case; so that the 'object' of a verb-noun is in the genitive case.'

3.4. The location of soft mutation on an Acc NP. Thus far my examples of mutated (or mutable, but unmutated) NPs have been one word long--one noun long, in fact. From these examples, it is impossible to tell whether the word that is mutated is the head noun of the object NP or the first word in the NP. The evidence of NPs beginning with a word other than the head noun indicates that the latter, or first-word, analysis is the correct one.

The only material that can precede the head N in an NP is a determiner, a quantifier, or an adjective (or some combination of these). Fortunately, some of these are mutable: for instance, the determiners *pob* 'every', *rhyw* 'some', *dim* 'no', and the quantifiers *llawer o* 'many', *digon o* 'enough', *peth o* 'some of', *any*

feature-passing principles that relate the features of a construction to the features of one of its constituents, its head. The Head Feature Convention of Gazdar and Pullum (1982) is one such principle. According to it, the head of an NP automatically contributes (inter alia) its gender features to the NP as a whole, and the NP automatically contributes (inter alia) its case features to the head. That is, the head of an NP will necessarily bear case features in such a treatment; if these features are actually realized at a margin rather than the head of the NP, some additional statement is required.

In many instances, this additional statement must be a rule peculiar to an individual language. Nothing predicts that the dative in Japanese will be marked by a postposition, or that the genitive in Jamaican Creole will be marked by a preposition, or that the genitive in English will be marked by an enclitic.

But in other cases, it might be possible to predict the location of the mark (though not, of course, which mark will be used). In particular, since in Welsh the only items that can precede a noun are determiners, quantifiers, and adjectives [10], and since these are all constituents that we might expect, on universal grounds, to show agreement with the head N, there is the possibility that the first word of an NP receives its Acc case marking by agreement with the head, rather than by language-particular stipulation. Gazdar and Pullum (1982) even provide a universal principle, the Control Agreement Principle, that predicts that determiners, quantifiers, and adjectives will all agree in case (and number and gender) with a noun with which they are in construction.

If we adopt some variant of the Control Agreement Principle, then the first word of a Welsh NP (in fact, any pronominal word) necessarily bears the feature Acc if the NP itself bears that feature. What is peculiar to Welsh, on this proposal, is the form in which the Acc feature is realized. We will have to say soft mutation affects phrase-initial words marked Acc.

What needs some defense in this analysis is the claim that languages can have morphophonemic rules (like soft mutation) which refer to phrase-initial position, as well as to a morphosyntactic feature like case. Certainly morphophonemic sandhi rules referring to syntactic phrase boundaries seem to be quite common; Kaisse (to appear) has collected a number of examples from the phonological literature. I have no reason to think that any general principle would rule out a treatment of the Welsh facts as involving case agreement plus a morphophonemic rule affecting phrase-initial words marked Acc.

4.3. Soft mutation as the default. I have space here only to sketch a final alternative in the analysis of Welsh soft mutation on the objects of finite verbs, one that involves standing traditional wisdom about the language on its head. The core of the proposal is that, at least for NP-initial words, the task of the grammar is to predict where the soft mutation does not occur, rather than where it does. [11]

To begin with, there is a gross disparity between the soft mutation and the other mutations with respect to the number of contexts in which they occur. The nasal mutation (replacing a stop by its nasal counterpart, preserving voicing) and the spirant mutation (replacing voiceless stops by fricatives) apply in a handful of contexts, whereas the soft mutation applies in dozens of distinct contexts.

Moreover, the nasal and spirant mutations always obey the Trigger Constraint; for example, the nasal mutation applies to words after, and c-commanded by, the numeral *paw* 'five', the possessive pronoun *fy* 'my', and the preposition *yn* 'in', and the spirant mutation applies to words after, and c-commanded by, the numeral *tri* 'three', the possessive pronoun *ei* 'her', and the adverb *tra* 'very'. The soft mutation, in contrast, applies in several instances where there is no immediately preceding trigger, in particular (a) to objects of finite verbs, the topic of this paper; (b) with some variation, to vocative NPs; (c) to certain appositive NPs; (d) to NPs functioning as locative or temporal adverbials; (e) to subjects separated from their verbs by intervening material; and (f) to subjects of verbless presentational sentences. Illustrations follow.

- (25)S Vocatives
 a. Dewch i mewn, bawb!
 come!-pl to in everybody
 'Come in everybody!' [*pawb* 'everybody']
 b. Bore da, blant!
 morning good children
 'Good morning, children!' [*plant* 'children']
- (26)S/W Appositive
 Ddw Dad 'God the Father'
 God father [*fad* 'father']
- (27)S Time expression
 Ddwy flynedd yn ôl, fe ddaethon nhw.
 two years ago PRT came-3pl they
 'Two years ago, they came.' [*dwy* 'two']
- (28)S Place expression
 'Rydyn ni'n byw ddwy filltir o'r dre.
 PRT-are-1pl we-in to-live two miles from-the town
 'We live two miles from the town.'

- (29)S Separated subject: intervening deictic
 Mae 'na lyfrau yn y cwpwrdd.
 there books in the cupboard
 'There are books there in the cupboard.'
 cf. Mae llyfrau yn y cwpwrdd.
 'There are books in the cupboard.'
- (30)S Separated subject: postposed subject
 Mae gennyf i ardd. 'I have a garden.'
 with-me garden
 cf. Mae gardd gennyf i. "
- (31)S Verbless presentational sentence
 Dyma fachgen. 'Here's a boy.'
 Here's boy [bachgen 'boy']

Vocatives, appositives, and adverbials could be described by mutation rules referring to features of the NPs as wholes, so long as the syntax supplies these features independently. But I cannot see any motivation for such a feature marking either separated subjects (especially since these arise in two ways--by the interpolation of a deictic between verb and subject, or by the postposing of a subject in the possessive *gan*-construction) or subjects of verbless presentational sentences. And it is very suspicious that soft mutation applies both to separated subjects and to separated objects (objects of finite verbs being always separated from their verbs).

An alternative account assumes that (i) [+soft mutation] is the default marking on NP-initial words, so that [-soft mutation] markings are distributed by other principles, among them: (ii) words c-commanded by immediately preceding Vs are marked [-soft mutation]; and (iii) S-initial words are marked [-soft mutation]. On this analysis, the case-marking principles I outlined earlier are not even necessary.

Principle (ii) predicts that separated objects, separated subjects, subjects without verbs, vocatives, appositives, and objects of (typical) prepositions will maintain their [+soft mutation] marking. If the combination of a Pt and an infinitive verb makes a V (as I tentatively assumed in section 2.2 above), then this V c-commands the first word in the infinitive's object, and principle (ii) says that this word should be marked [-soft mutation], as indeed it is.

The reasons for principle (iii) have not been presented in my earlier discussion, but they include the absence of (any) mutation on NPs that are sentence fragments, as in (32), and on NPs that are fronted to S-initial position for interrogation or emphasis, as in (33).

- (32)W (Pwy yw hwn?) Dyn.
 who is this '(Who is this?) A man.'
- (33)W a. Pwy yw hwn? 'Who is this?'
 b. Ci a welodd y dyn. 'The man saw a dog.'

As a final observation, I note that both the case analysis of soft mutation and also the analysis with soft mutation as the default for NP-initial words predict that conjoined objects of inflected verbs should all show soft mutation. This prediction can only be tested where three or more objects are conjoined, and then only where the conjunction (*a(c)* 'and', *neu* 'or', or *ond* 'but') is suppressed in all but the last conjunct (because these conjunctions themselves determine particular mutations). But when all these conditions are satisfied, we see that the facts do not favor simple adjacency, but rather support either the position that case-marking determines mutation or the position that soft mutation is the default situation, subject to principles like (i)-(iii):

- (34)W Gwelodd y dyn gi, gath, a chog.
 cat cuckoo
 'The man saw a dog, a cat, and a cuckoo.'

(Both *cath* 'cat' and *ci* 'dog' appear with the soft mutation in (34); *cog* 'cuckoo' has the spirant mutation determined by the conjunction *a(c)*.)

5. Conclusion. I have argued that neither the Awbery-style nor the Lieber-style treatment of Welsh soft mutation is necessary. There are several viable alternatives that are consistent with both pure phrase-structure syntax and the Trigger Constraint. My ulterior motive here is not to give the right answer for Welsh (I do not know what it is), but to draw attention to the possibility of phrase-structure accounts of phenomena that might seem to call for heavier guns.

Footnotes

- * My thanks to those who offered me comments on earlier versions of these ideas, in particular Patricia Donegan, David Dowty, Brian Joseph, John Nerbonne, and Frank Trechsel.
1. The examples are in ordinary Welsh orthography, in which *c* represents /k/ and *dd* represents /ð/. 'W' marks sentences from the written, or 'bookish', form of Welsh; 'S' marks sentences from the spoken, or 'colloquial', form of the language. 'PRT' indicates a particle marking affirmation, negation, interrogation, etc.
 2. Orthographic *rh* represents /R/, and orthographic *f* represents /v/. (/f/ appears orthographically as *ff* or *ph*.)
 3. Nom, Acc, Gen, and Dat are offered here as the inventory of morphosyntactic cases in Welsh. It should be possible to translate the analyses sketched in this paper into others based on a different case division.
 4. Orthographic *ll* represents /L/.
 5. *Fynd* is the soft-mutated form of *mynd* 'to go'.
 6. Orthographic *th* represents /θ/.
 7. Here are the facts in more detail. The most common prepositions, in particular most of those that are inflected when they have pronominal objects, require the soft mutation on their objects: *ar* 'on', *at* 'to', *o* 'from', *heb* 'without', *trwy/drwy* 'through', *tros/dros* 'over', *gan* 'with', *wrth* 'by', and predicative *yn*. But *er* 'for', *rhag* 'before, against', *rhwng* 'between', and the *yn* of the periphrastic verb construction have unmutated objects, and the true preposition *yn* 'in' triggers the nasal mutation. The uninflected prepositions largely have unmutated objects, but most of the uninflected prepositions are in fact compounds, like *ar ben* 'on top of'. Of the clearly simple uninflected prepositions, one (*a* 'with') requires the soft mutation, one (*hyd* 'as far as, along') the spirant mutation, and the remainder (in particular, *fel* 'like', *oherwydd* 'in', *nes* 'until', and *wedi* 'after') an unmutated object.
 8. The Welsh quantifiers are all in construction with the preposition *o* 'of, from', parallel to the English quantifiers *some of*, *lots of*, *all of*, and the like.
 9. Janda proposes just such an analysis for English constructions like (22)--with 's analyzed as a determiner in construction with the NP *crowns*--but

we do not have to buy his analysis for English to accept the fact that possession is indicated by phrase-initial markers in some languages.

10. Equatives, comparatives, and superlatives, plus a handful of positive adjectives like *hen* 'old'.
11. I am not maintaining here that the phonological underlying representations of morphemes are their soft-mutated alternants. Such an analysis would be unacceptable in orthodox generative phonology, because the mapping of mutated forms onto unmutated forms would not be unique (/v/ is the mutated correspondent to both /b/ and /m/, and word-initial V corresponds both to /g/ plus V and to V alone), so that the mutated alternants could be basic only at the cost of having an 'inverse soft mutation' rule that is lexically conditioned. In any event, what I am entertaining here is not an inverse soft mutation rule, but rather the proposal that the default assignment of the rule feature for the (ordinary) soft mutation rule is +.

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