The following is in reaction to Hornstein (1990), *As Time Goes By*.
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I. Colorless green ideas slept tomorrow!
   Adverbial modification of tense cannot lead to syntactic deviance.

Hornstein (1990) offers the following acceptability judgments for temporal adverbial
modification of the English non-perfect tenses (p.16):

(1) a.   John left yesterday
    b.* John left at this very moment/right now
    c. * John left tomorrow

(2) a.   John is leaving at this very moment/right now
    b.   John is leaving tomorrow
    c. * John is leaving yesterday

(3) a.   John will leave tomorrow
    b.* John will leave at this very moment/right now
    c. * John will leave yesterday

Admittedly, the starred examples are rather strange. However, it is not clear that they are
syntactically ill formed (i.e. to be classed with: *Who did John see Mary?), rather than simply
strange (i.e. like the famous example alluded to in the section heading: Colorless green ideas
sleep furiously – Chomsky 1957, p.15). For instance, (1b) asserts of an event (John's leaving),
both that it occurred in the past – by virtue of the past tense – and that it is occurring at the
moment of the utterance. This is plainly impossible; the laws of physics, as far as we know
forbid it. If however, it were possible for an event to be both in the past and ongoing, (1b) would
be the way to describe it. In fact, technology allows us to (re)experience past events: for
example, while listening to a recording of a meeting where John surreptitiously slipped out the
door, one might utter (1b), timing the word *now* (or *this*) to coincide with the audible click of the
door closing behind John.[1]

Similarly, (3b) is not syntactically ill formed – even on Hornstein's account (p.198, p.18) – rather,
Hornstein claims that (3b) can function only as an imperative. On first blush, it is rather
interesting that (3b) can be used to issue a command at all. Imperatives, in general, cannot be in
the third person – i.e. it is not permissible, however clear the context may be, to address Harry

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[1] Clearly, Hornstein wishes to restrict the use of temporal deictics like *now* to refer only to the very moment
of utterance. This usage seems overly restrictive. For example, if Harry enters the room just seconds after
John left (presumably by another door), we may inform him of the temporal proximity of his arrival and
John's departure by uttering (1b). That there is some variation in the elasticity of the temporal extent of
now is primarily interesting in that it can vary independent of tense; that is, a speaker who can say (1b) in
the aforementioned scenario, is unlikely to be able to use (2a) in the same situation. In addition, *at this very
moment* is evaluated differently from *right now* – note that (ii) is distinctly less acceptable than (i):

(i)   John left at this very moment, yesterday.
(ii) * John left right now, yesterday.

It seems that, however liberally *now* is interpreted, it must be anchored in the present, while *at this very
moment* may be evaluated in relation to some extrinsic – even cyclic – measure of time (e.g. daybreak,
12:36pm, the beginning on intermission etc.).

(perhaps while pointing to John) with the command, "Leave!" and mean that John should leave. On the other hand, it is possible, while sitting in the audience at the circus, to whisper to one's neighbor, "John will do a triple back flip now!" Such a statement cannot be a command (i.e. because John is out of earshot), it is a prediction; that predictions can be used to issue commands is not surprising. A command, as opposed to an imperative, is a speech act, and as such, can take *any* form, even, "I don't like fish!" so long as the context is suitably clear (e.g. John is a fisherman), and I have the standing to issue such a snide command. The distinction between a command and an imperative may seem to be just a terminological squabble, but it will be important in section III, which claims that *will* is neither future tense, nor an imperative.

The examples in (1c), (2c) and (3c) are somewhat more difficult – coherent interpretations involve time travel. More specifically, coherent interpretations require that the sequence of events as experienced by, in these cases, John does not correspond to the sequence of events, as they would normally unfold. Thus, (2c) is acceptable on the same "scheduling" interpretation as (2b), and (3c) is good so long as yesterday is in the addressee's future:

(4) John left (his wife) tomorrow.
    (He's has come back in time to stop himself from making that mistake!)

(5) John('s train) is leaving yesterday (at 2:00pm).
    (We have to make sure to send him back early enough so he doesn't miss it.)

(6) John will leave yesterday (you won't be able to stop him.)
    (So when we send you back, don't waste your time trying.)

Of the nine sentences in (1)-(3) then, all turn out to be well formed on temporal interpretations, so long as a suitable context is salient. This is all to the good, since tense and temporal adjuncts are not in a structural relationship that could lead to syntactic deviance – e.g. an incompatible theta grid, an unbound variable, an uninterpretable feature at LF, etc.[2] All that is required of temporal adjuncts is that they modify *something*.

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[2] Similarly, Hornstein (p.196) notes that, "modification of deictic elements is, in general, quite infelicitous… Why this should be, however, remains unclear." In fact, deictic elements can easily be modified by adverbials, prepositional phrases, and appositives:

(i)   Right here and exactly now I am having the time of my life.
(ii) Here in my room I am king of all that I see.
(iii) I, your best friend since high school, will always be here for you.

It is the modification of deictic elements by wh-phrases that is less than perfect – really, more archaic or theatrical than ungrammatical per se. Thus, we may accept (iv), if only from an actor in a play:

(iv) Here, which is just outside the duke's summer castle, will be the scene of his demise.

Given the striking difference in acceptability between (ii) and (iv), and their similar meanings, it seems that a syntactic explanation is in order. This explanation comes in two parts, one for restrictive relative clauses, and one for non-restrictive relatives. According to Kayne (1994, p.89, see also Schmitt 1996, for a more articulated structure), relative clauses are to be analyzed as a DP with a CP complement; in other words, what one might intuitively analyze as [[DP [NP]]CP], is really [DP[[NP]CP]], and *the man* in (v) is not a constituent:

(v)   The [man who saw me] looked mean.
(vi) * John who saw me looked mean.

II. Knowing the future…
    Will cannot be both future and modal – argument from learnability

Hornstein (1990, pp.38-41) argues that English has a true future tense that, while superficially similar to the modal auxiliary *will*, is in fact a distinct morpheme with distinct syntactic properties. This thesis is pre-theoretically unappealing on grounds of learnability, and perhaps more to the point, the syntax of imperatives contradicts it (see next section). A central tenet of Generative Grammar in general, and Hornstein's theory of tense in particular, is that the linguistic environment of the child learning language is simply too impoverished to ensure acquisition (Chapter 3, especially section 3.1, pp.82-87). Whether this is the case is far beyond the scope of this paper. However, it is possible to address a far narrower question: if the poverty of the stimulus argument holds in the domain of tense, and Hornstein's theory of tense can ensure acquisition of tense, does this particular enhancement of UG enable the acquisition of both forms of *will*? I will argue that the poverty of the stimulus argument holds just as tenaciously in the domain of any purported $will_{F(uture)}/will_{M(odal)}$ distinction.

Hornstein offers only two syntactic differences between the two morphemes: 1) the adverbial *now* may modify sentences containing $will_M$, but not $will_F$ (p.18), and 2) $will_M$, but not $will_F$, can bind the polarity item *any* (p.202). From the perspective of learnability, both lines of evidence are problematic in that they assert a negative – that some property is not associated $will_F$. Hornstein himself endorses the thesis that children cannot make use of such evidence in acquisition

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(vii)   John, who saw me, looked mean.
(viii) The Max who spoke to me this morning is not the man I knew in college!

This structure of (restrictive) relative clauses predicts that, since Det N is not a constituent, these two elements cannot be a lexical unit. (Problem: how to account for constructions like *little John*.) This prediction is born out in (vi). Non-restrictive relative clauses like (vii) are not similarly restricted. Furthermore, relative clauses that restrict proper nouns are acceptable only if they have an explicit determiner, as in (viii). Since deictic elements are DP not NP, it is unsurprising that restrictive relative clauses are quite generally horrible, and that when they do occur, as in (ix), they pattern with (viii) in taking an explicit determiner.

(ix) Yes, it's the [me you know and love]!

What, then, of non-restrictive relative clauses? As demonstrated in (iv), these structures are not ill formed purely by virtue of their syntax. The semantics of restrictive relative clauses is compositional; that is, the structure only has a referent as a whole. The semantics of non-restrictive relative clauses is not fully compositional; the relative clause does not so much modify, as elaborate. I would propose that the reason for this is that the modified element already has an interpretation – i.e. its LF has already been calculated. To be crude, let us say that the modified element is the LF of DP. In the case of (vii), this would be the LF of *John* (i.e. JOHN) – obviously not John himself! In the case of (iv), this would be the LF of *here*, not whatever *here* points to. Thus, we predict that a non-restrictive relative clause can modify only the deixis itself not the person, place or time so indicated. Situations where this is desirable are rare precisely because deixis is generally used to indicate things that are salient; modification of deixis is predicted to be good in any context in which the object of deixis is not sufficiently salient:

(x)   Here, which is God knows where!, is pretty nice.
(xi) * Here, which is a good example of gothic architecture, was built 400 years ago.
(xii) This structure, which is a good example of gothic architecture, was built 400 years ago.
(xiii) Take note that John arrived *now*, which is exactly 6:24pm.

(pp.2,84-85). Worse, as this mentioned in the previous section, 1) asserts a well-formedness condition on adverbial modification – a configuration that can lead to semantic, but not syntactic deviance; 2) asserts binding facts that are not in evidence. The syntactic evidence below entails very little, if any, to support the thesis that there are two *will*s, and even less to the possibility that the distinction might be learnable.

Hornstein proposes that Universal Grammar (UG) provides the language learner with an inventory of possible tenses (pp.117-118), and it is not unreasonable to assume that it also provides an inventory of possible moods. This inventory would necessarily include the "modal that underlies the imperative,"(p.38) to be expressed – optionally – in English by *will*. What UG cannot include is any sort of information that a superficially identical morpheme might communicate both the future tense and the imperative mood. UG must also not specify that a language need have a future tense at all, since many of the world's languages lack a future tense (Comrie 1985, p.49); indeed, many believe English to be such a language (Comrie, pp.43-48). Any linguistic theory that appeals to innateness and UG to account for tense (and mood) acquisition will still have to address, at the very least, how the learner is to discover the dual nature of *will*. It is not plausible that this discovery is anything but inductive.

Hornstein claims (footnote 28, p.202) that $will_M$ can be distinguished from the future tense in that it can bind the polarity item *any*, as can the imperative. This property of modals binding polarity items is a good candidate to be an element of UG. If it is, then the acquisition of $will_M$ is easily explained; that is, hearing *will* in a context where it unambiguously binds *any* is ample evidence to conclude that it is either mood or negation. The presence of *not* in the language, along with the fact that other obvious modals (e.g. *can*, *may* etc.) have the same syntactic distribution as *will*, should make the conclusion that *will* is negation extremely unlikely. The problem, then, is not how a child is discover $will_M$, but how (s)he is to retreat from this conclusion enough to also learn $will_F$. While Hornstein stops short of proposing that the (in)ability to bind *any* is how children learn the two forms of *will*, it seems as viable candidate as any.[3] He provides (7)-(10) as evidence (subscripts added):

(7)   Leave this instant on any available flight!   (Hornstein, p.202)
(8)   *   John left yesterday on any available flight.   (Ibid.)
(9)   You $will_M$ leave tomorrow on any available flight.   (Ibid.)
(10) ?? I simply believe that you $will_F$ leave tomorrow on any available flight.   (Ibid.)

Hornstein asserts that, analogous to the imperative in (7) and the past declarative in (8), one may recognize the imperative force of (9) and the future declarative in (10) by virtue of the fact that *any* is licit in (9), but not (10). Linguists, making use of the negative evidence in (8) and (10) may deduce the existence of two distinct *will*s; but, children are commonly assumed not to make use of negative evidence and therefore cannot do the same. Even so, the generalization is weak at best – as indicated by the question marks on (10) – and simply wrong at worst.

(11) ?   Finish any homework, young man!
(12)   Mike ate any available chocolate yesterday.
(13) *   You $will_M$ get any sun tomorrow!
(14)   I suspect that tomorrow you $will_F$ leave on any available flight, just to get away.

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[3] There is, of course, semantic as well as syntactic evidence. However, it is not (yet) at issue here whether there are two semantically distinct *will*s, just whether any such morphemes might be distinguishable by virtue of their syntactic features. For example, *flee* and *flea* are syntactically distinct, while *nave* and *knave* are treated as identical by syntax (with the possible exception of animacy).

The sentences in (11)-(14) have the same tense and mood as (7)-(10), yet the acceptability judgments are opposite. The imperative in (11) is naturally felicitous under a very restricted interpretation; it means roughly, "I don't know if you have any homework, young man, but if you do, finish *all* of it!" – *any* is to be understood as *all*.[4] The *any* in (7) is different, it is a free choice item that cannot mean *all*. In (12) *any* is again to be interpreted as *all*, thus explaining the unacceptability of (8): the presupposition of *any* (i.e. there is more than one[5]) clashes with the presupposition of the singular *flight* (i.e. there was one available flight). (8) is considerably improved with the plural *flights*; it remains strange, but purely by virtue of what it asserts (i.e. for every available flight, John was on it, leaving). At first blush, (13) sounds terrible, but it is interpretable on a reading that asserts its converse – roughly, "on any day other than tomorrow, you will not get any sun" – and remains agnostic as to the proposition, "you will get sun tomorrow." Perhaps (14) is the most damning since by Hornstein's criteria it is unambiguously a declarative sentence about the future, yet manages to "bind" *any* without a hint of unacceptability.

The central claim of *As Time Goes By* is that natural language tenses are composed of the Reichenbachian primitives SRE, and that their interaction is syntactic; thus, their interaction can lead to syntactic deviance. Interpretation of tense occurs at a level of representation that he dubs LF', which is fed by PF, and for which "the relevant relationship … is government" (p.182). On the other hand, "the relevant theory for LF is the binding theory," (p.182 – see Section 5.4, pp.180-186). Since modals can bind *any*, they must be interpreted at LF, not LF'. The problem presented by (14) is that, without negation or a modal to license *any*, nothing in the sentence could take scope over the polarity item to license it. Within Hornstein's model of syntax, the licensing of *any* is either largely independent of mood, or *will*$_F$ is modal. Since *will*$_F$ cannot be modal and at the same time be interpreted at LF', the former is preferable (*will* is always modal) – the discussion above makes it quite plausible that this is the case. Thus, we are again left without any positive evidence for the existence of two syntactically distinct *will*s.

III. Stop telling me what to do!
   Will is not the imperative

Hornstein proposes that, "[I]n one of its guises, [*will*]…is a modal that underlies the imperative… [and] is roughly translatable as *must*"(p.38). In its canonical form, of course, the imperative mood is not explicitly marked by any auxiliary, so it is interesting the Hornstein should choose *will* to fulfill this function. More generally, any modal auxiliary can be used in telling people what to do:

(15) a.   You may go now.
      b.   You can tell John to go to hell!
      c.   You must tell me all about your vacation!
      d.   You should drive more slowly.
      e.   You would be wise never to show your face here again.
      f.   You will pay now.

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[4] It is not clear to me why this is the case – presumably, because *homework* is a mass noun, while *flight* is count. In this context, what is important is not
[5] This is generally true of count nouns (but not mass nouns) even when *any* is bound by negation. Thus, (i) is extremely marked, and entails that I don't know who you are talking about:

(i)   ??   I don't see any John here.

The commands in (15) vary primarily in forcefulness and politeness, but all may be used to issue commands, as can their negated counterparts:

(16) a. You may not go now.
      b. You can not tell John to go to hell!
      c. You must not tell me all about your vacation!
      d. You should not drive so slowly.
      e. You would not be wise to show your face here again.
      f. You will not pay now.

The negative commands in (16) all have the same syntax: *You* AUX *not* VP. This might not be terribly interesting if it were universally true for commands; but it is not. Commands with the auxiliary *do* have a different distribution; alongside the uninverted emphatic command in (17c), and the uninverted negative command in (17d), there are the positive and negative imperatives (17a,b):

(17) a. (Do) come again!^{6}
      b. Don't (you) tell me what to do!
      c. You *do* tell me what to do!
      d. You do not tell me what to do!

Syntactically, then, the auxiliary *do* seems more akin to the imperative than *will* does.^{7} It is conceivable that *do* and *will* are both imperative morphemes, but this would beg the question of why they differ in word order. In fact, the inversion observed in (17b) is also possible with the sentences in (16b-f). Despite the fact that the sentences in (18) may all be used to issue requests, only (18a), with the auxiliary *do*, is acceptable with imperative intonation, the intonation (18b-f) must be that of questions:

(18) a. Don't you tell me what to do? (!)
      b. Can't you tell John to go to hell? (*!)
      c. Mustn't you tell me all about your vacation? (*!)
      d. Shouldn't you drive more slowly? (*!)
      e. Wouldn't you be wise to show your face here again? (*!)
      f. Wont you pay now? (*!)

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^{6} Unlike the modal auxiliaries in (15), *do* is a lexical verb as well as an auxiliary. So it may be objected that *do* in (17a) might be a lexical verb, not an auxiliary. However, if *do* were lexical, as in (i), its negation would be formed as in (ii), by adding *don't* at the beginning. That *do* in (17a) is not lexical is demonstrated by the fact that (iii) is not a grammatical sentence of English, but (iv) is:

(i)   Do me a favor
(ii)   Don't do me a favor
(iii) *   Don't do come again
(iv)   Do do me a favor.

^{7} Intuitively, the imperative does after all tell someone to *do* something. This doing would naturally be in the future relative to the uttering of a command; thus it is not terribly surprising that the same form might sometimes be used to describe events that one wishes to come about, as is used to make predictions.

If *will* were an alternate imperative morpheme, one would expect (18f) to be as ambiguous as (18a). This is clearly not the case; subject-AUX inversion, when AUX is *will*, is only possible in questions. In all ways, $will_M$ seems to be a garden variety modal, with no greater claim on being the (or even an) imperative morpheme than any other modal. Before jumping to the conclusion that do_M is the imperative morpheme, one must question whether this would a favorable result. In general, do_M seems to have an emphatic function – an apt description even in imperatives – and even if do_M were "the" imperative morpheme, it is far from clear why it would trigger inversion.

IIII. May the force be with you!

The imperative mood has a decidedly different flavor from moods like the conditional and necessitative. The latter are describable as expressing a relationship between a proposition and a set of possible worlds. The imperative, on the other hand, is a request for a change or an action; in this sense, it is more like the interrogative "mood," which is a request for information. These moods are thus more than the description of a relationship between a proposition and a set of possible worlds – they explicitly request either information or action by virtue of their syntax. It is, or course, possible to request information or action by other means (e.g. *I want to know about peacocks*; or *It would be nice if you lent me a pen*), but the illocutionary force of such utterances is purely interpretive. Commands with $will_M$ are of this latter type.

Given the similarities between the imperative and the interrogative, it seems reasonable to propose that, rather than a modal auxiliary in IP, imperatives have a modal operator[8] in CP. Let us designate this operator ¡ and its interrogative counterpart ¿ – I take the latter to be equivalent to what Chomsky (1995) calls Q. Inversion in imperatives can be motivated exactly as it is in interrogatives; if ¡, like ¿, is "an affix, then it must be 'completed' in overt syntax by X^0-raising. … To permit an output…, English makes use of the dummy *do* to bear the affix." (Chomsky, p.139) This solution works well in German, which allows *do*-support for emphasis:

(19)   Geh (Du) nachhause!
       Go (you) home!
(20)   Tu *(Du) nachhause gehen!
       Do you home go!

Both (19) and (20) are verb initial, as is predicted if ¡ is a complementizer and an affix. In English *do*-support is generally mandatory – except in non-negative imperatives. Not only is the use of *do* in imperatives rather effete (or archaic), but without it, inversion is clearly ungrammatical:

(21)   a.   (You) Come (*you) again!
       b.   (?You) Do (?you) come again!
       c.   (*You) Don't (you) tell me what to do!

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[8] These grammatical particles have the syntactic properties of operators (i.e. scope interactions, binding of polarity items), and are the distinguishing feature of sentence types, the canonical use of which has a certain illocutionary force. Obviously, there is nothing to prevent tokens of these sentence types from being used deceptively, sarcastically, ironically etc (e.g. *Is the Pope Catholic?*). I believe there are three such particles in English, which I symbolize as ¿ ¡ and !. For a far more substantial discussion of the imperative, see Han (1998), who supports the existence of illocutionary force operators in C^0.

While "bare" imperatives, like (21a) cannot be inverted, negative imperatives, like (21c) must be inverted. As seen in (21b), emphatic non-negative imperatives are simply strange with an overt subject. However, with emphatic subjects, lack of inversion is once again ungrammatical (22b).

(22) a. Do tell me about your vacation!
      b.* You do tell me about your vacation![9]
      c. Do *you* tell me about your vacation!

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[9] (24) is felicitous as an exclamation, or as a statement of fact; incidentally, *exclamation* is not equivalent to *exclamative*, which would involve inversion and license the polarity item *ever* (i.e. *Do you* ever *tell me about your vacation!*). It is also not an imperative with an appositive subject (i.e. *You, do tell me about your vacation!*), which would also be licit.

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