

Studies in Generative Grammar

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Ludmila Veselovská and Joseph Emonds

The cross-linguistic homes of Mood and Tense

1 Introduction

It is currently widely accepted in formal grammar studies that languages have a functional category that is a sister to VP, and that in English it houses modals [+M] and finiteness (Emonds 1976: Ch VI, based on E. Klima's 1966 class lectures), as well as infinitival *to*. Here we use the label I for this category as in e.g. Chomsky (1986).¹

Based on well known facts of English and less known but equally clear patterns in Czech, the next two sections of this paper lay out what appears to be the cross-linguistic syntactic property of the head I that distinguishes it from the head V.

Almost all previous work on this topic (the content of functional heads that c-command VP) assumes that I also contains (or is) Tense, in particular with the traditional values \pm PAST. Sections 4–6 show that this conception is mistaken in two respects.

The first misunderstanding about Tense concerns the nature of the dichotomy represented by this construct of grammatical theory. The Tense category is widely thought of as referring to different temporal meanings each associated with different segments of "time" along a line running from the "Past" through the "Present" to the "Future." We argue here that this common sense notion of Tense must be re-conceptualized so as to group together the Present and the Future under an unmarked value [-T], while the Past and Conditional are instances of a single marked value, which we notate formally as [+T].

We will thus be arguing for two basic features for specifying Tense and Mood (Modal), whose intuitive content is essentially as follows:

¹ The early work on I still labeled it AUX, for which at the time there were almost as many definitions as authors that wrote about it. This situation was clarified by Chomsky's relabeling it INFL and then I. In later papers the same head is often labeled T for Tense, but since such a label would contradict the claim made in this study we prefer the I of *Barriers*. On the other hand, we do not want our study to be misconstrued as overly concerned with taxonomic labels. What we care about is the distribution of features and the feature content of an attested functional head, not the labels themselves.

- (1) a. **Tense** [$\pm T$]
- [-T] (unmarked): **Generalized Present**. An event or state that either holds now, or is destined to hold at some future time that becomes now.
- [+T] (marked): **Generalized Non-Present**. An event or state that is unrelated to what holds now, either because it is in the past, is counter to present reality, or is hypothetical and hence unrelated to present facts.²
- b. **Mood** (or Modal) [$\pm M$]
- [-M] (unmarked): **Realis**. An event or state that is part of conceived reality, i.e. it holds in the present or it held in the real past.
- [+M] (marked): **Irrealis**. An event or state that is not specified as part of reality, i.e. it is not claimed to hold either in the present or in the real past.

A second misunderstanding in most generative analyses of grammatical Tense, whether viewed as just described in (1a) or more traditionally (as \pm Past), holds that Tense is a feature of the functional head I (or T), and hence located outside of VP. In Sections 4 and 5, basing ourselves on Czech and English, we argue that the canonical position for both a classically conceived Past or our extension [+T] is rather on V within VP. Section 6 analyzes the remnants of English grammatical history that have long given the impression that Past is a feature of I. Finally, Section 7 turns to the different ways that future time is expressed in the two languages, and argues that “Futures,” in both Irrealis and Realis representations, indicate Event Times of verbs that are neither Past nor Present.

Transparent morpho-syntactic reflections of our two cross-classifying verbal features can be seen in other languages. For example, they are illustrated by the four basic synthetic Tenses of French spoken discourse.³ The following table omits suffixes for agreement with a subject.

² Thus, in our system, Past is [+T], i.e. marked for Tense, and Present (traditionally written as –Past) is [–T], i.e. unmarked for Tense. However, the converses of these statements do not hold for our features: [+T] need not be the traditional Past, and similarly [–T] need not be the traditional Present.

³ Spanish is similar, except that some dialects also use in spoken discourse another synthetic past Tense, the preterit, descended from the Latin synthetic perfect.

(2) **French stems for synthetic Tenses of discourse**

	[-T]: potentially Now	[+T]: not potentially Now, with <i>-ai-</i>
[-M]: Realis	“present”: <i>vis-</i> ‘aim’	“imperfect”: <i>vis-ai-</i> ‘was aiming’
[+M]: Irrealis, with <i>-(e)r-</i>	“future”: <i>vis-er-</i> ‘will aim’	“conditional”: <i>vis-er-ai-</i> ‘would aim’

We do not suggest that the labels, $[\pm M]$: (ir)Realis and $[\pm T]$: (not) potentially Now, provide exact interpretations for all uses of each traditional “Tense,” any more than intuitive terms like “orbits” and “nucleus” exactly describe the structure of atoms. Like the latter, our terms are common sense approximations for formal representations, including “meaning,” which are largely inaccessible to consciousness.

2 What’s in the functional category above VP?

As for its content, the most basic feature of I expresses the distinction between Realis and Irrealis, a now widely used primary bifurcation of “Moods” discussed in detail in e.g. Palmer (1986; second edition 2001). A simple clause is Realis if in isolation it attributes a proposition (NP+VP) to “reality,” by using a Present or Past Tense as in (3a). It is Irrealis if the proposition (NP+VP) *doesn’t* express this claim, using an M (Modal) as in (3b).

- (3) Proposition NP + VP: [*Our Mary*] + [*enjoy an evening out*]
- a. Our Mary **does** enjoy/ **did** enjoy/ **was** enjoying/ **has** enjoyed an evening out.
 - a.’ English I, [-M] = Realis: (3rd singular forms) **does, did, is, was, has, had**
 - b. Our Mary **will/ could/ dare(d)** not / **ought** to / **might** enjoy an evening out.
 - b.’ English I, [+M] = Irrealis: e.g. **will, would, can, could, might, ought, dare(d), ...**

The current Standard English verbal system has 12 morphemes of category [+M]: *will, would, can, could, may, might, shall, should, must, ought* and with negative polarity *need* and *dare*. In addition, morphosyntactic arguments show that the English “present subjunctive” in (4) consists of an empty M (Roberts 1993).

- (4) a. Her supervisor insisted that she [_M Ø] not be given extra work.
 b. Her supervisor recommended that she [_M Ø] have a longer break.
 c. Their requirement that any new employee [_M Ø] wear a tie angered him.

Unsurprisingly, in the rather limited range of complement clauses where the English present subjunctive may appear, the empty [+M], like all other modals, expresses Irrealis.

The least marked of the English modals is the Irrealis *will*, which expresses what grammars typically call Future Tense.⁴ Although pragmatically future events are not part of existing reality and hence “not real,” such events can nonetheless also be expressed by syntactically Realis clauses. For example, the so-called English “near future” is Realis:

- (5) The fortune teller predicted that Johnny is going to marry five times.
 Our sun is eventually going to explode.⁵

Schematically, “futures” of both types have in common that a clausal event’s [-T] “Event Time” is shifted away from the deictic “here and now,” either by using Irrealis [+M] or by using a syntactic feature that divorces a Realis event from the clausal Tense, which then becomes what is usually referred to as the “Reference Time” (Zagona 1988).⁶ Section 7 will treat details of these grammatical forms for future events, and will show how Czech futures also come to

4 Contraction is typical of unmarked forms in a class, and *will* and its past form *would* are the only English modals which contract (to ‘ll and ‘d).

5 No real differences in appropriateness seem to separate the English Realis “near future” from a future expressed with the modal *will*; they differ only in how the speaker internally conceptualizes the future event. Neither the Irrealis modal nor the Realis locution can be used with other Modals, i.e., with [I, +M] (Lees 1960):

- i. *She must/ can/ should be going to speak soon.
 ii. *They insist that we [_M Ø] be going to attend the party.

6 When a verb’s Event Time is the marked [+T] (Past or Conditional), such syntactic features are usually labeled as “perfective” or “perfect” aspect and related to the “completion” and/or “telicity” of events. We argue in Section 7 that this view is missing the irreducible essence of so-called Perfective features.

be expressed in both Realis and Irrealis Moods. In Czech these futures are in complementary distribution, whereas in English, despite the contrast $\pm M$, *will V* and *be going to V* are near synonyms.

The syntactic and morphological justifications in English of an I defined as the locus of $[\pm M]$ are too many and too well known to go over in detail here.⁷ For example, all and only elements in I invert in main clause questions; clausal negation (*not/ -n't*) is located immediately after I; I is the element that appears in tag questions and just before VP-ellipsis sites; only items in I can contract to a final consonant (*'ll, 've, 's, etc.*). There is no doubt that an I external to VP is well justified in English grammar. The only question is: Does I (defined in terms of “Mood” $[\pm M]$ (\pm REALIS)) play such a pivotal role in the grammars of other languages too?

3 The category I in Czech

In this section we argue that Palmer’s \pm Realis, i.e. $[\pm M]$ with values reversed, is also the most basic feature on I in Czech, although its morphological realizations are very different from English. Veselovská (2008: section 2) gives several arguments that *precisely two* Czech verbal paradigms appear in a functional head above a lexical V, while all other Czech verbs (including modals) are in a distinct, lower position. We assume here that the higher head is I, while the lower V positions are inside VP. The two paradigms, each for three persons and two numbers, are exemplified below for the 1st person singular. Notice that they differ precisely by the feature \pm Realis. The examples below show the complex verbal forms for Czech past and conditional Tenses (the Auxs are followed by so called past participles of lexical verbs).

(6) a. **Czech I, [-M/ Realis]: *jsem, jsi/ s, Ø, jsme, jste, Ø***

A preterit/past Tense auxiliary, whose forms are a specific variant of a present Tense paradigm of the archaic verb *jest* ‘be’, currently used only in idioms. In data below we label this as **Aux_A**.

b. **Czech I, [+M/ Irrealis]: *bych, bys, by, bychom, byste, by***

The paradigm of the *conditional auxiliary* (both past and present) is a diachronic variety of a past paradigm of another verb *být* ‘be’. In data below we label this as **Aux_B**.

⁷ In a neutral descriptive framework, most of these properties are treated in Huddleston and Pullum (2002: Section 2, 94–115) under the label “NICE Properties.”

- | | | | |
|---|---|---|---|
| A | Já jsem pracoval. | B | Já bych pracoval. |
| | I Aux _{A1S} worked _{past PRT} | | I Aux _{B1S} worked _{past PRT} |
| | 'I worked.' | | 'I would work.' |

The paradigms of the Auxs in (6) are *unique* compared with those of all other (finite) verbs, plausibly located in the V position inside VP.⁸ The verbs in VP include even the forms of the Czech *být* 'be,' which apart from Aux_{A/B} can be used an existential, a copula, and copula-based auxiliaries in analytic passives. Here are some of the differences that separate use of the finite forms of 'be' in I (6) from all other finite forms in VP. Notice that although these paradigms are language specific, some of the phenomena can – and will – be related to similar characteristics found in English.

(i) **Negation.** As in English and French (Emonds 1978), Czech sentence negation *ne-* occurs *between* I and VP, but contrary to English it ends up *prefixed to V*. (7a/a') show how this *ne-* never prefixes to the I/C forms in (6), though it can appear on the same *forms* of the verbs 'be' when these are in VP, as in (7b). On the other hand, the example in (7b') is ungrammatical with a clausal negation reading and is acceptable only as partial (VP) negation.⁹

- (7) a. Já **jsem** **ne**-chválil Hanu.
 I Aux_{A,1S} [_{VP} **not**-praised_{past PRT} Hana]
 'I did not praise Hana.'
- a'. *Já **ne-jsem** chválil Hanu.
 I not-Aux_{A,1S} praised_{past PRT} Hana
- b. Já **ne-jsem** chválen / unavený / student / doma.
 I [_{VP} not-am_{1S} praised_{pass PRT} / tired_{Adj} / a student_{DP} / at home_{PP}]
 'I am not praised / tired / a student / at home.'

⁸ Some of the distinctions, in traditional Czech grammar attributed to a vague concept of grammaticalization, were first brought to light in a generative framework by Toman (1985), and this distinction has since been cited, itemized, developed and interpreted in many subsequent works.

⁹ The examples in (7) demonstrate the contrast between the Aux_A as in (6a) and the morphologically closest paradigms of the lexical forms of 'be', i.e. the passive Aux, copula, and existential 'be.' The conditional Aux_B *by-* in (6b) shares the relevant properties with the Aux_A – as will be demonstrated later in (50)–(52), where the Aux_B is contrasted with a morphologically close future Aux *bud-* 'will' inside VP.

- b'. *Já **jsem** **ne**-chválen / **ne**-unavený.
 I am_{1S} not-praised_{pass PRT} / not-tired_{Adj}
 *‘I am not praised / tired.’
 ‘I am unpraised / untired.’

(ii) **Ellipsis.** In several languages (French, Spanish, Japanese), a counterpart to English VP ellipsis is repetition of only the first V in VP, leaving the rest of the VP silent. The pattern in (8) demonstrates that in elliptic contexts the Czech Aux_A in I is not able to represent the whole structure. In contrast, an auxiliary/verb in VP represented below by a passive Aux (followed by a passive participle) can, and in fact must be used for VP-ellipsis.

- (8) a. Chválil **jsi** Petra? – *Ano, **jsem**. / Ano, chválil.
 Praised_{past PRT} Aux_{A,2S} Peter – *Yes, Aux_{A,1S} / Yes, praised_{past PRT}
 ‘Did you praise Peter? – Yes, I did.’
- b. **Jsi** chválen často? – Ano, **jsem**. / *Ano, chválen.
 Are_{2S} praised_{pass PRT} often? – Yes, am_{1S} / *Yes, praised_{pass PRT}
 ‘Are you praised often? – Yes, I am.’

(iii) **Focus Positions.** The constituent order in a Czech clause allows a freedom not found in English. As seen in (9a/a’) the position of a main verb, including the copula *být* ‘be’, is relatively free too. However, both the auxiliaries in (6) must be in a so-called second position (initial in a clitic cluster in I or C). Unlike other verbs, these clitic verbs cannot appear in initial or final position for contrast or emphasis in (9b).¹⁰

- (9) a. Já dnes doma **(ne)jsem**. (a’) **(Ne)jsme** to my dva.
 I today at-home not-am_{1S} (not)-are_{1P} it we two
 ‘I am (not) at home today for sure.’ ‘It is (not) the two of us.’
- b. (*Jsem/*Bych) Já **jsem/ bych** pochválil Hanu (*jsem/*bych).
 (*Aux_{A/B,1S}) I Aux_{A/B,1S} praised Hana (*Aux_{A/B,1S})
 ‘I did/ would praise Hana.’

¹⁰ The Aux clitics can appear at the end of a clause only when they are “second” and there is no other constituent which follows them – i.e. with a fronted Verbal participle (and a dropped subject):

- i. Přijel (*domů) **jsem**.
 arrived_{pastPRT} (*home) Aux_{A,1S}.
 ‘I arrived (*home).’

(iv) **Allomorphs.** Although the paradigm of preterit Aux_A in (6a) is close to identical to the paradigm of the present tense forms of the verb *být* 'be', there are some notable distinctions between the two. The forms of Aux_A in (6a) have allomorphs that are not allowed when the forms of *být* 'be' appear inside VP (i.e. when they are existential, copulas or passive Auxs).

- The 3rd sg/pl allomorphs of only Aux_A are obligatorily \emptyset , as in (10a);
- the 1st sg of only Aux_A is optionally \emptyset (if the subject *já* 'I' is present) as in (11a);
- the 2nd sg of only Aux_A is optionally contracted to a bound morpheme *-s* as in (11c).

(10) a. On/Oni \emptyset (***je/*jsou**) (ne) chválil/-li Hanu.
 he/they (***Aux_{A.3S/P}**) (not-)praised_{PRT.S/P} Hana
 'He/They (didn't) praise(d) Hana.'

b. On/Oni $\ast\emptyset$ / **je / jsou** představován(i)/ doma.
 he/they $\ast\emptyset$ / is_{3S}/ are_{3S} introduced/ at-home
 'He is /They are introduced / at home.'

(11) a. Já \emptyset /**jsem** chválil Hanu. b. Já $\ast\emptyset$ /**jsem** představován/ doma.
 I (**Aux_{A.1S}**) praised_{PRT} Hana I am_{1S} introduced/ at-home
 'I praised Hana.' 'I am introduced / at home.'

c. Ty **'s/ jsi** chválil Hanu. d. Ty ***s/ jsi** představován/ doma.
 you **Aux_{A.2S}** praised_{PRT} Hana you are_{2S} introduced/ at-home
 'You praised Hana.' 'You am introduced / at home.'

(v) **Dialectal variation.** In Moravian Czech, when 'be' occurs inside VP, the 1st and 2nd singular forms *jsem*_{1S} and *jsi*_{2S} often regularize to colloquial varieties (j)su / (j)seš, i.e. closer to the productive conjugation of the Czech *u*-stem (lexical) verbs. These variants never occur when the forms of 'be' are in the higher positions I or C. The following (12) summarizes these last two points:

(12) a. 'be' in I and C (=Aux_A). 1sg: *jsem/já+ \emptyset /(j)su*
 2sg: *jsi /-s/*seš*, 3sg: **je/ \emptyset*

b. 'be' in V inside VP. 1sg: *jsem/*já+ \emptyset /(j)su*
 2sg: *jsi/*-s/seš*, 3sg: *je/* \emptyset*

(vi) **Feature deficiency.** The lexical items for English I (i.e. M) in (3b) lack verbal morphology including *-ing* forms, infinitives, etc. In particular, they have no

morphology that unambiguously expresses Tense. With the Czech Auxs in (6), although the agreement is rather rich (and also idiosyncratic), this morphology is not interpreted as expressing Tense either. The preceding Czech examples illustrate that the Czech *preterit* Aux_A has forms identical with the *present Tense* paradigm of the copula verb ‘be.’ The past interpretation of the whole complex Aux_A+V_{pastPRT} form in all these examples is realized only by the “-*l*- (*past*) participle” in VP.

Compare now (13) with the present forms of ‘be’ in (11a). (13) shows that past forms of *být* ‘be’ are comprised of both (i) tenseless Aux_A *jsem* (in I/C) and (ii) *byl* = active past participle of *být* (inside VP).

- (13) Já **jsem** by-**l** představován/ doma.
 I Aux_{A,IS-PRES?} be-ed_{pastPRT} introduced/at-home
 ‘I was introduced / at home.’

The other Czech I/C located in Aux, the conditional Aux_B, does not synchronically reflect Tense either. (14) shows that Aux_B combines with the *-l* past participle in both so called (14a) “present” and (14b) “past” conditionals.

- (14) a. Já **bych** chváli-**l** Hanu.
 I Aux_{B,IS} praise-d_{pastPRT} Hana
 ‘I would praise Hana.’
- b. Já **bych** by-**l** / býva-**l** chválil Hanu.¹¹
 I Aux_{B,IS} be-ed_{pastPRT} praise-d_{pastPRT} Hana
 ‘I would have praised Hana.’

Morphological analysis of the Czech verbal forms therefore supports our claim that the Aux located in the I/C position expresses (in addition to agreement) only a feature of \pm Realis / $[\pm M]$ as stated in (6), just like the English distinction in (3). At this introductory stage, it is still far from evident that the two languages’ Tense systems have many characteristics in common. Nonetheless, this section has demonstrated that the position and the basic dichotomies of “Mood,” namely \pm Realis, have the same location in English and Czech:

¹¹ In colloquial Czech the “present” conditional (14a) is often used instead of the “past” in (14b), i.e. the participles *by-l* / *býva-l* ‘be-ed’ are optional, perhaps because both (14a) and (14b) are most likely interpreted as counterfactual (with respect to the present). We will come back to this later. In any case it does not affect our claim that in the complex verbal forms in (14a/b) it is not the Aux_B *bych* that express a Tense feature.

(15) **The feature [M] ≈ Reelis.** The canonical position of \pm Reelis / $[\pm M]$ is I.

Our arguments for a single underlying system based on I + VP will be the ease with which such a theory provides simple descriptions of each language's grammatical lexical items and overall system on its own terms, at the same time relating them to plausible and explanatory universal characteristics. Therefore, beyond our rather general claim in (15) that a basic category of verbal modification is the \pm Reelis of Palmer (2001), we also specify its *canonical* locations in trees by means of (16).

(16) **Canonical Realizations** of syntactic categories/ features are those where they are *interpretable* in LF.

However, under restricted conditions such categories/ features can also be *alternatively realized* (AR), i.e. their morphemes can appear in other positions structurally adjacent to their canonical positions. We return to configurations of this sort in Sections 5 and 6.

4 Some less studied Moods and Tenses

In this section, we turn to justifying our conception of the basic Tense feature $\pm T$ as defined in the Introduction, and intuitively characterized in (1a). That is, both the syntactic co-occurrence properties and morphology of (Indo-European) Tense systems justify a sort of “Generalized Present” [-T] that includes the future and a sort of “Generalized Non-Present” [+T] that includes the conditional. We again emphasize that these labels, though reflected in morphology, are mainly justified by grammatical co-occurrence.

4.1 English Modals and Imperatives as [-T]

It is often said that various adverbials of time occur only with certain Tenses. In this vein, the following clauses are taken to be in the “Present Tense,” rather than in the Future or Past.

- (17) a. Few people are getting colds this summer/ *next year/ *last year.
 b. It is snowing right now/ *in a few hours/ *a few hours ago.
 c. John lacks confidence at this time/ *a month from now/*previously.
 d. Our guests make me nervous this week/ *next week/ *last summer.

Beyond not being “Past”, what then are the Tenses of the following clauses?

- (18) a. Few people should get colds this summer/ next year/ *last year.
 b. It ought to be snowing right now/ in a few hours/ *a few hours ago.
 c. John may lack confidence at this time/a month from now/ *previously.
 d. Our guests will make me nervous this week/ next week/ *last summer.

The future adverbials in (17) are ungrammatical not because of the verbs being in the “Present” but not “Future” Tense. Rather, these adverbials (*next year, in a few hours*) necessarily imply that the clauses report Events or State dissociated from the deictic Now, and yet the progressive and stative Realis verb forms in (17) makes this dissociation impossible. The actual Tense of the clauses in both (17) and (18) is simply [-T], i.e. *unmarked* for Tense, which is incompatible with Past Adverbials but insensitive to any difference between the Present (Now) and the Future. Our proposal for [±T] thus accounts for the distinctions in both (17) and (18) in a natural way.

In addition to English modals, another verb form that is simply [-T], i.e. unmarked for Tense and hence insensitive to any distinction between present and future, is the Imperative. The English Imperative has several recognizable characteristics:

- (19) **The English Imperative:**
- it lacks number agreement;
 - it is unambiguously signaled by the adverb *please*;
 - it permits *do be* as an emphatic form;
 - it inverts with an overt subject in the negative.

The underlined time adverbials in (20) show that imperatives with these properties make no grammatical distinction between the present and the future, exactly as predicted by their specification as [-T].

- (20) Possible announcements over an institution loudspeaker:
- Laundry personnel please assemble in the laundry immediately/ after dinner is over.
 - A representative of each group report to the director’s office now or as soon as possible.
 - From now on, don’t be so ready to spread rumors.
 - Don’t any of you smoke in the TV room now or in the future.

In our system, a clause in the Generalized Present [-T] is incompatible with a future time adverbial only if the Event Time of the clause is specifically marked as REALIS, i.e. [-M], like those in (17).¹²

4.2 Cross-linguistic Conditional Clauses as [+T]

In (6), (9) and (14) we have introduced the Czech “conditional form” of verbs, which is used for example in both clauses of a conditional statement, to make polite suggestions, etc. English usually translates this conditional with *would*, while French uses its own conditional Tense. In the following translational equivalents, morphemes traditionally considered as forming the “conditional” are bold.

- (21) a. Czech: Já **bych** (ne-) chváli-**I** Emu.
 b. English: I **woul-d** (not) praise Emma.
 c. French: Je (ne) lou-**er-ai**-s (pas) Emma.

The common meaning of all these is that the clauses are not asserted as holding Now, nor are they claimed to hold at some future “potential Now.” This common semantics with past events justifies assigning their verbs a generalized feature shared with Past events, namely [+T], i.e. *marked for Tense*. For convenience we repeat the definition of Tense [\pm T] in (1a) in Section 1.

- (1) a. **Tense** [\pm T]
 [-T] (unmarked): **Generalized Present**. An event or state that either holds now, or is destined to hold at some future time that becomes now.
 [+T] (marked): **Generalized Non-Present**. An event or state that is unrelated to what holds now, either because it is in the past, is counter to present reality, or is hypothetical and hence unrelated to present facts.

¹² The converse doesn't hold, as Realis that are [-T] (Present Tense) can be used for future time, such as for planned or expected events: *That train leaves at noon tomorrow*.

In all three languages exemplified in (21), the Conditional form includes an underlined and bold morpheme which *in isolation expresses the Past Tense*.¹³ As a consequence, if the Irrealis morphemes of the Conditionals are omitted or replaced with a semantically empty “place-holding” auxiliary, verb forms with unmistakably Past Tense semantics emerge:

- (22) a. Czech: Já (jsem) chváli-**I** Emu. ‘I praised Emma.’
 b. English: I prais-**ed** Emma.
 c. French: Je lou-**ai**-s Emma. ‘I was praising Emma.’

The pairings in (21)–(22) show that morpho-syntactically, the Conditional consists of both the Irrealis feature [+M] and the [+T] feature expressing a wider sense of “not potentially Now,” a *Generalized Non-Present Tense* as in (1a). That is, an Event or State in the Conditional in all three languages is *doubly marked*, as both “not Real” [+M] and “not expected to hold at some Now” [+T].

Additional confirmation of this feature analysis concerns the epistemological status conveyed by *if*-clauses. In all three languages, when an *if*-clause is in the Conditional, a main clause in Conditional form reports a hypothetical possibility, such that the Event or State of the *if*-clause is neither expected nor excluded in the future.

- (23) a. Czech: Kdybys (náhodou) navštívil Španělsko, užívali
 if_{+AuxB,2S} (by chance) visited_{PRT,S} Spain, enjoy_{PRT,P}
byste si na pláži.
 Aux_{B,2P} refl at beach
 b. English: If you would visit Spain, you would have a good time at the beach.
 c. French: Si tu visiterais l’Espagne, tu t’amuserais à la plage.

Alternatively, by using Realis Past Tense [+T, -M] in both clauses, one can recount conditional truths in the past as connecting real events.¹⁴

¹³ English *would* derives historically from *will + ed*, i.e. separate morphemes that spelled out [+M] and Past [+T]. Some might claim that today’s *would* is mono-morphemic, but the reasons for analyzing it as realizing these same two features are as valid as ever. Both *would* and *could* can refer to truly past events, and both act like Pasts in indirect discourse. We return in Section 6 to English realizations of [+T] on I rather than V.

¹⁴ The English and French examples in (23)–(24) contain the same complementizers (C) *if* /*si*. In contrast, the Czech C are distinct, although both are followed by the identical participle *navštívil* ‘visited’. In (23a) the C *kdy-by* ‘if’ contains the (inflected) conditional Aux_B *-bys*. In

- (24) a. Czech: Jestli / Když jsi navštívil Španělsko,
 if / when Aux_{A,2S} visited_{PRT,S} Spain,
 užívali jste si na pláži.
 enjoy_{PRT,P} Aux_{A,2P} refl at beach
- b. English: If/ When you visited Spain, you had a good time at the beach.
- c. French: Si/ Quand tu visitais l'Espagne, tu t'amusais à la plage.

In English and French, the *if*-clause can contain a Realis Past Tense with the main clause being conditional, as in (25b–c). This Past Tense [+T] emphasizes that the *if*-clause Event does not hold at Present, i.e. the condition is reported as *necessarily* counter to fact.¹⁵ In current spoken Czech, given that the complementizers are inflected for containing [\pm M], this contrast is not visible and (25a) is identical with (23a), i.e. necessarily counter to fact with respect to present and past.¹⁶

- (25) a. Czech: Kdybys / *Jestli('s) navštívil Španělsko,
 if_{2S} / if(+Aux_{A,2S}) visited_{PRT,S} Spain,
 užívali byste si na pláži.
 enjoy_{PastPRT,P} Aux_{B,2P} refl at beach
- b. English: If you visited Spain, you would have a good time at the beach.
- c. French: Si tu visitais l'Espagne, tu t'amuserais à la plage.

the 2sg it is inflected with the bound agreement morpheme *-s*, yielding a complex form *kdy-by-s* 'WH-Aux_B-AGR'. No such agreeing element is present in the non-inflecting C *jestli* 'if' in (24a). One might claim that *jestli* in (24a) contains an infinitival form of Aux_A *jest* as its stem, even though it co-occurs with the inflected Aux_A. In any case, inflected/uninflected Czech complementizers C are a promising topic for research. For space reasons we do not discuss them further here.

15 The counterfactual sense is stronger in (25b–c) than in (23b–c). Though English and French prescriptive grammars stigmatize the latter, both the following examples are acceptable with different nuances of counterfactuality: *If John would be/ were here, I'd be so embarrassed.*

16 The unambiguously counterfactual *past* conditional in Czech was exemplified in (14b), and for (25a) it would be as in (i). However, this form is not used in colloquial speech and many young speakers cannot form it properly.

- (i) Kdybys byl navštívil Španělsko, byli byste si užívali na pláži.
 if+Aux_{B,2S} be_{PastPRT} visited_{PastPRT} Spain, be_{PastPRT} Aux_{B,2P} refl enjoy_{PastPRT} at beach
 'If you had visited Spain you would have had good time at the beach.'

Our feature system predicts the English and French data in (25b/c). Since *their main clause* is Irrealis [-M], the conditional relation between the two clauses must be hypothetical, i.e. not *a fact about Reality*. Moreover by (1b), the verb in the *if*-clause must be either unrelated to present facts (if it is Irrealis [+M]), or *related to present facts* (true or false) if it is Realis [-M]. Since the subordinate verbs in (25), unlike those in (23), are indeed Realis, these *if*-clauses *are counter to reality*, even though the relation between the clauses is purely hypothetical.

As far as we know, no analyses of Tense that take +Past as an unanalyzable primitive can make sense of the fact that cross-linguistically, Past Tenses can have a “second use” as present counterfactuals. This prediction is a natural consequence of our feature analysis and thus is an additional argument in favor of our analysis of the feature [\pm T].

5 The cross-linguistic canonical position of \pm Tense (no more affix movement)

Most research that has accepted that English modals M are in a functional head I has additionally assumed that this I (outside VP) is also the basic locus of a universal verbal feature traditionally labeled \pm PAST (and therefore it often labels this position T/Tense). However, the prototypical lexical items for M in English, the central modals of (3b) above, are clearly not the best examples of forms that reflect Tense (or Tense + Agreement). The English morpheme *-ed* that actually expresses the Past Realis [\pm T, -M] regularly surfaces not under I, but *under the V head* of the VP sister of I. This obvious and relevant fact is demonstrated in (26), and was the key pattern motivating the “affix movement” from a high T position to V in Chomsky (1957).

- (26) a. *Mary must-ed [_{VP} enjoy an evening out].
 b. Mary [_{VP} enjoy-ed an evening out].

(i) This position of English *-ed* is our first justification for locating the Tense feature [\pm T] on V rather than I. In light of other general patterns of this type, we now provide evidence that the universal canonical locus of [\pm T] of Tense is *not* in I, but instead on the interpreted V head of VP.

- (27) **The Tense feature.** The canonical position of Tense [\pm T], i.e. *the Generalized Present vs. Non-Present* (Past), is the highest interpreted V in a VP.

(ii) A second transparent justification for locating and interpreting English Tense on the Logical Form (LF) head of VP is based on (i) Irrealis clauses, in which I contains either a modal or is infinitival (spelled with *to*), and (ii) gerunds and participles, where I is apparently absent (Emonds 2000: Ch. 7). As is well known, in all these clauses Past Tense, i.e. a Tense compatible with Past adverbials, is expressed with VPs of the form *have + V + en*

- (28) a. Mary must/ could/ ought to have arrived yesterday.
 b. For you to have been here last year would have helped.
 c. He speaks of having toured Mexico a long time ago.

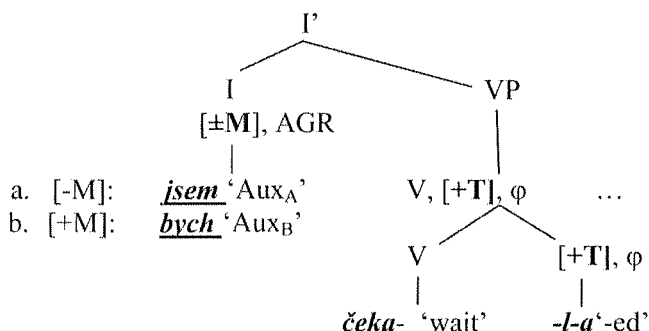
There are two possibilities for how Past Tense [+T] is interpreted in LF in these embedded VPs. Either (i) [+T] is a feature of *have*, in which case *have* is the highest interpreted V in their LFs, or (ii) this *have* is semantically empty, so that [+T] must be on *-en*. In this case, the past participle Vs in (28), *arrived*, *been* and *toured*, are the highest interpreted Vs of their VPs. Either way, all these clausal types reflect and directly support the conclusion (27) regarding the Canonical Position of ±T.

(iii) The data for a third argument for locating Tense in VP has already been illustrated in the Czech examples in (6)–(14). Section 4 has analyzed Conditional Tenses as combining the [+M] Irrealis feature of I with a Generalized Non-Present [+T]. As seen in (29) below, which reflects this analysis, this generalized Non-Present feature [+T] is *invariably spelled out* in Czech as a single suffix *-l* on the highest V in a VP (the so called *-l participle*). Its interpretation as Conditional or Past depends of the [±M/±Realis] value of I; the traditional feature Past is then nothing other than the Generalized Non-Present feature combining with the Realis feature [-M] in I. As for its position, the Czech *-l* participle always co-occurs with a higher Aux_A or Aux_B, i.e. it is invariably merged *below* the I position.

- (29) Já **jsem** / **bych** čeká-l-a na Hanu.
 I [_I Aux_A[-M].IS / Aux_B[+M].IS] [_{VP} wait_{PRT}[+T].FS] for Hana
 'I waited / would wait for Hana.'

As the subscripts show, both the Aux_A *jsem* and the Aux_B *bych* combine with [+T], i.e. the Generalized Non-Present or “past” forms of V (the *-l* participle). The Aux themselves *signal only Mood*, i.e. [-M] (Realis) and [+M] (Irrealis), which are feature values of I. Thus for [-M,+T] *jsem čekala* ‘I waited’ and [+M,+T] *bych čekala* ‘I would wait’ we propose the following structures.

(30)



The label AGR on I in this tree signals that the Czech Auxs in I agree with their subjects in Person and Number, while the ϕ (“phi features”) indicate that the past participle [+T] morpheme *-l* under V is followed by another morpheme, here *-a*, which expresses Gender (and Number) agreement. These agreements will not be discussed here, however, and so we don’t mark them further in what follows.¹⁷

In our view then, Czech always spells out the feature [+T] in its canonical position under V as *-l*. There is no reason to assume that these Czech participles ever raise to I, with the possible exception of pre-clitic fronting (see note10), which could be a kind of adjunction to I or C. The lexical insertion condition for the suffix *-l* can then be very simple:

(31) **Czech Generalized “Past” or Marked Tense:** *-l*, +T, <V ___>

¹⁷ A reviewer is convinced that any agreement in gender must imply the presence of the category Adjective, and that therefore our analysis of the past participle as a V is implausible. And indeed, Veselovská and Karlík (2004) analyze Czech participles as PF adjectives, i.e. as verbs which take on adjectival inflection in the PF component. Even so, the presence of a tense morpheme on these participles cannot be excluded by a priori argument since the assumed tense morpheme (*-l*) properly precedes the “adjectival” PF agreement.

Still, gender is a canonic feature of Ns, and Veselovská (2002) accounts for the PF “adjectival” agreement of Czech participles as agreement between the lexical category V and an NP (subject) in SPEC(VP). She contrasts it with agreement between the functional heads D and I at the level of IP. Moreover, Czech adjectival and *l*-participle agreements differ morphologically: for example *-l* participles lack the final long vowels of agreeing adjectives as well as a nominative masculine singular suffix. In any case, our logic and arguments are not affected if “highest interpreted V in a VP” in (27) is replaced by “highest interpreted X in a predicate XP” (such as X = N or D).

In lexical entries for suffixes, <X___> is a *word-internal frame* (Lieber 1980).¹⁸

We have no reason to suppose that the Czech [+T] has some other (higher) source. On a head of VP, it can combine with the head I with the feature values as in (30); recall that the *-l* participle can appear with both values [\pm M], i.e. with Realis, to make the simple past tense as in (13), and with Irrealis to make conditionals – both present and past – as in (14).

6 Surface realizations of [+T] in English

If we assume that languages are the same in the absence of clear evidence to the contrary, (31) suggests the following similar lexical entry for the English finite past:

(32) **English Past:** *-ed*, +T, -M, <V___>

The underlined feature [-M] in (32) reflects the empirical fact that in English, the regular finite past suffix *-ed* never appears in an Irrealis clause, unlike the Czech *-l*. Another difference is that the finite suffix *-ed* (in contrast to than the participial *-en*) can appear only if the I is empty. Both of these properties should follow from the single appearance of *-M* in the lexical entry (32).

6.1 Alternative Realization: a property of closed class items

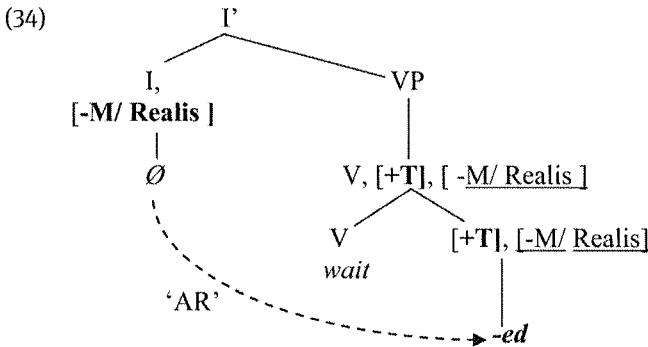
One must ask, how can *-ed* spell out under V a feature [-M] that is not in its canonical position under I? Recall that Canonical Realization (16) does not require that all features appear exclusively in canonical positions. It leaves open an option of Alternative Realization, as defined in (33).

¹⁸ The representations (30) lead one to ask, do there exist other productive interpreted suffixes on lexical categories such as [_{Tense} - I] here? One example is productive diminutives on Nouns, such as Spanish *-(c)it-*: *cafe-cit-o* 'little coffee', *Carl-it-o* 'little Carlos', *cas-it-a* 'little house'. As observed by C. Piera (pers. comm.), this suffix is also productive on the category A: *calentito* 'a little hot', *despacito* 'a little slowly'. Piera also observes that the rhetorical superlative of Spanish Adjectives *isim-* is another productive inflectional extension of a lexical category: *carísimo* 'most expensive', *negrísimo* 'blackest', *tontísimo* 'most stupid'.

- (33) **Alternative Realization (AR)**. A syntactic feature F in canonical position α can be realized by a closed class item under β^0 , provided that some projections of α and β are sisters.¹⁹

We can say that a category is “realized in a position” by being phonologically spelled out or by being licensed as empty by some principle of syntax, such as Binding Theory, conditions on ellipsis, etc. Another such principle is e.g. the Invisible Category Principle (35) below. Therefore, the feature $[-M]$ (=Realis) of I can also be alternatively realized under the first following V , as indicated by an arrow in (34) below, because I and VP are sisters.

In the tree (34) licensed by (33), the features $[+T]$ (Past) and $[-M]$ (i.e. **Realis**), marked in **bold**, are *interpreted* in their respective canonical positions under V and I . Under the lower head V , the feature $[-M]$ is only an Alternative Realization (and is marked by underlining). Thus AR allows the feature of I to be morphologically realized, i.e. pronounced (though not interpreted) on V .²⁰



¹⁹ As in Emonds (2000: Ch. 4) only syntactic features (F that play a role in syntax as well as semantics) can be realized in non-canonical positions, and then only on closed class items.

Alternative Realisation as in (33) is justified in Emonds (1987, 1994, 2000: Ch. 4). A principle of this sort is widely used in research on syntactic aspects of morphology, though different authors have focused on special cases and used different names. The Merger operation of Halle ad Marantz (1993) is AR limited to configurations where β is a complement of α and F is realized by a bound morpheme (though nothing motivates this theoretical limitation). Embick and Noyer (2001) introduce the term “Dissociation” for AR, without specifying structural conditions on it.

²⁰ To avoid misunderstanding – the claim in (16) that features are not interpreted in the non-canonic positions does *not* mean they do not get to LF at all. It means that they are interpreted in their *canonic* positions instead – which are thus “licensed” by AR. Thus in (34), the $[-M/ \text{Realis}]$ feature is (alternatively) realized but not interpreted on V – it is interpreted on I instead, since I is the canonic position of $[\pm M]$.

Comparing the English (32)/(34) to the corresponding Czech (31)/(30), it appears that a lexical entry (morpheme) has to stipulate when a feature is possibly an AR rather than in canonical position. For this reason REALIS under V is underlined in both (32) and (34). This underlining of features in our lexical entries indicates AR is possible, not that it is required; this aspect of the formalism plays an important role in what follows.²¹

A last point concerning (34) is how the interpreted but empty node [I, -M] is licensed. In analyses using AR, the following twinned principle applies to canonical positions:

- (35) **Invisible Category Principle (“ICP”).** If all interpreted features F_i of α are alternatively realized outside α , α can be silent at PF.

Since the only interpreted feature [-M] of I in (34) is alternatively realized on V, this I can be silent, and then by Economy, it must be.²² In conformity with (27) then, lexical entries such as (31) and (32) lead us to conclude that the canonical realizations of [\pm Tense] are on the LF head V of VPs in both Czech and English.

6.2 How English [Tense] alternatively spells out under I

Section 5 has motivated why the basic (Generalized) Non-Present Tense marker [+T] should be analyzed as a canonical feature on V, and mentioned some basic

²¹ A more complete theory of canonical positions of features, currently sometimes referred to as the “functional sequence,” may make it possible to predict which features in lexical entries are realized in their canonical positions and which express AR. In this study, however, we stipulate possible AR (with underlining), so as to privilege explicitness over potentially more elegant formulations which we cannot yet fully support.

Nonetheless, French personal pronouns provide a clear and independent justification for this underlining convention. These pronouns are invariant in their canonic D positions, but they also sometimes alternatively realize unstressed subject and object Ds as bound clitics on a main verb. Now the 3rd plural masculine pronoun *eux* occurs *only* in canonical positions: *eux*, D, +III, PL, -FEM. But in contrast *nous* ‘we/us’ and *vous* ‘you’ occur in *both canonical and clitic (= AR) positions*. Since underlined features allow *both types* of realizations, their lexical entries (with underlining) can be maximally simple: *nous*, D, +I, PL and *vous*, D, +II, PL.

²² Economy as formulated in Emonds (1994) chooses whichever syntactic derivation of a given LF uses the fewest *words* and the fewest *phrases*. Since the ICP (35) allows a silent constituent, this version of Economy requires it. For how this definition of Economy relates to other formulations, see the discussion in Collins (2001).

paradigms of both Czech and English in support of this. However, if the canonical locus of [+T] is V, how can it frequently come to surface in English under I, namely on the forms *was/were*, *did*, *had*, *could*, *would* and *dared*? These forms specified as Non-Present must actually be in I, because they can invert with subjects, appear before *not/n't*, be copied into tag questions, etc. Such patterns appear to stand in the way of easy acceptance of our earlier arguments that the canonical position of [\pm T] is inside VP.

This section will show how general syntactic principles such as those just given, together with a few simple lexical entries, provide a minimally specified account of when [+T] surfaces under I, without compromising our claim that its canonical position is under V.

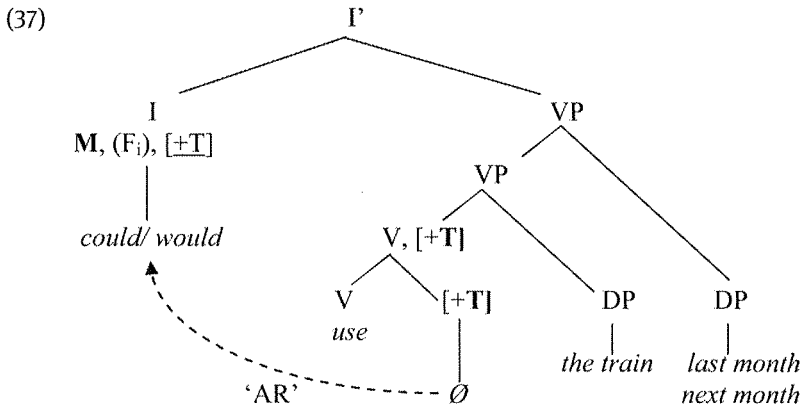
6.2.1 [+Tense] on marked English Modals

The treatment of Modals that can be interpreted as Past, i.e. as Non-Presents [+T], is straightforward. Since they are *closed class items* they are simply lexically listed as I which alternatively realize the V feature [\pm Tense].

(36) Lexical entries of Modals with alternating Tense:

- a. { *would*, +T / *will* }, M b. { *could*, +T / *can* }, M, POTENTIAL

These (underlined) alternative realizations of the Non-Present feature [+T] in I are not where [+T] receives its interpretation; this LF reading occurs rather on the following Vs canonically marked as [+T], i.e. as Past or Conditional; cf. Section 4 above. These entries give rise to trees as in (37), in which the Invisible Category Principle (35) licenses the interpreted empty node T. F_i stands for additional modal features such as POTENTIAL, OBLIGATION (*can*, *could*, *must*, *should*), etc.



The two “Past” modals *could* and *would* are in fact ambiguous in English. First with [+T] and [+M] both present, they have readings as Irrealis hypotheticals, i.e. as “Conditionals”: *With a bit more money, she could/ would use the train next month.* As is usual for Irrealis interpretations of [+T], a future time adverbial does not signal commitment to the reality of a future event; there is no “potential Now” with [+T]. To express *expected* occurrences, modals unmarked for T are needed: *With more money, she can/ will use the train next month.*

Second, it is well-known that *could* and *would* can also be interpreted as Past Time, i.e. as referring to Real Events. Not surprisingly, these events are signaled by [+T], i.e. in the Past:

(38) With that extra money, she could/ would use the train last month.

With one proviso, the semantic ambiguity of the structure (37) follows from our analysis of the feature [+Tense]. (i) In its normal interpretation the Generalized Non-Present [+T] combines with [+M] to yield hypothetical, Irrealis readings *not linked to the actual past.* (ii) In the second interpretation, available in English at least, the usual Irrealis interpretation of [+M] in LF is apparently replaced by an idiomatic interpretation of “repeated actions,” a Realis reading incidentally not available for Czech Conditionals. In this case, only the feature +T receives its standard interpretation, yielding the simple Past readings of (38).²³

A third English Modal which appears in the Past is negative polarity *dare* as in *The girl dared not tell the police.* However, the distribution of *dared* in the I position seems restricted:

- (39) a. She dared not tell the police, (*dared she)?
 b. Dared she (*not) go in there?²⁴

It seems premature to hazard a formalized lexical entry for the negative polarity modal *dare*.

6.2.2 [+Tense] on the English auxiliary ‘do’

Ever since the functional category I was first clearly categorially separated from V/VP, it has been recognized that the English auxiliary verb *do* appears, not in

²³ The ICP and Economy rule out double pasts such as **She could used the train last month.*

²⁴ The unmarked form of *dare* is acceptable in such sentences: *She dare not tell him, dare she? Dare she go in there?*

the canonical V position, but under I (Emonds 1976: Ch. VI). This *do* is an Alternative Realization under I of the category V, and so by (16) and (33) it cannot receive the canonical interpretation of V, that of an “Activity.” Consequently the auxiliary *do* can combine not only with activity verbs, but also with stative verbs as in (40a/b); its only function as an uninterpreted “dummy” verb is to host the canonical feature [-M] of I.

- (40) a. Do they possess/ want/ need/ own a new Porche?
 b. She doesn't like/ hate/ know/ resemble the other Hana, any more than you do.
 c. They possessed/ wanted/ needed/ owned a new Porsche?
 d. She likes/ hates/ knows/ resembles the other Hana.

As proposed in Chomsky (1991), this extra, empty free morpheme in a clause is less economic than spelling out Realis [-M] suffixes on the head V in single words as in (40c/d). But even though Economy prefers Tense suffixes to *do*, locality restrictions imposed by AR force *do*-insertion under I instead.²⁵

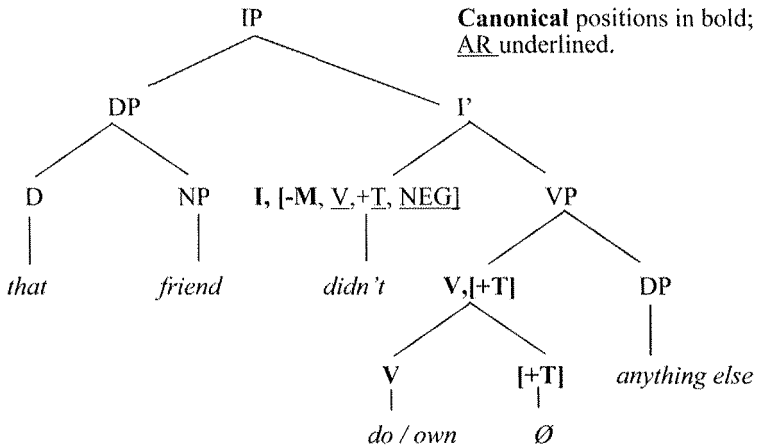
A lexical entry for English *do* must therefore indicate two things: since *do* is the least marked (transitive) activity verb, its grammatical category must be its only inherent feature. However, *do* has a second, non-canonical insertion context (i.e. in a position where it is non-interpretable) under I. By using underlining notation for both categories V and T, we can express the AR of finite *do* under [I, -M].

- (41) **Do-insertion:** { *do/ did*, +T}, V, { ___<DP/ to^VP> / -M }

Since the categories [-M] and DP/ VP in (41) are not underlined, they can only be in *their canonical positions*. Therefore in the contexts ___DP and ___to^VP (the *have* of obligation), *do* must be a main verb that canonically realizes V. In contrast, in the context of co-occurrence with [-M], i.e. +Realis, an AR of V is de facto obligatory. The following tree illustrates both positions. (The tree mentions only the features discussed here and omits several others, e.g. it omits the empty canonical NEG head between I and VP.)

²⁵ AR (33) permits suffixation on the main V only when I and V are *heads of adjacent projections*, which is impossible if I is in C, if a head NEG⁰ intervenes, or if VP is covert in ellipsis or question tags. These are the restrictions on affix movement in Chomsky (1957).

(42) That friend didn't do/ own anything else.



The two different positions of the Generalized Non-Present [+T] *did* under V (Canonical Realization) and I (AR) have been classically accounted for by a separate transformation of affix movement or other “lowering.” Here they are automatic results of fully exploiting the more general principle of AR. There is no need for any mechanism beyond a lexical entry (41) with two insertion contexts for *do*, an unavoidable stipulation even in accounts including the now redundant affix movement.

6.3 The English stative verbs *be* and *have*: V with uninterpreted content

(i) **The finite forms of *be* under I.** Another instance of English finite [+T], i.e. traditionally “Past,” under I is forms of the copula such as *was/ were*. As long recognized, *be* (in all its forms) is the unmarked *stative verb*. But in spite of what philosophy might suggest, *be* is *not* the most basic (unmarked) verb. The following considerations, captured formally by the above lexical entry (41), show that this phrase rather characterizes *do*:

(43) **Do as the unmarked verb.**

- The vast majority of verbs are Activity verbs like *do*, not Stative (= -Activity) like *be*.
- Children certainly acquire the verb *do* before *be*.

- As seen in Section 6.2.2, the auxiliary *do* occurs with both stative and activity verbs, but *be* has no corresponding general property.
- As for interpretation, the semantic label Activity can be identified with the syntactic label V; that is, when V is interpreted in LF, it just “means” Activity.²⁶ For this reason, the unmarked verb phrase *do so* serves as a “pro-form” for any activity verb.

Be is the unmarked member of only the relatively small class of stative verbs: *be, have, exist, hate, know, like, need, owe, own, possess, want*, etc. We formally express their stativity by assigning them a *marked* lexical feature Φ defined as follows:

- (44) **An “LF Cancellation” feature.** Members of a head category β can have a marked cancellation feature Φ , which means that β is *not part of LF interpretation*.

This feature Φ can appear with any head category. For example, non-locational prepositions are [P, Φ], though like stative verbs they can have other interpretable features, and expletive pronouns are [D, Φ]. Stative verbs are then in general [V, Φ], and the copula *be* is unmarked among them because it has no other feature:

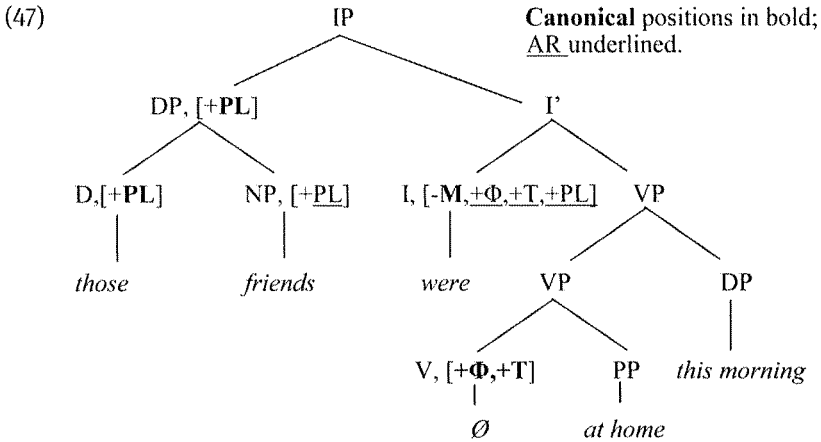
- (45) **English non-finite Copula:** *be*, V, Φ , ____ < YP >

This LF Cancellation feature allows an elegant lexical entry for the (always Realis) finite copulas:

- (46) **English Past Copula** {*were*, +PL / *was* }, -M, +T, Φ

Since a copula has no inherent feature other than its category, the ICP (35) permits the position of *be* inside VP to be silent, and so by Economy it must be; see again note 22.

²⁶ In this perspective, an additional label \pm STATIVE used only in semantics is redundant.



We draw attention to a contrast between these copular forms followed by $V = \emptyset$ and the I treated earlier such as *would*, *could* and *do*. In the latter cases, because lexical features of the Vs in VP are interpreted (either as Activities or States), the following V must be overt.

Another question concerning AR of a feature F is when F's Canonical Position *must be empty*. This appears to be the unmarked option if the two positions are both *in the same extended projection*. With the exception of *do*-support, empty Canonical Positions are required for all uses of AR focused on in this paper; hence the auxiliaries *was/were* in I cannot precede overt stative verbs.²⁷

English and Czech number agreement and Czech case-marking alternatively realize categories inside *different* extended projections, e.g. [+PL] from DP appears under V in (47), so in these cases AR can then “double” the overt [D, +PL] in its Canonical Position.

(ii) The appearance of *have* under I. A second English grammatical verb that can surface under I with the feature $\pm T$ is the stative verb *have*. Like *be*, *have* is an otherwise unmarked stative verb; but like *do* (and unlike *be*), *have* is transitive, that is, its lexical specification includes a context features $__ \langle DP \rangle$ as

²⁷ According to this idea, number agreement between overt Ds and Ns inside a single DP as in (47) is a *marked* option. If some general condition for when AR allows doubling cannot be found, lexical entries of AR morphemes must stipulate whether they can double or not (Emonds 2000: Ch. 4).

well as the LF cancellation feature Φ introduced in (44).²⁸ If this Φ is alternatively realized under I, then *have* has no interpretation, and the ICP (35) allows its canonical position in VP to be empty.

(48) **English stative have:** { *have/ had*, +T }, V, Φ , ___ <DP>

Since underlining notation permits but does not require AR, the features V and Φ in (48) can be *either* canonically realized under VP, giving rise to main verb behavior such as (49a), *or* alternatively realized under I with an empty V in the VP, yielding rather patterns as in (49b).

- (49) a. Sue **doesn't have** much of a chance, **does** she?
Does Ann have as many friends as Bill does?
- b. Sue **hasn't** [_V \emptyset] much of a chance, **has** she?
Has Ann [_V \emptyset] as many friends as Bill **has?**

Since the two alternatives involve exactly the same structures, namely I + VP with a single word *have* under either I or V, it appears that both are equally economic. This syntactic optionality seems realized in different English styles and idiolects.²⁹

In addition, the English verb *have* has a further grammatical use with a VP complement, whose head *V-en* is an active perfect participle. We don't propose a

28 In two lexical contexts, *have* replaces the main verb *do* and so has an Activity sense: (i) before DP objects in Grimshaw's (1990) "Simple Event Nominals" and (ii) in a causative.

- (i) have a bite/ drink/ listen/ look/ nap/ pee/peek/ rest/ sniff/ snooze/ taste/ trip/ vacation/
 walk
 Cf. *do a bite/ drink/ listen/ look/ nap/ pee/peek/ rest/ sniff/ snooze/ taste/ trip/ vacation/
 walk
- (ii) Bill will soon have/ *do the kids wash the dishes.

In these collocations, *have* like *do* is an Activity verb and lacks the cancellation feature Φ ; i.e. its category V is interpreted as Activity in its canonical position. Consequently, in these uses *have* never appears under I, and like any other verb inside VP, requires *do*-insertion in questions and negation:

- (i) Does Bill often have a short nap? (iii) *Has Bill often a short nap?
 (ii) Bill doesn't have his kids wash the dishes. (iv) *Has Bill his kids wash the dishes?

29 In current English, *have* under I seems to be losing its status as an alternatively realized V. In place of this, *have* is being used in idioms as a lexical I, but not allowed under V. For example, *had* in the context ___*better*^VP is an [I, +T] but never a V: *Sue had/ *will have better see a doctor*. Similarly, *have* as in (49b) is being replaced by idiomatic *have* in I in the context ___*got*^XP: *His parents (*may/ *used to/ *seem to) have got a lot of troubles*

lexical entry for this highly specific combination. Nonetheless, this *have* must appear in any I (with both values $\pm T$) that contains no other interpretable word such as a Modal. If I were empty and perfective *have* headed its own VP, such an extra embedded VP would be structurally less economic than the simple combination I+VP.

So we have now seen how the marked English feature [+T], a Generalized Non-Present, comes to be alternatively realized under I in six special forms (*would, could, dared, did, was/were, had*), in addition to its cross-linguistic canonical position under V. In many previous analyses of English, a restricted set of grammatical verbs “raise to I” and various suffixes “lower to V” (and sometimes even go back to I!) under ad hoc conditions. The resulting far from elegant picture has resulted from overreliance on head to head derivational movements, in attempts to force lexical particularities into a model suggested by the regular movements of English I to C and French V to I.

Our proposal factors out all the language-particular variations, and minimally and elegantly expresses them in lexical entries that exploit the device of Alternative Realization (33). Maximally simple entries for English auxiliaries such as (36), (41), (45), (46) and (48) mention only the barest minimum of item-particular properties, succinctly capturing the peculiar and non-trivial aspects of English auxiliaries. They require no recourse to idiosyncratic movements.

7 Czech and English Futures

In the quest for a universal grammatical system for Mood and Tense, Sections 4–5 have shown that the feature Tense in both Czech and English is canonically on the highest V in a VP, where it also usually gets phonetically realized, except for a few English auxiliaries. In other words, though some familiar patterns (*was/ were, auxiliary did, etc.*) spell out Generalized Non-Present [+T] under the higher head I, all *regular and productive* verb morphology in both languages locates Tense under VP. Generative syntax has previously not properly expressed this pervasive pattern.

As seen in Section 6, a worked out theory of the grammatical lexicon can specify the realizations of Generalized Non-Present under I as minor variations on otherwise uniform canonical pairings of I with Mood [$\pm M$] (\pm Reaslis) and V with Tense [$\pm T$] (Generalized (Non-)present).

7.1 Two grammatical forms of Czech futures

(i) **Futures of imperfective verbs.** It is curiously interesting that, with respect to the same universal grammatical system, the surface positions of so called Future Tense in the two languages are reversed. In English the Modal *will* transparently exemplifies Canonical Realization of +M in the I position; cf. lexical entry (36). However, the surface patterns of Czech future forms at first glance do not seem to point in the same direction.

Veselovská (2008) argues that according to the criteria discussed in Section 3, the Czech future auxiliary stem *bud-* ‘≈will’ is a regularly conjugated copular *V* within VP. In contrast to the properties of Aux_A in I/C, illustrated in (7)–(14), the future Aux *bud-* accepts the negative prefix, can be used for VP ellipsis and can be focused.

The (a) examples in (50)–(52) illustrate the contrasting behaviors of (a) the future auxiliary stem *bud-* ‘≈will’ with (b) the conditional Aux_B in (6) – demonstrating the location of the former inside VP and of the latter in I/C.³⁰

(50) Negation as a prefix on V:

- | | |
|---|--|
| a. Já <u>ne-budu</u> chválit Hanu. | b. Já (<u>*ne</u>)- <u>bych</u> (ne) chválil Hanu. |
| I not-will _{1S} praise _{INF} Hana | I (*not)-Aux _{B,1S} (not) praised _{pastPRT} Hana |
| ‘I won’t praise Hana.’ | ‘I would(n’t) praise Hana.’ |

(51) Ellipsis of VP using only V:

- | |
|---|
| a. Zítra <u>budeš</u> chválit i Petra? – Ano, <u>budu</u> / *Ano, chválit. |
| Tomorrow will _{2S} praise _{INF} even Peter – Yes, will _{1S} . / *Yes, praise _{INF} |
| ‘Will you praise even Peter tomorrow? – Yes, I will.’ |
| b. Včera <u>bys</u> pochválil i Petra? – *Ano, <u>bych</u> . / Ano, pochválil. |
| Yesterday Aux _{B,2S} praise _{past PRT} even Peter – *Yes, Aux _{B,1S} . / Yes, praised _{past tPRT} |
| ‘Would you praise even Peter yesterday?’ |

(52) Focus/ Stress of V in initial or final position:

- | |
|---|
| a. (<u>Chci/ Budu</u>) Já (<u>chci/ budu</u>) pracovat (<u>chci/budu</u>). |
| (want/ will _{1S}) I (want/ will _{1S}) work _{INF} (want/ will _{1S}) |
| ‘I want to/ will work.’ |

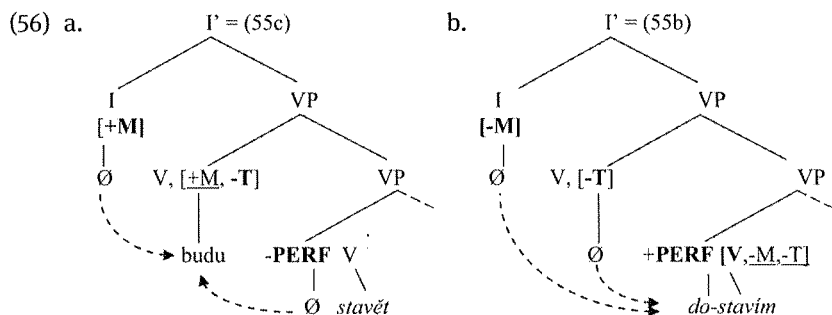
³⁰ There are more properties of especially the Aux_B worth discussing in comparison with both lexical verbs and the other auxiliaries. See e.g. footnote 14 on the possible incorporation/ alternative realization of Aux_B under some “inflected” complementizers. The discussion here concentrates on contrasting the distinct positions of the Czech conditional and future auxiliaries.

Returning now to future forms, the grammatical expression of the future in Czech depends on the presence or absence of perfectivity (and/or telicity) of the verb; the future auxiliary *bud-* is *incompatible with a following +PERF infinitive*. To form a future of a perfective V, Czech does not use the Aux *bud-*, but rather agreeing present Tense morphology on the lexical stem. Compare the identical underlined endings in (55a/b) and the contrasting interpretation forced by the presence of a perfective prefix. The following examples (55c/d) show that the auxiliary *bud-* combines with only the imperfective V infinitives and that combining the future Aux *bud-* and a Perfective (+PERF) infinitive is ungrammatical.³¹

- (55) a. [-T],[+PERF]: Já stavím.
'I am building/ I build.' = Generalized Present
- b. [-T],[+PERF]: Já **do**-stavím.
'I will build up.' = "future"
- c. [-T],[+PERF]: Já budu stavět. = "future"
'I will/ build.'
- d. [-T],[+PERF]: *Já budu **do**-stavět. = *

Given the interpretation of the formally "present" inflection in (55b), the [+PERF] verbs in Czech have no possible "present" interpretation.

The trees in (56) are plausible representations of the forms in (55b) and (55c). The highest Vs in both these trees realize the canonical feature [-T], i.e. the "Generalized Present" feature which in (56a) is realized in canonical position in the future Aux *bud-*. In (56b) the same feature is alternatively realized on a lower V, together with the AR of [-M] of I.



³¹ Infinitival structures in both English and Czech may well contain a kind of defective I, e.g. realized as semantically empty *to* in English. In general, however, contrastive realizations of different feature values in these infinitival I are ruled out. For the grammar of Czech infinitives, see Veselovská and Karlík (2009) and other works cited there.

It is tempting to explain the Aspectual restriction by saying that some inherently PERF characteristic of the future Aux blocks the PERF feature on V. We briefly return to the topic at the end of this section, suggesting that the restriction is rather a result of Economy.³²

7.2 Lexical entries of Auxiliaries and Copulas

Consider now some examples of English and Czech copulas expressing past and future time. (57a) shows that the English past form *was* serves as a copula in addition to being located in I. On the other hand, the future of the English copula *be* is analytic (57b), requiring *both* the I *will* and the infinitival V *be*. In Czech the situation is the opposite: The past in (57c) is analytic (I+V), while the future (57d) is synthetic, located in V.³³

- (57) a. I was [_V Ø] at home /a student. b. I will be at home /a student.
 c. Já jsem byl doma /student. d. Já budu doma /student.
 I Aux_{A1S} be_{past} PRT at-home /a student I [_I Ø] will-be1S at-home /a student

In (58) we repeat (53c), i.e. the entry for the Czech future auxiliary *bud-* which is conflated with that of a future Copula. The status as a copula makes the variety and pattern of its possible complements similar (though not identical) to the English verb *be* in (59b).³⁴

- (58) **Czech future Auxiliary/ Copula:** *bud-*, V, Φ, +M, ___ < YP >

For comparison with English we repeat the entry for the Modal *will* in (59a) and give entries for the English copulas *be* and *was/ were* in (59b/c). Recall that Φ is

³² Though we won't further discuss the following examples, note that the restriction on perfect infinitives extends to several other Czech verbs, e.g. to temporal aspect verbs like *start* and *stop/finish*, though not to Czech Modals.

i. Já musím /budu /začnu /přestanu stavět. ii. Já musím /*budu /*začnu /*přestanu **do**-stavět.
 'I must / will / start / stop to-build._{PERF.}' 'I must /*will /*start /*stop to-build -up._{PERF.}'

³³ The Czech future Aux *bud-* is thus like a synthetic future form of a copula such as French/ Spanish *ser-* 'will be'.

³⁴ The selection feature ___ <YP> is not quite as general as suggested by (58). English is plausibly like other languages in which copulas are *not* transitive V that assign accusative case, so the context feature ___ <YP> probably does not include DP. For more justification of this point, see Emonds (2000: Ch. 8). In Czech the copulas keep a limited ability to assign case, in particular instrumental case; see Veselovská (2008).

According to (60), the perfective of even stative verbs must relate them to a “point in time,” even if their basic meanings are such that they typically hold over a continuous period.³⁶ The definition (60) holds the key to why Czech perfective verbs with present Tense agreement morphology ([–M] and [–T]) refer to future time. If a clause’s Tense is Generalized Present, formally [–T], then its verb’s Event Time is a “potential Now” (i.e. neither Past nor Conditional), as specified by (1a); it can be only Present or Future. But because its lexical V is +PERF, this Event Time cannot by (60) be the actual Now. Because the only potential Now that are not limited to the actual Now are future times, the Event Time of a morphological Czech “perfective present” is future.

The interpretation of the much analyzed Czech perfective pasts is equally natural in our system. Since these forms are [–M, +T], they necessarily refer to Realis Events in the Past, and so automatically satisfy the condition that they do not hold Now. By virtue of the feature [+PERF], they report events as complete and hence completed, i.e. they don’t continue beyond the verb’s Past Realis Event Time. (This is the gist of traditional studies which link the Czech perfect to “completed actions.”)

In general then, our system of general syntactic features is crucially not linked to common sense semantic time spans. This has allowed us to unlock the perennial mystery of why Czech “perfective presents” refer not to the Past but are rather the standard way of making futures for these verbs. The *difference* between the two forms of Czech future concerns their Mood features: the analytic futures with *bud-* are Irrealis [+M], while the prefixed perfect forms are Realis [–M]. It thus appears that a speaker can conceptualize an expected future event either way, as Realis or not, with essentially no entailed pragmatic distinction.³⁷

In fact, English has futures in both Moods as well, a standard Irrealis with *will* [+M] and also a Realis future in the form *is/ are going to*. However, the nature of the contrasts between the two types is quite different in the two languages. While they are in complementary distribution in Czech, depending on the Perfectivity of the lexical V, in English the Irrealis future with *will* and the

³⁶ As a result, perfective forms of stative verbs take on related meanings that can be conceived of as punctual, for example, a perfective of *know* is interpreted as *find out*.

³⁷ It is natural to ask, why do English present perfects, whose auxiliary *have* may well be specified as +PERF, not refer to the future? The answer is because this V *have* must occur with a participle with the separate morphology of *-en*, a morpheme which when active spells out Past, i.e. [+T]; for arguments to this effect, see Emonds (2012). This Past *-en* [+T] ensures that the lexical verb’s Event Time is always *prior to* the “Reference Time” expressed by the Tense of *have*. In contrast, Czech PERF prefixes are directly linked to the Verb’s Event Time, which can be [+T] or [–T].

Realis future with *going to* are close to synonymous; it is next to impossible to find contexts where one is well-formed and/or appropriate and the other is clearly not (though nuances may differ). We conclude then that the two LFs of futures in both languages are the same, and that the difference in (otherwise unmarked) Mood values [\pm M] combined with [-T] is nearly meaningless. All the expressions for the future are [-T], and all specify in LF an Event Time different from Now.³⁸

As a final point, our system now easily accounts for why Czech *bud-* does not occur with a verb's Perfective form. If it did, it would be entirely redundant indication of the future by a sort of "double tense marking," and so the combination is ruled out by Economy.

8 Czech and English: finite variations on a universal theme

Within Indo-European, one could hardly ask for a system more superficially different from English than Czech. In contrast to English, Czech exhibits scrambling, i.e. free constituent order in clausal domains, including extractions of nominal pre-modifiers. Czech is a full pro-drop language; it has rich agreement inflections with lexical categories (N, A,V), including both person and gender agreement with the subject in two analytic Tenses. We have moreover examined the Czech verbal prefixes that express perfective vs. imperfective aspect and mentioned some facts related to the Czech (Slavic) system of C2 ("second position clitics") for verbal objects.

On the other hand, Czech completely lacks articles (as overt realizations of the D category), as well as counterparts to hallmarks of English IP structure, such as the non-verbal modal words and the auxiliary *do*. To add to this sketchy list of properties of English not shared by Czech, one can mention also parasitic gaps, multiple and long distance WH movement, possessive anaphors, raising

³⁸ In our system, the futures with *bud-* and *will* correspond, because they both realize the same features: [+M, -T] as well as -PERF. The correspondence of the Realis futures in the two languages is less direct. As just discussed, in Czech the [+PERF] becomes "future" by shifting the verb's Event Time away from Now, while still keeping it as a Generalized Present [-T]. In English and also French and Spanish, unmarked verbs of Motion away from the spatial deictic center "Here" (*go/ aller/ ir*) are metaphorically transposed into motion away from the temporal center "Now." Thus, the feature PERF in Czech and a feature of temporal Motion in English *have the same effects in LF*: movement of the clausal Event Time away from the actual Now into a potential Now of the future.

of the negation particle, and raising of noun phrases to object and subject positions.

Despite the above and many other differences, this study has demonstrated that general syntactic principles plus a few simple language specific lexical entries (in any case needed independently of a given framework) provide accurate and parsimonious analyses of the superficially very different Czech and English verbal systems, and allow at the same time a systematic comparison.

With respect to the architecture of verbal projections in Czech and English, we have argued that the same general principles and categorical system of Universal Grammar furnish a unified framework for parallel extended V-projections, i.e. VP and IP. In particular, *the (binary) feature content of the lexical head V and the related functional head I is the same* in the two languages.

We argued that contrary to generally accepted ideas, the functional I projection canonically houses only the feature of **mood** [$\pm M$], which basically expresses the contrast **Realis vs. Irrealis**. On the other hand, a clause's **temporal** specification using [$\pm T$] (**Generalized Present vs. Generalized Non-Present**) and [$\pm PERF$] is canonically located (and interpreted) not on I, as standardly assumed, but on verbal heads inside the VP projection.³⁹

The proposed analysis demonstrates that apart from occupying their canonic positions in I and V, their respective principal features [$\pm M$] and [$\pm T$] can also be **alternatively realized** (though not interpreted) on adjacent head nodes, both higher and lower. We discussed alternative realizations of e.g. the features of I on both V and C. We conclude that unawareness of the option of AR has confused previous analyses, which have inadvertently taken the surface positions of English Tense in I as revealing some general property of Universal Grammar.

In arguing for both functional and lexical projections in Czech clauses (for the existence of separate I and V) we illustrated lexical entries of items located in both positions. Then, comparing the Czech and English auxiliaries and copulas, we demonstrated that the lexical items with similar feature content can be located in distinct categorical positions. For example, the Czech present Tense copula *js-* 'is/are' is in V, while its English finite counterparts (*is/are*) are in I. In an interesting contrast, the Czech future auxiliary *bud-* is inside VP (with a regular finite person and number paradigm), while the English future auxiliary *will* appears only under I, and like other English Modals accepts no inflections.

³⁹ In this study we used only one functional head related to VP and labeled it I. If an adequate framework requires separate heads for each individual feature, there may be several functional heads in both Czech and English – a very high AGR being the most plausible one for Czech within both VP and IP. However, not much in this paper depends on the (non-)existence of separate proxy functional heads above and below VP. Neither would the system here change much if the verbal heads were relabeled – given that the arguments here mainly illustrate and depend on structural relations and don't concern the actual symbols in a taxonomy.

The future morphemes of both languages seem to lack infinitive forms because they both realize [-M], i.e. Irrealis, and at least in Czech and English, infinitive forms appear to prohibit any realizations of specific features of I. Therefore in spite of several differing language-particular realizations, the interpreted LF representations of (non-perfective) Czech and English futures are identical: [I, +M] + [VP, -T].

In conclusion, this study demonstrates that the two languages share similar clausal structures consisting of lexical and functional domains. Moreover, in spite of their specific characteristics they are subject to the same universal principles, in particular Alternative Realization, governing the behavior of closed class items, including bound morphology. The framework employed succeeds in providing analyses of the verbal systems of the two languages which are both simple and explanatory.

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