In search of (im)perfection: the illusion of counterfactual aspect[*]

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1   Introduction

Counterfactuality refers to "grammatical constructions that express or make reference to situations that are 'contrary to fact'." (Iatridou, 2000)

Counterfactuals most often occur in conditional environments, but can also occur in 'simple' constructions where there is no overt conditional structure:

(1)   **CF conditionals** ($p{\rightarrow}q$, which conveys ¬p and ¬q)
       If I had a car, I would go to the store.

(2)   **Simple CFs** (would p, conveys ¬p)
       A person with a car would go to the store.

Counterfactual typology: a review

Languages encode counterfactuality in one of **two ways**:

1. **Dedicated CF morphology:** some languages use a **dedicated** marker that appears only in CFs to convey counterfactuality.[1]

   These languages appear to be cross-linguistically rare (Van Linden and Verstraete 2008).

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[1]The example in (3b) is technically not a counterfactual conditional, but a **future less vivid** (FLV). These future-oriented conditionals share morphological and syntactic properties with true counterfactuals, and the two will be treated together here.

(3) **Dedicated CF morphology:**

    a. ha holnap   el-indul,   a jo:vo"   h'etre   oda-e'r
       if tomorrow away-leave the following week.onto there-reach

       'If he leaves tomorrow, he will get there next week.'   (FNV)

    b. ha holnap   el-indul-**na**,   a jo:vo"   he'tre   oda-e'r-**ne**
       if tomorrow away-leave.CF the following week.onto there-reach.CF

       'If he left tomorrow, he would get there next week.'   (FLV)
       (Hungarian; Iatridou 2009, from Csirmaz p.c.)

2. **"Fake" temporal morphology:** more commonly, languages use "fake" past tense and/or imperfective aspect morphology[2] to convey counterfactuality.

(4) **Fake "past" tense**

    a. FLV: If he **left** tomorrow, he would get there next week.

    b. PresCF: If I **had** a car (now), I would be happy.

    c. PstCF: If he **had** been descended from Napoleon he would have been shorter.
       (Iatridou 2000)

(5) **Fake "past imperfective"**

    a. An **pari**   afto to siropi avrio   θa ɣini   kala.
       if take.NPST.PRF this   syrup tomorrow FUT become.NPST.PRF well

       'If he takes this syrup, he will get better   (FNV)

    b. An **eperne**   afto to siropa avrio   θa ɣinotan   kala
       if take.PST.IMP this   syrup tomorrow FUT becomePST.IMP well

       'If he took this syrup, he would get better.'   (FLV)

    c. An **peθene**   o arχiɣos θa ton θavame   stin korifi tu vunu
       if die.PST.IMP the chief   FUT him bury.PST.IMP o-the top   the mountain

       'If the chief died, we would bury him on the top of the mountain.'   (FLV)
       (Greek, Iatridou 2000)

The temporal morphology in (4) and (5) is "fake" in the sense that it does not contribute its standard tense/aspect interpretation to the sentence.

Fake past tense has been well-documented and widely investigated (Anderson, 1951; Hale, 1969; Steele, 1975; James, 1982; Palmer, 1986; Fleischman, 1989; Iatridou, 2000; Van Linden and Verstraete, 2008, a.o.).

- Some proposals analyze fake past as the **locus** of CF semantics:

    – by proposing that "past" simply marks remoteness, either temporal or modal (Steele, 1975; Iatridou, 2000; Ritter and Wiltschko, 2010).

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[2]Or ananalogous INFL-related item. Nevins (2002) points out that in Burmese, which lacks tense marking, counterfactuality is encoded with a distal marker. Ritter and Wiltschko (2009, 2010) make a similar observation about CFs in Salish, and claim that the proximal/distal marking is encoded by INFL.

– by deriving CF meaning from a purely temporal past (Ippolito, 2002; Arregui, 2009).

The role of **fake imperfective aspect** in CFs is less well understood.

- Fake imperfective has been claimed to occur:

  – because it is a cross-linguistically **default** aspect (Iatridou, 2009),

  – because *perfective* is incompatible with CFs (Arregui, 2004),

  – or because imperfective (like past) contributes to the semantics of CFs (Ippolito, 2004; Ferreira, 2011).

In this talk:

- We demonstrate that the typology of "fake" CF morphology is broader than previously assumed.
- We argue that *only one* temporal marker is required in all temporally-marked CFs.
- We discuss the implications of these findings for the formal analysis of CF structure and marking.

Broader temporal CF typology: 2 main types of languages

1. **Past CF languages:** require past tense – and nothing else – as a CF marker.

   Three subtypes:

   (a) Languages that *appear* to also require imperfective
   (Iatridou, 2000; Arregui, 2009; Ippolito, 2004)

   (b) Languages that *appear* to also require perfective
   (Halpert and Karawani, 2012; Karawani and Zeijlstra, 2010)

   (c) Languages that allow *either* perfective or imperfective.
   (Iatridou, 2009)

2. **Imperfective CF languages:** require imperfective aspect as a CF marker – and nothing else.

   Two subtypes:

   (a) Languages that *appear* to also require past tense.

   (b) Languages that *do not appear* to require past tense.

Theoretical implications:

- We propose that CFs in the relevant languages require a **single** temporal marker.

- Some languages require PAST, some languages require IMPERFECTIVE.

- Properties of a language's inflectional system can create the **illusion** of additional temporal inflections, though these categories are not present in the syntax.

- All of these properties allow us to limit the space of theoretical accounts and to deal with CF marking via a single operator in the syntax.

2 Background: Underspecified temporal morphology

We propose that temporal marking in CFs arises from the need for a **single** CF operator.

This operator can be realized by either aspect or tense.

The **illusion** of both tense and aspect in a single CF arises because temporal morphology can be **underspecified** for either aspect or tense.

This proposal is naturally framed within any morphological framework that allows morphemes to be featurally underspecified, such as Distributed Morphology (DM) (Halle and Marantz, 1993, 1994; Harley and Noyer, 1999).

Two ways temporal meanings can arise: while temporal meanings can be directly specified in the syntax, they can also arise without direct specification–through context.

(6) *English tense underspecification in infinitives*
    a. I expect him to be drunk **now**. (cf. He is drunk now.)
    b. I expect him to be drunk **tomorrow**. (cf. *He is drunk tomorrow.)

(7) *Tòfíngbè tense underspecification in main clauses*
    a. Fèlísí ɖó   owŏ   ɖù **dítré**
       Felix PROG porridge eat yesterday
       'Felix was eating maize porridge yesterday.'
    b. Fèlísí ɖó   owŏ   ɖù **tété**
       Felix PROG porridge eat now
       Felix is eating maize porridge today.'

A morpheme that yields a complex meaning, e.g., "past imperfective", **could** be specified for both tense and aspect, but **may** be specified for only one.

(8) **Possible syntactic specifications for a "past imperfective" morpheme**
           "past imperfective"

    [PAST]   [PAST] [IMPERFECTIVE]
  [IMPERFECTIVE]
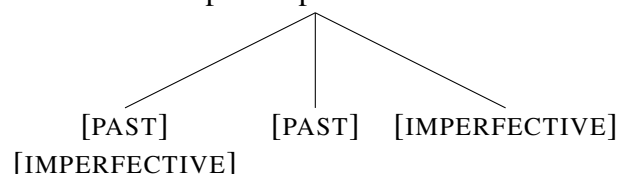
In the following sections, we will show that we can independently establish the sytnactic specification for temporal markers that are used in CFs.

The result is that **past CF** languages may have illusory aspect and **imperfective CF** languages may have illusory past.

3 Past CF languages: 3 patterns of aspect marking

Broader typology of languages that mark CFs with fake past:

Pattern A:	**Greek, Romance, Zulu**
	Languages that apparently also require "fake" **imperfective**.
Pattern B:	**Palestinian Arabic**
	Languages that apparently also require "fake" **perfective**.
Pattern C:	**Russian, Polish**
	Languages that allow **"real"** perfective or imperfective aspect.

We argue: the apparent requirement for particular aspectual marking in past CFs is an **illusion**.

All these languages mark CFs with (syntactically specified) PAST.

In patterns A & B, the morphology that we see reflects **only** (syntactic) PAST – outside CFs it is associated with the **unspecified** member of an aspectual opposition.

Morphology that conveys, e.g., "past imperfective" **can** be specified for both tense and aspect, giving rise to pattern C languages.

3.1 Pattern A: Imperfective is a component of Past

Previous analyses of fake aspect have focused largely on the fake imperfective found in Greek and the Romance languages.

- In these languages, CFs are always marked with past-imperfective morphology. "Real" tense and aspect are suppressed:

(9)　**French CFs: past-imperfective**
  a.　Si Pierre partait　　　demain, il arriverait　là-bas le　lendemain
　　　if　Pierre left.PAST.**IMPF** tomorrow he would arrive there　the next.day
　　　'If Pierre left tomorrow, he would arrive there the next day.'
  b.　*Si Pierre est parti　　　　demain,　il　serait arrivé là-bas le　lendemain
　　　if　Pierre is　left.PAST.**PFV** tomorrow he would-arrive there　the next.day

- We argue that the apparent requirement for "past imperfective" marking arises because this morphology in fact reflects *only* syntactically specified PAST.

- Its imperfective interpretation arises due to the absence of a privative **perfective** feature:

	'past imperfective'	'past perfective'
SYNTAX		
TENSE	+PAST	+PAST
ASPECT	Ø	+PERFECTIVE
MORPHOLOGY	*-ait*	*être/avoir* + ptcp
(French)	(*imparfait*)	(*passé composé*)

Table 1: *Feature specifications for Pattern A*

3.1.1 *Independent* evidence for underspecified temporal morphology?

- This proposal rests on the idea that "past imperfective" is specified simply as [PAST].

  Evidence for this comes from the occurrence of "past imperfective" morphology in contexts where we would expect either perfective or no aspect at all.

  Past perfect(ive) auxiliaries provide such a context: these auxiliaries standardly occur with "past imperfective" morphology, as shown in (10) for French.

(10) **French pluperfects: perfective interpretation, "imperfective" auxiliary**

    a. Les élèves   avaient   étudié.
       The students have.PAST.**IMPF** study.PTCP

       "The students had studied."

    b. L'hiver   était   arrivé
       The-winter be.PAST.**IMPF** come.PTCP

       "Winter had come."

- The imperfective morphology in (10), despite the *perfective* interpretations, suggests that **morphological** imperfective comes "for free" with past tense morphology.[3]

3.1.2 Zulu: "past imperfective" required, perfective possible

Zulu is another example of a Pattern A language.

- Zulu appears to require "past imperfective" marking in CFs – the prefix *be-*, along the lines of the languages discussed above.

- However, Zulu also allows a perfective suffix *-ile* to co-occur with this "fake imperfective" in perfectively interpreted CFs:

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[3]The literary *passé antéieur* (*les élèves* **eurent** *etudié*), and the *passé surcomposé* (*les élves* **ont eu** *etudié*) in French do involve apparently perfective auxiliaries. These forms, however, are limited to temporal adjuncts: consequently, we argue such auxiliaries could receive perfective features from a higher syntactic source, unlike the morphologically "imperfective" auxiliaries in (10).

(11) [ukuba **be-**   ngi- thimul- **ile**] be-ngi-zo-dinga   ithishi
      if   PAST.IMPF- 1SG- sneeze- PFV   IMPF-1SG-FUT-need 5tissue

      'If I had sneezed, I would have needed a tissue.'   (HK forthcoming, ex. (5))

- The two morphemes are normally incompatible (due to the redundancy of marking both PAST and PERFECTIVE when both are interpreted temporally):

(12) *Be-   ngi- thimul- ile   izolo.
      PAST.IMPF- 1SG- sneeze- PFV yesterday   (HK forthcoming, ex. (19a))

- Following Halpert & Karawani (forthcoming), we assume that the "past imperfective" morpheme in Zulu, as in Greek and Romance, is actually an exponent of PAST alone.

- At the same time, "past perfective" morphology in Zulu expresses only PERFECTIVE (see Botne and Kerchner, 2000).

(13) ngi- shabal-   ele manje
      1SG- disappear- **PFV** now

      "I disappear now."   (HK forthcoming, ex. (17a))

What Zulu demonstrates is that real PERFECTIVE and fake PAST features can both be realized on a single verb.

- In Greek- and Romance-type languages, we only see fake temporal morphology in CFs.

- Some accounts of CF temporal morphology claim that the lack of "real" temporal marking in CFs in these languages arises because CFs contain no "real" tense and aspect underlyingly (Arregui, 2009; Ferreira, 2011).

- Zulu, however, demonstrates that there **can** be real aspect in CFs.

  What distinguishes Zulu from Greek and Romance is that PAST and PERFECTIVE do not compete for a single morphological "slot".

3.2   Pattern B: Perfective is a component of Past

Even in a system with underspecified morphology, it is not necessary that *imperfective* be the unspecified aspectual value in a language.

In principal, we could imagine a feature system like the following:

	'past imperfective'	'past perfective'
(SYNTAX)		
TENSE	Ø	+PAST
ASPECT	+IMPERFECTIVE	Ø

Table 2: *Feature specifications for Pattern B*

Prediction: in such a morphological system, "past **perfective**" will mark CFs.

We show here that CFs in **Palestinian Arabic** bear out this prediction.

(14) [iza **ţileʕ**   halaʔ,] kaan   b-iwsal   ʕal waʔt   la l-muħaadara
      if   leave.PAST.**PFV** now,   be.PAST.PFV B-arrive.IMPF on the-time for the-lecture
      'If he left now, he would arrive on time for the lecture.'
      (HK forthcoming, ex. (6a))

PA can also express real tense and aspect in CFs in a separate position from fake past – fake CF past is marked via the auxiliary *kaan*.

Auxiliary *kaan* is inflected as though it were perfective,[4] but appears to mark PAST alone, while real aspectual morphology occurs on the main verb:

(15) [iza **kanno**   **b-yitlaʕ**   bakkeer kul   yom,] **kaan**   **b-iwsal**   ʕa
      if   be.PAST.PFV B-leave.IMPF early   every day,] be.PAST.PFV B-arrive.IMPF on
      l-waʔt   la l-muħadaraat
      the-time to the-lectures
      'If he were in the habit of leaving early, he would arrive to the lectures on time.'
      (HK forthcoming, ex. (19a))

This ability of the past auxiliary *kaan* alone to mark CFs supports the view that the "past perfective" CF marking in 14 is the exponent of PAST features only.

Independent **evidence for this underspecification:**

- **Imperfective** morphology as unspecified for **tense** in PA (Benmamoun, 2000; Karawani and Zeijlstra, 2010; Halpert and Karawani, 2012):

  – Benmamoun (2000) claims that present imperfective predicates, which receive no independent tense morphology, behave as if no tense is present in several varieties of Arabic.[5]

  – Karawani and Zeijlstra (2010) show that while imperfective marked verbs are ambiguous between present and future readings, they are incompatible with a past reading:

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[4]Discussed in a footnote in Halpert & Karawani forthcoming.

[5]Specifically, Benmamoun (2000) argues that present imperfective verbs in Arabic do not raise to T, citing as evidence their interaction with negation and preference for SVO word order. Based on the absence of movement to T, Benmamoun argues that present tense features are not syntactically active.

(16) b-tuktob   (*mbaareħ)
      B-write.IMPF (*yesterday)
      'She usually writes/will write.'
      (habitual)/(future)   (HK forthcoming, ex. (11))

For a past imperfective interpretation, PA requires the past tense auxiliary *kaan* (as shown below in (3.2)).

- **Past perfective** morphology as unspecified for **aspect** in PA (Karawani and Zeijlstra, 2010; Bjorkman, 2011; Halpert and Karawani, 2012):

  – Karawani & Zeijlstra (2010) argue that the *perfective* morpheme itself in Palestinian Arabic corresponds to a tense operator.

  – Bjorkman (2011) argues that patterns of auxiliary use in Arabic can be most straightforwardly accounted for if the "past perfective" is syntactically (and morphologically) specified simply as [PAST].

  – Finally, we note that the past auxiliary *kaan* in PA is a *perfective* form of the verb *be*, though no perfective meaning is conveyed (Halpert & Karawani forthcoming), similar to the Romance auxiliary situation described above in (10).

(17) kaanat   tuktub
      be.PAST.**PFV** write.IMPF
      'She used to write.'   (HK forthcoming, ex. (12a))

Conclusion: The tense/aspect opposition in PA is the **reverse** of the one in Greek/Romance/Zulu:

- "Past perfective" morphology is actually only specified as [PAST] and thus can mark counterfactuality.

- Imperfective morphology is unspecified for tense; imperfective CFs require a separate past auxiliary.

3.3   Pattern C: Past is independent of imperfective/perfective

Finally, this proposal allows the possibility that a language has both past imperfective and past perfective morphology, with both fully specified:

	'past imperfective'	'past perfective'
(SYNTAX)		
TENSE	+PAST	+PAST
ASPECT	+IMPERFECTIVE	+PERFECTIVE

Table 3: *Feature specifications for Pattern C*

Prediction:

- In such a language, either past imperfective or past perfective morphology can be used to mark CFs.

- The aspectual component will always correspond to the actual interpretation of the sentence.

We find examples of such a pattern in **Russian**, which shows full aspectual contrasts in CFs:

(18) a. Esli by   Džon umer,   my poxoroni-l-i   by   ego   na gor-e.
          if   SUBJ John die.**PFV.PST** we bury.PFV-PST-PL SUBJ he.ACC on mountain-LOC
          'If John died, we would bury him on the mountain.'
      b. Esli by   Džon umira-l,   s   nim   by-l   by   doktor.
          if   SUBJ John die.**IMPF-PST** with he.INSTR be-PST SUBJ doctor
          'If John were dying, the doctor would be with him.'   (Sergei Tatevosov, p.c.)

The illusion of CF aspect disappears here: the [PAST] required by CF can be conveyed by either [PAST IMPERFECTIVE] or [PAST PERFECTIVE], so we only see "real" aspect in CFs.

3.4   Taking stock

In this section, we have simplified the typology of temporal marking in CFs: in all of these languages, only [PAST] tense is required to mark CFs.

Aspect is implicated to the extent that certain tense morphemes may be *underspecified* for aspect.

By investigating the actual syntactic specifications of temporal morphology in these languages, we can show that even when particular aspectual *meanings* appear to co-occur with the required [PAST] tense, this aspect is not actually specified in the syntax.

4   Imperfective CF languages

The languages discussed in the previous section all involve a clear past tense morpheme.

Question: Do any languages actually require true syntactic aspectual marking in CFs?

- For example, a language in which aspect is marked using a separate morpheme from tense – and CFs require a particular aspect morpheme.

Answer: We do find such languages, but they appear to use fake aspect *alone* to mark CFs.

In these languages, it appears that **imperfective** morphology is required in CF constructions.

4.1   Hindi: imperfective aspect, no apparent past tense

In **Hindi**, CFs are marked using *habitual* morphology, without any apparent past tense.

(19) a. Agar vo macchlii khaa-taa ho-**taa**,   to   use   yeh biimaarii nahiiN ho-tii
          if   he fish   eat-HAB be-**HAB** then he.DAT this illness   NEG   be-HAB.FEM
          'If he ate fish (on a regular basis), then he would not have this disease.'

     b. Agar vo gaa rahaa ho-**taa**,   to   log   wah wah kar rahe   ho-te
          if   he sing PROG be-**HAB** then people wow wow do PROG be-HAB
          'If he were singing, people would be going 'wow wow'.' (Iatridou 2009, (15), (12))

- As Iatridou (2009) and Bhatt (1997) discuss, the habitual marker *taa* appears in all CF constructions in Hindi.

- This morpheme is clearly specified for aspect but not for tense.

- Outside of CF conditionals, the habitual marker must co-occur with either a past or present tense auxiliary; inside CFs, it can appear without the auxiliary (as above):

(20) a. Ram roj   ghar jaa-**taa** hai   b. Ram roj   ghar jaa-**taa** thaa
          Ram every.day home go-HAB PRES   Ram every.day home go-HAB PST
          'Ram goes home every day.'   'Ram used to go home every day.'

     c. *Ram roj   ghar jaa-**taa**
          Ram   every.day home go-HAB
          (Bhatt 1997, ex., (11d))

Iatridou (2009), following Bhatt (1997), assumes that Hindi is a language that requires (a covert) fake past in CFs, but as the data above show, it is not clear that this is the case.

There is therefore no morphological correspondent to a past tense operator, and no independent means of motivating a covert operator.

It therefore appears that Hindi is a language that marks CFs with imperfective (habitual) aspect alone.

4.2   Persian: imperfective aspect, illusory past tense

In **Persian**, CFs are marked with imperfective verbal prefix *mi-* (Iatridou 2009, data p.c. from Arsalan Kahnemuyipour):

(21) a. age fardaa   **mi**-raft   hafte-ye ba'd **mi**-resid
          if   tomorrow DUR-go.PAST week-EZ next DUR-arrive.PAST
          "If he left tomorrow, he would arrive next week."

b. age alaan javaab-e so'aal-o **mi**-dunest-am, xeyli eftexaar
If now answer-EZ question-acc. DUR-know.PAST-1SG, a lot pride
mi-kard-am
DUR-do.PAST-1SG

"If I knew the answer now, I would be very proud (lit.: take pride a lot)"

- This morphology also occurs in non-counterfactual imperfectives:

(22) a. man har ruz raah **mi**-rav-am   b. man daar-am raah **mi**-rav-am
I every day path DUR-go.NONPST-1sg   I have-1sg path DUR-go.NONPST-1sg
"I walk every day"   "I am walking (now)"

- While Hindi showed no evidence of [PAST] morphology in CFs, Persian uses the so-called "past stem" in CFs (21), though non-CF imperfectives can take the "non-past" stem (22).

- The use of the "past stem" in CFs might suggest that Persian is a language in which CFs require *both* PAST *and* syntactically specified (non-illusory) IMPERFECTIVE morphology.

- On the other hand, just as we saw *illusory aspect* in Past CF languages, the "pastness" of the "past stem" here may also be illusory.

Independent evidence for illusory "past": the "past" stem does occur in some limited non-past contexts, in particular the formal future form in (23):

(23) **"Past stem" in formal future form**

a. Sârâ daru-hâ-yaš râ xâh-ad xord
S. medicine-PLher-ACC want.3SG eat.PAST

"Sârâ will have her medicine." (Taleghani 2008, ex. (30))

b. xâh-am raft
want-1SG go.PAST

'I will go.' (Maziar Toosarvandani, p.c.)

(24) **"Past stem" with prospective interpretation (colloquial Farsi)**

raft-am
go.PAST-1SG

'I went' / 'I'm about to go.' (Maziar Toosarvandani, p.c.)

- The use of the "past" stem in these contexts suggests that this stem does not actually convey syntactic [PAST] tense.

Open question: Even if the "past" stem does not encode syntactic [PAST], its occurrence in CF conditionals still must be accounted for (since the imperfective marker typically occurs with a "nonpast" stem).

- It is possible that the explanation lies in the use of "past" stems in conditional constructions more generally (Toosarvandani, p.c.), though this remains a question for future research.

4.3   Taking Stock

In this section, we have expanded the typology of temporal marking in CFs: we have seen languages where [IMPERFECTIVE] aspect is unambiguously implicated in CFs.

True syntactic [PAST] does not seem to play a role.

As with the Past CF languages, it appears that in these languages, only one temporal ingredient is required to mark counterfactuality.

5   Discussion

We have shown that languages that use temporal morphology to mark CFs *either* require [PAST] *or* [IMPERFECTIVE] – but not both.

The illusion of both tense and aspect marking arises from independent properties of a language's morphosyntactic system – the underspecification of certain morphological elements.

Two further important points:

- CFs can mark "real" tense and aspect even in the presence of "fake" morphology: Zulu and Arabic (Halpert and Karawani, 2012), Hindi (Bhatt, 1997).

- There is no single tense or aspect that is required in all languages that mark CFs with fake temporal morphology.

These generalizations have important implications for the theory of CF marking.

5.1   Analyses incompatible with revised typology

The improved typology we have reached here is **incompatible** with some analyses that have been proposed in the past.

1. Counterfactuality is **not** derived from past meaning.

   Languages that mark CFs with imperfective morphology alone – such as Hindi and Persian – are incompatible with proposals in which temporal past is crucially involved in the composition of CF meanings (Ippolito, 2004; Arregui, 2009; Ferreira 2011)

2. Counterfactuality is **not** dependent on imperfective.

   Languages that allow or require perfective marking in CFs – such as Arabic or Russian – are incompatible with proposals that imperfective aspect is required in addition to past to compose CF meanings (Ippolito, 2004; Ferreira, 2011).

   Such languages also create a problem for the proposal that perfective aspect is generally incompatible with CFs (Arregui, 2004).

3. CFs **do** allow "real" tense and aspect marking.

Some authors have proposed that CFs necessarily have no **real** tense or aspect (e.g. Ferreira, 2011; Arregui, 2009) – ordinary temporal semantics are repurposed for CF interpretations.

Languages like Zulu, Arabic, Russian, and Hindi are all counterexamples to this: all allow real temporal marking, sometimes "doubled" with fake temporal marking.

5.2   Analyses favoured by revised typology

The typology of CF marking described in this paper does argue for certain analytical approaches:

1. Counterfactuality associated with a **single** position.

   The fact that only one temporal category (tense **or** aspect) is used to mark CFs suggests a single syntactic position associated with CF meaning.

   This is in line with the view that there is a CF operator which can be spelled out either:

   - by a dedicated CF morpheme or
   - by a morpheme that also happens to spell out PAST or IMPERFECTIVE

   Once this single choice is made, other properties (e.g. the illusion of secondary marking, compatibility with "real" inflection) fall out from broader properties of the language's inflectional morphosyntax.

2. CF-linked position is **higher** than T^0 or Asp^0.

   From the fact that Zulu, Arabic, and Hindi allow CF inflection to co-occur with "real" tense/aspect, we can conclude that CF inflection is associated with a position **distinct** from T^0 or Asp^0.

   There is also reason to think that this position is **higher** than both T^0 and Asp^0: in Arabic and Hindi, fake CF marking occurs on the highest verb or auxiliary, while real temporal marking is lower.

   Even in languages without this doubling, there is evidence that CF is associated with a high – left peripheral – position:

   Turkish CF marking: Aygen (2004) observes that the past morpheme *-di* in Turkish occurs in different positions depending on whether it is CF-linked or temporally interpreted.

   - In **indicative** (temporally past) antecedents, this morpheme occurs to the *left* of a conditional morpheme **-sa**:

   (25)   Indicative: **V-past-cond**

   Dün gece Can erken yat-**dı-ysa**   sabah   erken kalk-abil-ir.
   Last night John early sleep-Past-COND morning early get-up-MOD-Past
   'If John went to bed early last night, he can get up early this morning.'

- In **counterfactual** antecedents, the conditional suffix occurs to the *right* of the conditional marker:

(26)   Counterfactual: **V-cond-past**

Dün gece Can erken yat-**sa-ydı**   sabah   erken kalk-ar-dı.
Last night John early sleep-COND-Past morning early get-up-AOR-Past

'If John had gone to bed early last night, he would have got up early in the morning.'

- Assuming some version of the Mirror Principle (Baker, 1985), this morphological contrast suggests that CF-linked "past" is structurally higher than temporal past.

CF-linked Conditional Inversion (CI): Some languages allow conditional antecedents to be marked by **inversion** of the finite verb to C^0:

(27)   a. If I had known …
         b. Had I known …

Iatridou and Embick (1994) show that CI shows a cross-linguistic link to CFs – outside the V2 Germanic languages it is **only** possible in CF antecedents.

This pattern again suggests that CFs have some link to a left-peripheral position, possibly the same position that is the source of "fake" tense/aspect.

3. CF operator shares featural content with PAST.

Many authors have suggested that CFs share some abstract meaning with past tense, at least metaphorically (Fleischman, 1989; James, 1982; Steele, 1975, a.o.).

Some have suggested more concretely that CF and past tense share a **feature** in common (Iatridou, 2000; Wiltschko, 2009; Ritter and Wiltschko, 2010) – such a feature could form the basis of post-syntactic insertion of a single morpheme in both contexts.

Ritter and Wiltschko (2009, 2010): "tense" is really a general function of clausal anchoring ($[\pm$ coincidence]), but may index different deictic properties in different languages.

- In familiar European languages: indexes the *time* of situations.

- In (Halkomelem) Salish: indexes the *location* of situations.

- In Blackfoot: indexes the *participants* in situations.

They propose to extend this to CF marking, proposing that [- coincidence] in C^0 establishes non-coincidence of the **world** of the clause, rather than its time (or location, or participants).

Some questions for future research

1. What is the featural overlap between CF and IMPERFECTIVE, paralleling the [-coincidence] overlap between CF and PAST?

2. Similarly, for languages that have both PAST marking and IMPERFECTIVE marking, what determines which morpheme appears in CFs?

3. What allows some languages to express both fake CF and real temporal marking, while others cannot?

   - What limits the expression of real temporal marking even in languages that do express simultaneous real and fake?

   e.g. Zulu and Hindi allow real aspect, but not real tense, in CFs.

6   Conclusions

This paper has broadened the descriptive typology of tense/aspect marking in CFs:

- Languages can mark CFs with **either** PAST **or** IMPERFECTIVE – but not both.

- Morphemes can be **underspecified** for either tense or aspect, and in non-CF contexts receive a canonical interpretation for their underspecified value.

Future work: While remoteness operator proposals are a natural fit for the Past CF languages, a satisfactory account of Imperfective CF languages needs to be developed.

In addition, we hope to focus in the future on what factors determine whether a language uses [PAST] or [IMPERFECTIVE] to mark CFs.

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References

Anderson, Alan Ross. 1951. A note on subjunctive and counterfactual conditionals. *Analysis* 35-38.

Arregui, Ana. 2004. On the accessibility of possible worlds: the role of tense and aspect. Doctoral Dissertation, University of Massachusetts at Amherst.

Arregui, Ana. 2009. On similarity in counterfactuals. *Linguistics and Philosophy* 32:245–278.

Aygen, Gülşat. 2004. T-to-C and overt marking of Counterfactuals: Syntactic and Semantic Implications. *Harvard Working Papers in Linguistics* 10:1–18.

Baker, Mark. 1985. The mirror principle and morphosyntactic explanation. *Linguistic Inquiry* 16:373–415.

Benmamoun, Elabbas. 2000. *The feature structure of functional categories: A comparative study of Arabic dialects*. Oxford University Press.

Bhatt, Rajesh. 1997. Counterfactual morphology in modern Indo-Aryan languages: Semantic and typological issues. Ms., University of Pennsylvania, Philadelphia, and MIT, Cambridge, MA.

Bjorkman, Bronwyn M. 2011. BE-ing Default: the Morphosyntax of Auxiliaries. Doctoral Dissertation, MIT.

Botne, Robert, and Tiffany Kerchner. 2000. Time, tense, and the perfect in Zulu. *Afrika und Übersee* Band 83:161–180.

Dahl, Östen. 1985. *Tense and aspect systems*. Oxford: Basil Blackwell.

Ferreira, Marcelo. 2011. Displaced aspect in counterfactuals: Towards a more unified theory of imperfectivity. Presentation.

Fleischman, Suzanne. 1989. Temporal distance: A basic linguistic metaphor. *Studies in language* 13:1–50.

Hale, Kenneth. 1969. Papago /čɨm/. *International Journal of American Linguistics* 35:203.

Halle, Morris, and Alec Marantz. 1993. Distributed Morphology and the pieces of inflection. In *The View from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*, ed. Ken Hale and Samuel J. Keyser. Cambridge, MA: MIT Press.

Halle, Morris, and Alec Marantz. 1994. Some key features of Distributed Morphology. *MIT Working Papers in Linguistics* 21:275–288.

Halpert, Claire, and Hadil Karawani. 2011. Aspect in counterfactuals from A(rabic) to Z(ulu). Handout, WCCFL 29. University of Arizona, April 22–24, 2011.

Halpert, Claire, and Hadil Karawani. 2012. Aspect in counterfactuals from A(rabic) to Z(ulu). In *Proceedings of WCCFL 29*. Cascadilla Proceedings Project.

Harley, Heidi, and Rolf Noyer. 1999. Distributed morphology. *Glot International* 4:3–9.

Iatridou, Sabine. 2000. The grammatical ingredients of counterfactuality. *Linguistic Inquiry* 31:231–270.

Iatridou, Sabine. 2009. Some thoughts about the imperfective in counterfactuals. Handout.

Iatridou, Sabine, and David Embick. 1994. Conditional inversion. In *Proceedings of NELS*, volume 24, 189–203.

Ippolito, Michela. 2002. On the Semantic Composition of Subjunctive Conditionals. Ms. MIT/Tübingen University.

Ippolito, Michela. 2004. Imperfect modality. In *The syntax of time*, ed. Jacqueline Guéron and Jacqueline Lecarme, number 37 in Current Studies in Linguistics, 359–387. MIT Press.

Ippolito, Michela. 2006. Semantic composition and presupposition projection in subjunctive conditionals. *Linguistics and Philosophy* 29:631–672.

Isard, S.D. 1974. What would you have done if...? *Theoretical Linguistics* 1:233–256.

James, Deborah. 1982. Past tense and the hypothetical: A cross-linguistic study. *Studies in language* 6:375–403.

Karawani, Hadil, and Hedde Zeijlstra. 2010. The semantic contribution of the past morpheme in Palestinian counterfactuals. Handout, Workshop on Tense and Aspect in Generative Grammar. Lisbon, Portugal, July 1–2, 2010.

Legate, Julie Anne. 2003. The morphosemantics of Warlpiri counterfactual conditionals. *Linguistic Inquiry* 34:155–162.

Lyons, J. 1977. *Semantics*, volume 2. Cambridge University Press.

Nevins, Andrew I. 2002. Counterfactuality without past tense. In *Proceedings of NELS 32*, 441–450. GLSA, University of Massachusetts/Amherst.

Palmer, Frank R. 1986. *Mood and Modality*. Cambridge Textbooks in Linguistics. Cambridge University Press Cambridge.

Ritter, Elizabeth, and Martina Wiltschko. 2009. Varieties of INFL: Tense, location, and person. In *Alternatives to Cartography*, ed. Hans Broekhuis, Jeroen van Craenenbroeck, and Henk van Riemsdijk. Berlin, New York: Mouton de Gruyter.

Ritter, Elizabeth, and Martina Wiltschko. 2010. The composition of INFL: An exploration of tense, tenseless languages and tenseless constructions. LingBuzz/001078, July 2010.

Steele, Susan. 1975. Past and irrealis: Just what does it all mean? *International Journal of American Linguistics* 41:200–217.

Taleghani, Azita H. 2008. *Modality, aspect and negation in Persian*. John Benjamins Publishing Company.

Van Linden, An, and Jean-Christophe Verstraete. 2008. The nature and origins of counterfactuality in simple clauses: Cross-linguistic evidence. *Journal of Pragmatics* 40:1865–1895.

Wiltschko, Martina. 2009. The composition of INFL: An exploration of tense, tenseless languages and tenseless constructions. Handout, MIT colloquium.