

# **Time Annotation Guidelines**

## **For Less Commonly Taught Languages**

**(Based upon the TIMEX2 Standard)**

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# 1 Introduction

The LCTL Time Annotation specs have been developed to support the identification of TIMEX2-style extents in Named-Entity Annotation for the Less-Commonly Taught Languages project.

The current guidelines have been derived directly from the TIMEX2 standard, originally developed by Lisa Ferro, Laurie Gerber, Inderjeet Mani, Beth Sundheim and George Wilson. Additional background can be found at:

[http://timex2.mitre.org/annotation\\_guidelines/2005\\_timex2\\_standard\\_v1.1.pdf](http://timex2.mitre.org/annotation_guidelines/2005_timex2_standard_v1.1.pdf)

The two major divergences between the current specs and the original TIMEX2 guidelines are:

	<b>TIMEX2</b>	<b>LCTL Times</b>
<b>Normalization</b>	<i>ISO Timeline</i>	<i>None</i>
<b>Embedded Elements</b>	<i>OK</i>	<i>None</i>

For the purposes of LCTL Named Entity Annotation, the identification of TIMEX2 extents amounts to the application of the TIME/DATE tag.

## 2 Determining What Kinds of Expressions to Annotate

If an expression (i.e. a word or phrase) refers to some area on a timeline, then we will consider that expression to be a markable temporal expression. Temporal expressions can reference dates, times or durations—such as periods of hours, days, centuries or even longer.

Temporal expressions tell us:

- *When* something happened
- *How long* something lasted
- *How often* something occurs

### 2.1 Markable expressions

As in any annotation task, *markable expressions* are the expressions that should be annotated.

To be markable, an expression must contain an appropriate trigger: a word, number or phrase whose meaning conveys a temporal unit or concept. Two good examples of triggers are *day* and *monthly*. For a word or expression to be a markable, it must be possible to position the event that it describes on a timeline—or to orient it in relation (past, present, future) to an event (or time) that can be so positioned on a timeline.

In all of what follows, we will use the square brackets [ and ] to indicate the extents of taggable

TIMEX2 elements. If the brackets are omitted, the reader can assume that the extent of the relevant TIMEX2 element covers the entire example.

### Sample Lexical Triggers and Non-Triggers

<i>Part of Speech</i>	<i>Lexical Trigger: DO tag expressions based on these and similar terms</i>	<i>Non-Trigger: DON'T tag expressions based on these or similar</i>
<b>Noun</b>	<i>minute, afternoon, midnight, day, night, weekend, month, summer, season, quarter, year, decade, century, millennium, era, semester, the future, future, the past, past, time, period, point</i>	<i>instant, jiffy, episode, occasion, set font tenure, timetable, reign, light-year, megawatt-hour, lifetime, history</i>
<b>Proper Name</b>	<i>Monday, January, New Year's Eve, Washington's Birthday, Solstice</i>  triggers that function as temporal modifiers within titles (such as "The Coach of the Year")	
<b>Specialized Time Patterns</b>	<i>8:00, 12/2/00, 1994, 1960's</i>	
<b>Adjective</b>	<i>recent, former, current, future, past, daily, monthly, biannual, daytime, daylong, onetime, ago, pre-season, short-term</i>	<i>early, ahead, next, subsequent, frequent, perpetual, later, contemporary, simultaneous, preceding, previous, existing, modern</i>
<b>Adverb</b>	<i>currently, lately, hourly, daily, monthly, age</i>	<i>earlier, immediately, instantly, forthwith, meanwhile, heretofore, previously, next, beforehand, following, later, soon, shortly, eventually, occasionally, once, still, whenever</i>
<b>Time noun/adverb</b>	<i>now, today, yesterday, tomorrow</i>	
<b>Number</b>	<i>3 (as in "He arrived at 3"), three, fifth (as in "the fifth of June"), Sixties (as in referring to the decade "the Sixties")</i>	
<b>Subordinating conjunction</b>		<i>when, while, as, since, that, now that, as long as, as soon as, sooner than, every time, any time</i>
<b>Preposition</b>		<i>at, on, in, for, over, throughout, during, before, after, since, until</i>

**NOTE:** The same word can have different meanings and even functions, so that the same term can

be a lexical trigger in some contexts and not others. For example, 'now' is a trigger in *We need to leave now* but is not in *Now, don't blame me*.

The extent of a markable expression includes all words and phrases modifying the trigger. Among the possible included expressions are:

Expression Type	Examples <sup>1</sup>
Determiners	<i>the</i> <i>a</i>
Possessives	<i>his future</i>
Adjectives	<i>Next</i> <i>recent</i>
Partitives	<i>Much of the week</i>
Prepositional Phrases	<i>the future of our people</i>

**NOTE:** Prepositions<sup>2</sup> which introduce temporal phrases (e.g., *during 1991*, *after last summer*, *at 5pm*) are **not** included in the extents of these temporal phrases. For a more detailed discussion, see Section 4.2.4.1.1 (“Complex Expressions using Prepositions”) below.

## 2.2 Non-Markable Expressions

Some expressions will look like triggers, but do not express a meaning that can be situated on a timeline. We will not annotate such expressions and will refer to them as *non-markable expressions*. In other words, the ability to orient an expression in time will be definitive in identifying the markable expressions.

A quick summary of time expressions which should **not** be annotated follows<sup>3</sup>.

### MAJOR NON-MARKABLE EXPRESSIONS

Sequencing and ordering expressions (These only vaguely indicate a point in time, or reference some vague duration of time.)	<i>The truth will come out <u>eventually</u>.</i> <i>Iraqi leader Saddam Hussein, <u>meanwhile</u>, sent a message to Russian President Boris Yeltsin.</i> <i>There were signs of potential battles <u>ahead</u>.</i>
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<sup>1</sup> In the present table only, underlining is used to indicate the syntactic constituent being described. If no underlining is present, then the constituent in question is the entire expression.

<sup>2</sup> In the present annotation note only, underlining is used to indicate prepositions.

<sup>3</sup> For the remainder of the present document, underlining will be used to indicate non-markable expressions.

Sequencing and ordering expressions (These only vaguely indicate a point in time, or reference some vague duration of time.)	<i>The truth will come out <u>eventually</u>.</i> <i>Iraqi leader Saddam Hussein, <u>meanwhile</u>, sent a message to Russian President Boris Yeltsin.</i> <i>There were signs of potential battles <u>ahead</u>.</i>
Manner adverbs and adjectives which say how soon or how quickly something is done	<i>Immediately, at once, prompt, momentarily, longstanding</i>
Negatives and references to non-existent times	<i>He wasted <u>no time</u>.</i> <i>You <u>never</u> call me.</i>
Times expressed in relation to some event	<i>Since the beginning of arms control negotiations the day after our meeting</i>
“time” when it means “situation” or “occasion” rather than referring to a time interval	<i>Whatever the Supreme Court decides this <u>time</u>, you say this case could come back before the U.S. Supreme Court again?</i>  <i>Conventional wisdom says that running mates don't make a difference. Each side is hoping next <u>time</u> it will make a difference.</i>
Prepositions and subordinating conjunctions	<i>When, while, since, as soon as, during, before, after, at on, in, for, over, throughout, until</i>
Generic expressions (which do not make reference to a specific time)	<i>I love <u>December</u>.</i> <i><u>Winters</u> are cold here.</i>
Temporal words and phrases in idiomatic expressions	<i>Good <u>morning</u>, the last <u>minute</u>, at the <u>end of the day</u></i>
Bare frequencies (frequency expressions with no time given)	<i>He has been in <u>frequent</u> touch with the Iraqi government.</i> <i><u>Too often</u>, the U.S. takes the heat for dealing with significant issues.</i> <i>April is <u>usually</u> wet.</i>
Proper names and parts of proper names	<i>Have you ever heard of the <u>21st Century Party</u>?</i> <i>I had to read George Orwell's <u>1984</u> in high school.</i>

Of course, some listed triggers can be used in a way that is not taggable (i.e. impossible to relate to a timeline). One such example can be seen in the idiomatic phrase:

*burn the midnight oil*

Subordinating conjunctions (which introduce clauses) and prepositions (which introduce noun

phrases) are never triggers<sup>4</sup>.

**NOTE:** Some adjectives listed above as non-markable are permitted within the extent of a larger markable expression, as in<sup>5</sup>:

*early years*

*the next day*

*hours earlier*

To say that these expressions are non-markable is merely to say that they are not capable of serving as markable triggers on their own. If another word is serving as the trigger, then these expressions are perfectly free to be used within the extent of those annotations.

### 3 Varieties of Temporal Expressions

As a reminder, we will use the square brackets [ and ] to indicate the extents of taggable TIMEX2 elements. If the brackets are omitted, the reader can assume that the extent of the relevant TIMEX2 element covers the entire example.

#### 3.1 Precise Temporal Expressions

A precise temporal expression is one in which you can confidently determine the calendar date, time of day, or duration that is intended. When annotating naturally occurring text and speech, the context of the document should be used to make that determination. We have presented the examples in this subsection according to a variety of subtypes, but the annotator will not be asked to distinguish between them—merely to note that all of these varieties are markable as TIME/DATE expressions in LCTL NE Annotation.

##### 3.1.1 Time-of-day

*The sponsor arrived at [ten minutes to 3].*

*I returned to work at [twelve o'clock January 3, 1984].*

*I am in class until [eleven in the morning].*

*[April 11, 1996 11:13 GMT]*

##### 3.1.2 Date

*The two collaborated closely during the [1994] crisis over Haiti.*

*After an emergency meeting in [November], relations began to improve.*

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<sup>4</sup> In other words, they never appear as the syntactic head of an annotated expression

<sup>5</sup> Here, underlining is used to indicate the expression that is not typically markable. The extent of the expression that is markable is the entire example.

*I was sick [yesterday].*

*Will you come to the [Saturday] picnic in the park?*

*Dancing deteriorated in [the 1960s] into group chaos.*

*The bombing took place on [the second of December].*

### **3.1.3 Age**

*Pope, [40], was released yesterday.*

### **3.1.4 Duration**

*The accounts are paid in full for [the six months ended March 31].*

*He wrapped up a [three-hour] meeting with the Iraqi president in Baghdad [today].*

## **3.2 Fuzzy Temporal Expressions**

Fuzzy temporal expressions are markable expressions that are vague or have imprecise boundaries. We will tag expressions of this sort as well.

*Ann took office [a year ago].*

*The Defense Minister referred to U.N. resolution 425 in a speech [six weeks ago].*

*The king lived [4,000 years ago].*

*They knew about his [recent] order to conduct a search for the body.*

Among other fuzzy expressions are those associated with the following:

- Seasons
- Fiscal years
- Weekends
- Unspecified components of calendar dates and times of day

## **4 Determining the Extent of the Annotations**

Up until now we've left unstated the rules for determining where each temporal expression begins and ends. As has been suggested above, we refer to this feature as the *extent* of the expression.

### **4.1 Lexical Criteria**

When tagged, the full extent of the tag must be one of the following grammatical categories:

<b>Grammatical Category</b>	<b>Examples</b>
Nouns (including Proper Nouns)	<i>today</i> <i>Thursday</i>
Noun Phrases (NP)	<i>the morning</i> <i>Friday night</i> <i>the last two years</i>
Adjectives	<i>current</i> <i>present</i> <i>recent</i>
Adverbs	<i>currently</i> <i>recently</i>
Adjective/Adverb Phrases	<i>half an hour long</i> <i>two weeks ago</i> <i>A [nearly half-hour] waiting time</i>

**NOTE:** The full extent cannot be a prepositional phrase (i.e., in English the expression cannot start with a preposition) or a clause of any type (for example, in English the expression cannot start with a subordinating conjunction). Thus, in the following phrases only the text in brackets will be tagged:

*before [Thursday]*  
*in [the morning]*  
*after the strike ended on [Thursday]*  
*over [the last 2 years]*

Expressions like *around*, *about*, *at least* and *up to* (in the sense of *at most*), function more as modifiers than prepositions, and thus should be included in the extent of the tag.

*The store is expected to open [around July 3].*  
*He was last seen there [about a year ago].*  
*It will take [at least two years].*  
*It can take [up to a week] to recover fully.*

**NOTE:** Never include *until*, *up until*, or *up to* in the sense of “until”:

*Up until [last Thursday] he was expected to return to the team [this year].*

## **4.2 Syntactic Criteria**

The full extent of the tagged expressions includes all pre-modifiers of the time expression, among which are determiners, possessive noun phrases, and all nominal/adjectival pre-modifiers.

*that cold day*  
*the next day*

*late last night*  
*earlier that year*  
*next summer*  
*recent decades*  
*numerous Saturdays*  
*more than a month*  
*no less than 60 days*  
*just a year ago*  
*only one hour long*  
*its own future*  
*the country's future*  
*just a year ago*  
*only one hour long*  
*five years old*  
*a few weeks later*  
*hours earlier*

Note also that in adjective phrases like *a year ago*, *five years old* and *one hour long*, both the adjective and the preceding noun phrase are included within the extent.

**IMPORTANT:** The full extent also includes all post-modifiers of the time expression, among which are adverbs, prepositional phrases, and dependent clauses. For example, all of the following represent markable temporal expressions:

*five days after he came back*  
*the future of our peoples*  
*nearly four decades of experience*  
*months of renewed hostility*  
*a historic day for the European enterprise*  
*the second-best quarter ever*  
*three decades ago*

#### **4.2.1 Appositives**

Apposition is:

*a grammatical construction in which two adjacent nouns or noun phrases having the same referent stand in the same syntactical relation to the rest of a sentence (as the poet and Burns in "a biography of the poet Burns")*

[adapted from Merriam-Webster Online]

The second expression in such a construction is called an *appositive*. An appositive to a temporal expression is included within the extent of the temporal expression. In other words, whenever an apposition is used to as a time expression, the entire construction should be considered its extent.

*I'm a creature of [the 1960s, the days of free love].*

## 4.2.2 Range Expressions

If the text of a temporal range expression has explicit begin and end points, then it is considered a range expression, and the points are tagged separately

*She served as Canada's ambassador to the U.N. from [1992] through [1995].*

We will tag the two points in time separately in such expressions:

*The prime minister's visit is to run [August 6]-[8].<sup>6</sup>*

*The class is [3]-[6 pm today].<sup>7</sup>*

*Dinner is from [five] to [six pm tomorrow].<sup>8</sup>*

*It usually takes [five] to [six years] to complete a project of this scope.<sup>9</sup>*

**NOTE:** In many time expressions some words have been “left out”. That is, the two references are parallel in structure, but words that would have been repeated are dropped. For each of the above examples, the *elided* material has been pointed out in the footnote. In the remainder of the document, the reader will be expected to recognize such *elision* on their own.

## 4.2.3 Conjoined Expressions

Whenever multiple time expressions are mentioned using conjunction or disjunction, we will annotate each expression separately.

*The bug will get fixed between [now] and [Monday morning].*

*The committee will meet on [the eighth], [the twelfth], and [the fifteenth].*

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<sup>6</sup> Here, 8 is used to mean *August 8*.

<sup>7</sup> Here, 3 is used to mean *3pm*.

<sup>8</sup> Here, *five* is used to mean *five pm tomorrow*.

<sup>9</sup> Here, *five* is used to mean *five years*.

Like range expressions, conjoined expressions often involve elision. We will treat them the same way—creating a separate tag for each of the expressions that are conjoined:

*Britain is staying outside the currency union for [at least the next year] or [two].*

*Saddam might play the whole game again [six months] or [a year from now].*

*The office will open in [six] or [eight months].*

*These reports are due on [the first], [third], and [last Friday of each month].*

## 4.2.4 Embedded Expressions

This section contains guidelines for determining whether a text segment that contains more than one hierarchically-related or offset-related temporal element should be assigned one tag or two tags.

### 4.2.4.1 When to Create One Tag

In general, an expression is to be treated as an indivisible syntactic unit (and, therefore as one TIMEX2 expression with a single, unified extent) if:

1. There is no intervening element between temporal terms; and
2. The two terms express values for units that are hierarchically related.

Thus, each of the following expressions represents the full extent of a single TIMEX2 tag:

*[Friday evening]*

*[8:00 p.m.]*

*[Friday Tuesday the 18th]*

*[November 1943]*

*[Fall 1998]*

*[twelve o'clock January 3, 1984]*

*[9 a.m. Friday, October 1, 1999]*

#### 4.2.4.1.1 Complex Expressions using Prepositions

Prepositions introduce syntactically embedded phrases and therefore often also introduce multiple DATE/TIME tags. However, there are five notable exceptions in which you should ignore the preposition and create a single tag for the entire expression:

Exception Description	Examples
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1. The preposition <i>of</i>	<i>the second of December</i> <i>October of 1963</i> <i>summer of 1964</i> <i>the morning of January 31</i> <i>ten of two</i>
2. Partitives and groups	<i>much of the week</i> <i>most of the year</i> <i>all of the year</i> <i>the rest of the year</i> <i>near the end of the year</i> <i>a group of years</i> <i>a string of quarters</i>
3. Prepositions like <i>to, till, after</i> etc. used in expressing Times of Day	<i>ten minutes to three</i> <i>five till eight</i> <i>twenty after twelve</i> <i>half past noon</i>
4. The preposition <i>in</i> in Times of Day	<i>eleven in the morning</i>
5. Prepositions preceded by adjectives such as <i>early, earlier, late,</i> and <i>later,</i> for which there are noun phrase paraphrases.	<i>earlier in the year</i> <i>late on Friday</i> <i>later on Friday</i>

In these situations we tag the outermost expression, including anything within it.

#### ***4.2.4.1.2 Other Complex Expressions with Explicit Embedded Material***

Recall that overlapping or embedded annotations are prohibited in the Named Entity task. As a result, there are a number of complex time expressions that can not be completely annotated.

1. Time-Anchored Expressions. If a temporal expression includes an explicit anchor (i.e., if it explicitly expresses a temporal sequence), there should be no tag on the anchoring phrase contained within the extent of the complete phrase.

*I'm leaving on vacation [two weeks from next Tuesday].*

*A major earthquake struck Los Angeles [three years ago today].*

2. Possessive Constructions. If both the possessive phrase and the phrase that it modifies are temporal expressions, then there should be no tag on the possessive phrase contained within the extent of the complete phrase.

*[This year's summer] was unusually hot.*

3. Pre-Modifier and Head are Both Triggers. When a collocation consists of two triggers that are not hierarchically related temporally, treat it as a compound noun, where the larger term is given a tag, and the pre-modifier(s) is/are not.

*[her September 2 birthday]*

*[the holiday season]*

*[the June 2004 period]*

*[a December 12 deadline]*

*[the April-June period]*

*She worked [a 14-hour day.]*

**NOTE:** The above rule applies to the expressions *twelve o'clock midnight* and *twelve o'clock noon*, which should be tagged as a single extent:

*[twelve o'clock midnight]*

*[twelve o'clock noon]*

#### **4.2.4.2 When to Create Multiple Tags**

In cases other than those described above, temporal phrases that appear in close proximity are tagged as independent phrases. (Note that this guideline also covers range expressions and conjoined expressions, which were discussed above.)

*The concert is at [8:00 p.m.] on [Friday].*

*The concert is [Friday] at [8:00 p.m.]*

*Are you busy [Tuesday] after [12 PM]?*

*I tutored an English student [some Thursdays] in [1998].*

*There were doughnuts at the [8:00] meeting [this morning].*

### **4.3 Punctuation**

Typically, punctuation on the boundaries of the alphanumeric expression is excluded from the extent of the tag, including hyphens, dashes, periods, etc. Punctuation marking abbreviated forms of temporal expressions will serve as the only exception. Some common examples are:

*Chicago ['68] was more than just another in a series of antiwar protests.*

*The concert is [Friday] at [8:00 p.m.]*