Estimated Duration of Events

Annotation Guidelines

Contents

1   Introduction

The aim of this effort is to annotate the range of probable durations of events mentioned in news articles. Ultimately, we will want to be able to extract such implicit temporal information from texts. For example, consider the sentence

The President said the hurricane would not retard the prosecution of the war

We know that the saying takes less time than the hurricane, which takes less time than the war. We would like computers to be able to extract this kind of information. That is, they should be able to determine the most likely bounds for the durations of events from the English descriptions of the events.

There are of course exceptional cases of events with anomalous durations. There have been speeches that lasted for 22 hours, and wars that have lasted for less than that. The aim is not to capture the full range of possibilities, but to capture roughly 80% of the cases, taking context into account.

We consider events a cover term for situations that happen or occur (e.g., killed in the following sample article); we also consider as events those predicates describing states or circumstances in which something obtains or holds true (e.g., on board in the following sample article).(For details on the event types please refer section 3- Annotation categories)

2   How to Annotate

Annotation of a particular article starts by picking the set of probable scenarios of a particular event. We then must annotate the bounds of their upper and lower bounds. The aim of annotation is that the time durations must be with reference to the context and should cover roughly 80% of the possible cases. We do not include very rare cases in the annotations. For example, in the sentence

She said she had seen the dolphin swim.

It is very clear that the duration of the dolphin is swimming is much longer than the duration of the girl is actually seeing it swim. The dolphin began swimming from the time it was born. The girl might not have been around during the entire duration of the dolphin's swimming. Hence we can conclude that the duration of the girl seeing the dolphin is smaller than the duration if the dolphin's actually swimming.

On the other hand it might be quite possible that the girl is the caretaker of the dolphin and has been around from the time the dolphin was born in the zoo. In this case the duration of the dolphin is swimming is the same as the duration of the girl is seeing the dolphin swim. Eg. If the dolphin is 5 months

old, the girl would have been seeing the dolphin swim for the past 5 months. As a result the duration of the girl is seeing and the dolphin's swimming will be the same i.e. 5 months. This is one of the very exceptional cases that we may come accross and has a very low probability of occurance.

We need to capture the event durations of only 80% of the cases. Annotation of the exceptional cases might lead us away from the actual or most probable duration of the occurance of the event. Hence we are not interested in annotating these exceptional cases. In the general case the following would be a very appropriate duration for the sentence:

She **said** [L:10s U:1mi C:8 M:30s] she had **seen** [L:10s U:1h C:8 M:20mi] the dolphin **swim** [L:1d U:1y C:8 M:8mo].

2.1   Two Annotation Strategies

There are two strategies for considering the range of possibilities:

1. Pick the most probable scenario, and annotate its upper and lower bounds.

2. Pick the set of probable scenarios, and annotate the bounds of their upper and lower bounds.

The preferred strategy is *Strategy 2* with the restriction on the context of the article, and cover 80% of the possible cases (i.e., don't include very rare cases!)

For example:

*Qantas' India manager Khursheed Lam [**said**] the airline was [working] closely with the Australian Tourist Commission to [develop] greater [awareness] of Australia in the Indian market. (APW19980213.1320)*

Based on two different possible scenarios, the unquoted "said" event can be either just the utterance of the reporting content, or a summary of a briefing conference. The first scenario gives a very short duration (the utterance takes only several seconds), while the second one gives a longer duration (the briefing conference may take up to one hour). Without further information, we can't decide with much confidence which scenario is the correct one. If we adopt the first Strategy and annotate based on either of the scenarios, it's likely (with around 50% probability) that we did a wrong annotation. However, if we adopt the second Strategy, we can cover both scenarios, and give a wider range for its duration. Since we don't want to cover any very extreme cases, we should be careful not to give a too wide range, i.e. not considering very rare cases like a briefing conference lasting a day.

2.2   The Annotation Form : A Quadruple

The annotation of the estimated duration of events consists of four parts (a quadruple): estimated lower bound duration (L), estimated upper bound duration (U), confidence rate on the lower/upper bounds (C), and the most likely duration of the event (M).

For a given event, the estimated lower and upper bounds should be chosen so that the duration of most commonly seen instances of the event (say, about 80% of all the instances of the event) is covered within the range.

The distribution of duration of specific event types have tails; rare cases occur. Rain storms lasting 15 seconds or 40 days and 40 nights may be possible, but they would be highly unusual. Such highly anomalous durations should NOT be covered by the duration range annotated.

Confidence in judgments of the lower/upper bound durations are rated as a number between 0 to 10, with 10 being the most confident. A low confidence rating for an event may be given if the durations dont seems to be appropriate or it doesnt make sense to have an estimated duration for this event.

Finally, for a given event, the annotator should estimate the mean or the most likely duration for this event. For example, the most likely duration for the event "killed" in the following sample article could be 1 minute.

The confidence rate is on the lower/upper bounds only, not the mean of the most likely duration.

2.3   A sample Annotated Article

The following is a sample annnotated news article. The words in bold are (pre-recognized) events that need to be annotated with their estimated durations. Temporal units used: seconds (s), minutes (mi), hours (h), days(d), weeks (w), months (mo), years (y).

FAMILIES SUE OVER AEROFLOT CRASH DEATHS

The Russian airline Aeroflot has been **hit** [L: 1d, U: 6mo, C: 5, M: 3mo] with a writ for loss and damages, **filed** [L: 1d, U: 6mo, C: 5, M: 3mo] in Hong Kong by the families of seven passengers **killed** [L: 1s, U: 3mi, C: 8, M: 1mi] in an air **crash** [L: 1s, U: 3mi, C: 8, M: 1mi].

All 75 people **on board** [L: 30mi, U: 14h, C: 9, M: 4h] the Aeroflot Airbus **died** [L: 1s, U: 3mi, C: 8, M: 1mi] when it **ploughed** [L: 1s, U: 3mi, C: 8, M:

1mi] into a Siberian mountain in March 1994.

03-27-96.

2.4   Context and Assumptions

The duration of events must be annotated with reference to the context. There is a difference between *watching a movie* and *watching a bird fly*. Though both the events are **watching**, the time durations are very different in both the cases. You might watch a movie for an hour but you can watch a bird fly for just a few minutes before it goes out of sight. Hence the annotated duration is largely dependent on the context of the article. The following subsections will cover this aspect in detail.

2.4.1   Complete Article Understanding

The articles should be annotated in light of the information provided by the entire article and with the knowledge that an ordinary intelligent reader would bring to the article. This means that the entire article should be read before annotating any of it. One might learn in the last paragraph, for example, that *demonstrations* mentioned in the first paragraph lasted three days. That information should be used for annotation.

Another example can be that of a visit of a politician to another country. The average duration of the visit might be a few days, but in the subsequent paragraphs the actual duration of the visit might be mentioned. The utilization of this knowledge is helpful in providing the actual duration of an event rather than guessing what the duration might be.

In the sample article the event crash is not a general crash event, its an air crash even more specifically, the plane ploughed into a mountain. When this knowledge is kept in mind, it would give a more precise judgement of the time duration.

Hence it is very important to have a complete understanding of the article before annotating any of it. Reading the article once gives a rough estimate of the time duration of various events. This knowledge can then be used for annotation of the article.

2.4.2   Arguments of Event Predicate

It is important to take into account the arguments of the event predicate. For example, consider the following two sentences

The president introduced his new Secretary of State to the press corps.

The president introduced his new foreign policy to the press corps.

The event predicate is "introduced". The two arguments are - "the secratary of state" and "the new foreign policy". We know that the first introduction ill be a lot quicker than the second. It is hence important to use that information in making a judgment. Like the word *introduced* there are many other that have different estimated durations with different arguments.

2.4.3   Knowledge required for article annotation

It is probably not fair to use our knowledge of the future when annotating a historical document. For example, an article from the fall of 1990 may talk about the coming war against Iraq. We today know exactly how long that lasted. But you should try to put yourself in the shoes of the 1990 reader of that article, and make your judgment accordingly.

TO BE CHANGED:::::::::Rutu: I think that we can estimate the duration of a war only if we already know the time taken in a war. If we know the time durations of the 1st and the 2nd world war, only then can we estimate the duration of the 3rd world war. So i think that we must take into account the knowledge we have from prior incidences as that is the basis of the annotation. Prior knowledge is the basis of future prediction. If we already know the time taken for a particular event, it seems more appropriate to annotate it as teh same information will be used for annotation of similar events.

2.5   Coreferential Events

Judgments about durations are often made easier by spotting coreferential descriptions of events. If the same demonstrations are mentioned in the first sentence and in a subsequent sentence, they should be given identical duration ranges. Very often they are described with different words, for example, **demonstration** and **rally**. In addition, there are often closely related events, which may not be exactly identical, but which occupy exactly the same span of time.

Following are a few examples:

- *During the [**demonstration**], people [**chanted**] antigovernment slogans. (PRI19980205.2000.1998)*

  In this sentence the "demonstration" and the "chanting" will generally have the same duration.

- *[**Weakened**] oil prices have already [**made**] life [easier]. (CNN19980223.1130.0960)*

  Here the "weakening" and the "making" will have equal durations.

- In the sample article, **killed**, **crash**, **died**, **ploughed** have roughly the same duration range.

Coreferential events might also involve metonymy. In this case the the event is replaced by a noun which acts as the event itself. Metonymy is referring to something by expressing something closely related to it. For Example in " They counted heads.", "heads" is to be interpreted as "people"

The following is an excerpt from an article containing various co related events and a glimpse of metonymy.

EVIDENCE SUGGESTS BOMBINGS ARE RELATED

Live from Atalanta, good evening Lynne Russell, CNN headline news. New evidence is **suggesting** that a series of **bombings** in Atlanta and last month's **explosion** at an Alabama women's clinic might be **related**. Pierre Thomas has the latest. Atlanta nineteen ninety-six. A bomb **blast shocks** the Olympic games. One person is **killed**. January nineteen ninety-seven. Atlanta again. This time a **bomb** at an abortion clinic. More people are **hurt**.

From the above passage it is clear that the time durations for bombings, explosion, blast and bomb are the same. It would be interesting to note here that in the sentence *This time a **bomb** at an abortion clinic.*, the word bomb is used instead of blast. This is an example of metonymy. The identification of such related words and then estimation of their time durations is very important. In the above sentence the word "bomb" refers to "blast". If we fail to notice this, we would wrongly annotate the word bomb which would be time duration for which the bomb exists before blasting. It is thus important to identify the meaning conveyed by the words before annotating them.

More examples:

- *Top Israeli officials [**sent**] strong new [**signals**] Sunday that... (APW19980301.0720)*

- *A costly [**war**] of attrition has been steadily [**claiming**] soldiers' lives. (APW19980301.0720)*

- *If the Lebanese government will [**cooperate**] with us in [**making**] appropriate security arrangements in south Lebanon,... (APW19980301.0720)*

- *The Israeli government has been [**faced**] with a growing grassroots [**movement**] [**calling**] for Israel's unilateral [withdrawal] from Lebanon. (APW19980301.0720)*

- *President Clinton, meantime, [glossed] over stern [warnings] from Moscow on Thursday that US air [**strikes**] against Iraq could [**do**] serious [harm] to relations with the Kremlin. (CNN19980213.2130.0155)*

- *An intense [**manhunt**] conducted by the FBI and the bureau of alcohol, tobacco and firearms [continues] for Rudolph in the wilderness of western north Carolina. And this week, FBI director Louie Freeh [assigned] more agents to the [**search**]. (CNN19980227.2130.0067)*

- *Publicly, they are [unwilling] to [**make**] any sweeping [**assertion**]. (CNN19980227.2130.0067)*

- *Qantas will almost [**double**] its flights between Australia and India by August in the [search] for new markets [untouched] by the crippling Asian financial [crisis]. This [**move**] comes barely a month after... (APW19980213.1320)*

3   Considerations and Event Categories

In doing our preliminary annotation, a number of considerations and problematic cases have arisen. The following section will discuss these issues.

3.1   Aspectual Events

Aspectual events are ones that describe some aspect of a larger event, such as its start or finish. One could consider these instantaneous. That is, consider the following sentence

*Three men **entered** the laundromat.*

We could want to say that there was an instant at which the third man crossed the threshhold, and that counts as the entering. However, we can convert the sentence to the progressive and see that it happens across some interval.

*A shot rang out as three men were **entering** the laundromat.*

The action of entering involves reaching for the door, pushing or pulling it open, walking through it, and so on. All this takes time. You should annotate aspectual verbs as this kind of extended action, because this will give us more information on typical durations than simply assuming such things are instantaneous.

Thus, a **finish** event should be the last sub-event of the interval event of doing something. Similarly, **start** event should be the first sub-event of the interval event of doing something. These subevents will generally not last more than a third of the time of the entire event. It is possible that the first or the last sub-event happens to be an instantaneous event, but generally it will be longer. By converting the verb into progressive form we can get a good estimate of the duration.

Consider the following examples:

- *Linda Sanders, 35, had [**finished**] her [cleaning]. (NYT19980212.0019)*

  Here "finished" refers to the last subevent of doing the laundry. She starts "finishing" the laundry when she enters the last few stages of doing her laundry, say by opening the door of the washing machine and removing the clothes.

- *They just [**started**] [firing]. (NYT19980212.0019)*

  It probably takes about one second to pull the trigger for the first shot. This would be the duration of the "started" event.

- *Negotiations [**broke**] off at noon on Thursday. (APW19980213.1380)*

  The "broke" event should be the last sub-event of the interval event of the "negotiation", i.e., the back and forth conversation that caused the negotiation to end.

- *General Abacha's supporters [**began**] a two day [rally] in the capital. (VOA19980303.1600.0917)*

  The gathering of people marks the "beginning" of the rally. It generally takes time for a few people to get together to mark the beginning of the rally. It is not possible for a crowd to form instantaneously. A crowd starts forming slowly.

- *75 million copies of the rifle [**entered**] [production]. (APW19980227.0468))*

  Even before the production begins, the rifles will be "entering" production when the preparations for starting the production have commenced. This might involve accumulating the raw material, generating revenue etc.

More examples:

- *Chanting Helmut Kohl must go the unemployed **took** to the streets of the German capital, Berlin, mirroring protests around the country. (PRI19980205.2000.1998)*

  "took" is the first sub-event of the "going on the street" event.

- *An American leader of a U.N. weapons inspection team [**resumed**] [work] in Iraq Friday. (APW19980306.1001)*

  "resume" is the first sub-event of the "work" event.

- *Iraq [agreed] to [**give**] inspectors full access to eight of Saddam Hussein's presidential palaces. (APW19980306.1001)*

  "give" can be considered as the first sub-event of the "having the full access" event.

- *Palace [inspections] are not [expected] to [**start**] until the new agreement's procedures are in [place]. (APW19980306.1001)*

  "start" is the first sub-event of the "palace inspections" event.

- *U.N. officials in New York on Friday [**finished**] [drafting] the rules, in [consultation] with Iraqi diplomats. (APW19980306.1001)*

  "finish" is the last sub-event of the "drafting" event.

- *General Abacha's supporters [**began**] a two day [rally] in the capital. (VOA19980303.1600.0917)*

  "began" is the first sub-event of the "rally" event.

3.2 Multiple Events

Many occurrences of verbs and other event descriptors refer to multiple events. If the subject or object of a verb is plural, the verb often describes multiple events.

Many people withdrew their money from the bank before it crashed.
John closed out all his bank accounts.

It is not clear whether we should annotate the duration of the individual events or the total duration of all the events, or both. We will accumlate examples to help us decide this issue.

Examples:

- *Israeli Prime Minister Benjamin Netanyahu [says] considerable [gaps] [remain] between Israeli and Palestinian positions before next week's [**talks**] in London. (VOA19980501.1800.0355)*

  In the above sentence, the talks refers to the total duration of all the talks and not one single talk. A single talk might refer to a few hours but "talks" refers to all the talks which might take place over the period of a week or two.

- ***Seventy-five million copies of the rifle*** *have been [**built**] since it [entered] [**production**] in February 1947. (APW19980227.0468)*

  Feng: For this example, we should perhaps only consider the duration of building one copy of the rifle, instead of all the Seventy-five million copies of the rifle. Its also more useful (since it is more likely to appear in other articles) to annotate the event of building one copy of the rifle.

  Rutu: I think it is perhaps more appropriate to annotate the duration for making all the 75 million rifles. The sentence says that 75 millions copies have been built from the year 1947. Hence the sentence itself refers to the manufacturing of the 75 million copies. The duration of building of all the rifles has also been specified in the sentence. It does not seem right to consider the time duration for making one rifle (though that might be more useful).

- ***Nearly 200 Israeli soldiers*** *have been [**killed**][fighting] Hezbollah. (APW19980301.0720)*

  "killed" is a multiple event because its subject ("Nearly 200 Israeli soldiers") is plural.

- *The Maariv newspaper [said] Sunday that Netanyahu's [**comments**] last week were in response to [**signals**] from Syria that it [wants] to [renew] the long-stalled peace [**talks**] between the two countries. (APW19980301.0720)*

- *Mark Potach [says]* ***over four hundred hate groups*** *have been [**identified**]. (VOA19980303.1600.2745)*

  "identified" is a multiple event because its subject ("over four hundred hate groups") is plural.

- *The Federal Bureau of Investigation [says] it [**received**]* ***more than eight thousand*** *[**reports**] of hate group [crimes] last year. (VOA19980303.1600.2745)*

  "received" is a multiple event because its object ("more than eight thousand reports") is plural.

- *Iraq has [**destroyed**] its long-range **missiles** and weapons of mass destruction. (APW19980306.1001)*

  "destroyed" is a multiple event because its object ("missiles") is plural.

- *A bomb [blast] [**shocks**] the Olympic games. (CNN19980227.2130.0067)*

  This is a very interesting multiple event example, since it's not the Olympic games that were shocked, but the people associated with the games (e.g. officials, audience, athletes) that were actually shocked, and this is the reason why it becomes a multiple event (i.e. how long it took to shock so many different kinds of people).

- ***Those plates*** *may have [**come**] from a machine shop in north Carolina. (CNN19980227.2130.0067)*

  "come" is a multiple event because its subject ("Those plates") is plural.

- *The airline has also [cut] all [**flights**] to South Korea. Qantas [plans] daily [**flights**] between Sydney and Bombay, up from the current four [**flights**] a week, to... (APW19980213.1320)*

  In this example, it seems more reasonable to annotate the duration of a single flight, instead of the total duration of all the flights.

3.3 Reporting events

Reporting events are everywhere in the news. They can either be a news reader reporting, or quotes of what someone else has mentioned. There can be situations where the reporting is actually a summarization of a long press conference or the reporting is an elaboration and explanation of the actual event. It is important to identify all these different types of reporting events so that they

can be effectively annotated.

There are various kinds of situations for descriptions of reporting events:

1. **Summary/multiple report** Often when such an event appears in the beginning (first paragraph/sentence) of the news article, it summarizes a long discussion or press conference and should be annotated as a relatively long reporting event. It is very likely to be the summary report of multiple reports for the given news/incident. (Longest reporting events)

   - *A Brooklyn woman who was [watching] her clothes dry in a laundromat was [killed] Thursday evening when two would-be robbers [emptied] their pistols into the store, the police [**said**]. (NYT19980212.0019)*

   In this sentence, everything that the spokesperson (here police) has said is compiled into a single sentence. It is not very likely that the police has actually spoken in a similar manner. As a matter of fact, it is more likely that this is compiled in such a manner by an independent reporter. Hence the saying takes longer than the time taken to say the above sentence.

   - *Sotheby's Holdings Inc., the parent of the auction house Sotheby's, [**said**] its net [loss] for the seasonally slow third quarter [narrowed] from a year earlier on a [leap] in operating revenue.*

   In this case it seems more likely that this is the CEO's press release. The announcement must be supported by various numerical figures as evidence. Hence the time taken to announce is much larger then the actual time taken to quote this sentence.

   More examples (the following examples all appear in the first sentence of a news article):

   - *Israeli Prime Minister Benjamin Netanyahu [**says**] considerable [gaps] [remain] between Israeli and Palestinian positions before next week's [talks] in London. (VOA19980501.1800.0355)*
   - *President Clinton [**says**] he is [committed] to a possible [strike] against Iraq, despite [objections] from other countries. (CNN19980213.2130.0155)*
   - *Tired of being sidelined, Hungarian astronaut Bertalan Farkas is [leaving] for the United States to [start] a new career, he [**said**] Saturday. (APW19980418.0210)*

2. **Quoted report** This is when the reported content is quoted. The duration of the event should be the actual duration of the utterance of the quoted content. These are the shortest type of reporting events. The time

duration can be easily verified by saying the sentence out loud and then timing the duration to say it. A few examples of this kind are as follows.

- *"It [looks] as though they [panicked]," a detective, [speaking] on condition of anonymity, [**said**] of the robbers. (NYT19980212.0019)*

- *"There has been an [increase] in Puerto Rico in this kind of thing and some of these bands of kidnappers are [made] up of foreigners," Toledo [**said**]. (APW19980213.1380)*

- *"This is a new thing...it means that we are [willing] to [talk] today full stop about security," Lubrani [**told**] Israel's Channel One. (APW19980301.0720)*

3. **Single unquoted report** This is when the reporting description occurs without quotes but does not seem to be a summary of a longer reporting event. Its a single reporting event which could be as short as just the duration of the actual utterance of the reporting content (lower bound), and as long as the duration of a briefing/conference (upper bound).

- *The police [**said**] it did not [appear] that anyone else was [injured]. (NYT19980212.0019)*

- *Hernandez was [kidnapped] from his small, neighborhood store in the town of Trujillo Alto at 10 p.m. Wednesday, police [**said**]. (APW19980213.1380)*

In the first sentence, it is stated that the detective thought no one else was injured. If this were a quoted text, it would be said in the same manner. Hence the time duration of the detective saying the sentence is very small. In the second sentence on the other hand, it is quite possible that the sentence was part of a big paragraph where different information was conveyed in different sentences. The location might be mentioned in the introductory statement and the timing and date might be mentioned in the ending statement. Hence the time duration must be marked so that it satisfies that of a quoted statement as well as an unquoted text resembling summarization.

This is how we annotate the single unquoted report. If the sentence is very compact/short, then it's very likely that it's one complete sentence from the speaker's speech, and a short duration should be given; otherwise, if it's a complex and long sentence, then it's more likely to be a summary of parts of or the entire speech, and a longer duration should be given for such case.

3.4 Textual Reporting Events

We have come across various phrases where the reporting is done by a textual reporting agent like a newspaper. This can be expressed in many ways, like "According to the New York Times ... " or "The Wall Street Journal says..."

etc. This phrase appears several times in different articles, and we may need a common rule for annotating it.

Current rule: for textual reporting events, we currently decide to annotate the time of *reading and getting the information* from the textual reporting agents, such as newspapers, books, reports, and letters.

3.4.1   Newspapers, Books, Reports, Letters

Examples:

- *A new report [**says**] there has been a dramatic [rise] in the [growth] of hate groups in the United States over the past year. (VOA19980303.1600.2745)*

- *The Maariv newspaper [**said**] Sunday that Netanyahu's [comments] last week... (APW19980301.0720)*

- *The newspaper, [**quoting**] "secret[reports],"[**said**] Syria had [indicated] its interest... (APW19980301.0720)*

- *The new study written by Mark Potach, who edits the Southern Poverty Law Center's Intelligence Report, [**warns**] that such groups [grew] rapidly last year. (VOA19980303.1600.2745)*

- *Army of god letters [**claim**] [responsibility] for the Atlanta abortion clinic [bombing]. (CNN19980227.2130.0067)*

3.4.2   A special case: [according] to...

Examples are as follows:

- *That [**according**] to the Lundberg survey of ten thousand gas stations nationwide. (CNN19980223.1130.0960)*

- *... Mikhail Kalashnikov, the Russian who [gave] his name to the world's most widely wielded weapon, [**according**] to a news agency [report] Friday. (APW19980227.0468)*

3.5   Action or State?

3.5.1   Passive voice events

States are situations that stay largely the same, such as being dead, being dry, being at peace. Events and actions involve change, including those described by words like "trying", "gave", "production", and "skyrocketed". When we have a passive verb construction, there is an ambiguity about whether we have a state or an event. Consider the following sentence

*Three people were **injured** in the attack.*

Here, there is the event of the attackers injuring the people, and there is the state of them being injured, e.g., they are still in the hospital.

In general we will be interested in the duration of the action rather than the state, but not always. A good test is to imagine a spokesperson announcing this action/state. Would they use the present tense or the past tense. If the present tense, then the state interpretation is appropriate. If the past tense, then the action. For example, it is more natural to say

*A police spokesperson **said**, "Three people were **injured** in the attack."*

than to say

A police spokesperson said, "Three people are injured in the attack."

Thus, we should annotate injured as an action, rather than as a state.

On the other hand consider the following two sentences. It seems more natural to say

*A police spokesperson **said**, "Three people are **dead**."*

rather than

*A police spokesperson **said**, "Three people were **dead**."*

Thus here "dead" refers to the state of being dead. The person cannot live again after dying.

In general, we will want to annotate the passive verb as an action, rather than as a state, unless there are strong signals in the context suggesting that it should be viewed as a state (as shown above in the example).

(**Feng**: with more and more examples, this rule seems not very appropriate)

More examples:

- *Police [discover] [**dismembered**] body of man [**kidnapped**] Wednesday. (APW19980213.1380)*

  We consider "dismembered" and "kidnapped" as action in this example.

- *Police [found] the man's [**dismembered**] and [**decapitated**] body Friday [**wrapped**] in plastic garbage bags. (APW19980213.1380)*

  We consider "dismembered", "decapitated" and "wrapped" as action in this example.

- *However, [**cited**] by District of Columbia traffic police in December for [driving] under the influence of alcohol, Farkas was [**ordered**] home and [**retired**]. (APW19980418.0210)*

  (note:Although cited and ordered can be considered as actions, retired, on the other hand, is problematic.
  Feng: seems more reasonable to be considered as a state.
  Jerry: I read this as the action by his company of retiring Farkas.
  Rutu: I read "retired" as "was retired" which is an action and not a state.)

- *Farkas [set] up an American-Hungarian joint venture [**called**] Orion 1980, manufacturing space-travel related technology. (APW19980418.0210)*

  For this example, it makes more sense to consider called as a state, i.e., being called, instead of an action.

- *Israel was [willing] to [withdraw] from southern Lebanon provided Israel's northern frontier could be [**secured**]. (APW19980301.0720)*

  Jerry: Since "secured" is more like a continuous event, i.e., "to secure a place you have to keep it secured", it seems more reasonable to consider it as a state.
  Rutu: "secured" can be considered as an action, i.e., sending the troops there and clear the place...

- *Israel-Syrian [talks] have been [**cut**] off **for nearly two years**. (APW19980301.0720)*

  Although "cut" itself can be either state or action, the temporal expression "for nearly two years" explicitly tells us it's a state in this example.

- *Mark Potach [says] such members are also intensely [**attracted**] to apocalyptical fantasies. (VOA19980303.1600.2745)*

  The "attracted" in this example seems more reasonable to be considered as a state.

- *An American leader of a U.N. weapons inspection team [resumed] [work] in Iraq Friday, nearly two months **after** his team was effectively [**blocked**]. (APW19980306.1001)*

  Feng: I think "after" in this example is a strong signal that suggests "blocked" is an action, rather than a state. Another similar example would be "he was still very productive **after** he was **retired**." Although "retired" is more often to appear as a state, rather than an action, in this example, it seems more like an action to me, and the reason is that it's in the clause with "after".

- *The Security Council has [said] it will not [lift] the sweeping sanctions [**imposed**] on Iraq after its 1990 [invasion] of Kuwait until... (APW19980306.1001)*

  Jerry and Feng think it's more like an action, but Rutu thinks it's more like a state.

- *This man, Eric Rudolph has **already** been [**charged**] in the Birmingham [bombing]. (CNN19980227.2130.0067)*

  "already" seems to be a signal to suggest that "charged" is an action, rather than a state.

3.5.2   Others

Examples:

- *Kidnappers [kept] their [**promise**] to [kill] a store owner they [took] [hostage] and police [found] the man's [dismembered] and [decapitated] body Friday [wrapped] in plastic garbage bags. (APW19980213.1380)*

  Action: time to make the promise.
  State: how long the promise is kept or valid.
  Currently annotate it as an action.

- *His [**promise**] to [half] unemployment by the year two thousand has now been [abandoned]. (PRI19980205.2000.1998)*

  Another example of the "promise" event.

- *That 1978 [**resolution**] [calls] for Israel's unconditional [withdrawal] from the self-declared security zone it [occupies] in south Lebanon. (APW19980301.0720)*

  Action: time to pass the resolution.
  State: how long the resolution is valid, i.e., the duration of "being a resolution".
  Currently annotate it as a state.

3.6   Thought processes

There are events which deal with thought, feeling , believing, seeming like, looking like, imagining, perceiving, and so on. We can say there are roughly three kinds of thought processes with respect to duration.

1. Short mental stimulus : The time duration for this might vary from a few seconds to a few minutes. This is after the immediate occurrence of the event or a sudden thought. Consider the following sentence

   *I **thought** it looked like a pencil.*

   In this case, there is not much thinking involved. It is an instantaneous thought which comes to mind when you see a pencil. There is no analysis or understanding of the event. Other examples of this might include the following:

*The water **feels** cold.*
*It **looks** like she is angry.*

The coldness of the water is an immediate reaction to the touching of the water and then commenting on the temperature of it. We can make out if somebody is angry or not just by looking at their face.

2. Brief study of the situation : The time duration for a brief study of the situation might range from a few minutes to a few hours. The thoughts here generally evolve after a short analysis of the situation taking some time. You can develop your thoughts only if you already have the required background information. For example,

   *It did not **appear** that anyone else was injured.*

   This is after the immediate scanning of the place and finding no injuries.You cannot make any comments about the injuries of the people till you take some time and check the condition of all the people around. Other examples of this category might include the following

   *He **seems** to be an excellent orator.*
   *It **looks** like she has lost all her money in the burglary.*
   *After that fight I am **sure** he will be fired.*

   You can consider someone to be a good speaker only after you have heard him/her speak. You might not hear the full length of his speach but a few sentences from the speaker can help framing an idea regarding how the speaker talks. You can assert the loss of all the money only after searching around the house and finding no money left after the house has been visited by burglars. You can make a statement that someone was fired only after you have seen the person in the fight and conclude that it is not the kind of behaviour that will be appreciated in a work environment.

3. Detailed analysis with progressing events : This is the longest duration for a thought process and takes from a few days to many years. This kind of thought process is developed by the cumulative analysis of the entire event and is an analysis which is progressing with the occurrence of the events. This will take a long duration to occur. Consider the following example:

   I think that it is a good thing that they 're finally going to be downsizing.

   According to the text this thought is supplemented by facts which are spread not only over the complete period of the downsizing but even before that (the time from when the CEO came to the post). A persons

beliefs are generally in this category as beliefs are created over a period of time, a long duration. Various examples for this category are as shown below:

I ***think*** *the current president will lead the country to prosperity.*

I ***believe*** *in God.*

3.7   Appearance

Verbs like "looks", "seems", and "appears" raise a problem. We will say that the duration of these events depends on the duration of the validity/availability of the evidence that causes one to have some impression at the time. Such an event begins when enough evidence has accumulated for one to make that guess, and it ends when either the evidence is contradicted or certainty is achieved. There is no necessary relation to the duration or time of the event itself. In the sentence,

It appears that the destruction of this city in 2700 B.C. was related to the eruption of the volcano.

The "appearance" lasts from when the archaeologist discovers enough evidence to make the conjecture until the time the conjecture in refuted or confirmed.

Examples:

- *"'It [**looks**] as though they [panicked]," a detective, [speaking] on condition of anonymity, [said] of the robbers. (NYT19980212.0019)*

  The evidence that caused the detective to have the (initial) impression that they panicked should be the initial investigation they did on the incidence, which should be right after the incidence and before the above speech.

- *The police [said] it did not [**appear**] that anyone else was [injured]. (NYT19980212.0019)*

  The police's judgement here is based on the evidence from the immediate scanning of the place and finding no injuries, and it may change if more thorough investigation suggests injures later.

- *Steel plates [recovered] at the Olympic park bombing [**appear**] to [match] those [found] at the abortion clinic [bombing] in Atlanta. (CNN19980227.2130.0067)*

  The evidence for the judgement here is the steels plates matching those found at the bombing, and it will be valid until other plates may be found, and have a better match.

3.8 Events involving negation

Negated events didn't happen, so it may seem strange to specify their duration. But whenever negation is used, there is a certain class of events whose occurrence is being denied. Consider this class, and make a judgment about the likely duration of the events in it. For example, consider the following sentence.

*The police [said] it did **not** [appear] that anyone else was [injured].*

Here the police is not saying that no one else anywhere in the world was injured. They would not be contradicted if told that a boy cut his finger on a knife six blocks from the robbery. This is not in the class of events that is being denied.

This subclass of events can be explained in another fashion. Consider the following sentence

*Police [**gave**] **no** details about the [negotiations] with the kidnappers for the [return] of Hernandez.*

Here the sentence implies that the police *did* give some details about the kidnapping. But in that duration, nothing about the negotiations was mentioned. Hence you are not giving the details of a particular subevent in the time duration in which you actually talk about the event. There is a possibility of talking about the negotiation details of the kidnapping only when you are actually talking about the kidnapping and not while talking about any other topic such as global warming. So the duration of the event "gave no details" is the same as the length of the talk about the kidnapping.

Basically this implies that the negation event is actually negating a subevent of a particular event. If the subevent had taken place it would have taken place in a particular amount of time. But the subevent did not take place. This duration of not taking place is also in a particular interval of time itself as explained above.

Other examples:

- *The [crime] has **not** been [**common**] in this U.S. commonwealth. (APW19980213.1380)*

  The crime can be common or uncommon in a particular area after calcuting the crime rate for a particular time interval. But the time frame remains the same for both the cases.

- *The island has been [**unvisited**] for the past few years.*

  The length of a single visit might be a few days, but the duration for the island being unvisited is a few years.

- *On Friday, Netanyahu [said] he [**had**] "**no** qualms" about [implementing] the U.N. resolution. (APW19980301.0720)*

- ***No one** [**wants**] to [stay] in Lebanon; thus we [think] it [better] to [withdraw]. (APW19980301.0720)*

- *He was [willing] to [withdraw] troops in [exchange] for [guarantees] that Israel would **not** be [**attacked**]. (APW19980301.0720)*

- *Ritter would **not** [**try**] to [visit] any of the eight presidential sites that Baghdad had [placed] off-limits to U.N. weapons inspectors. (APW19980306.1001)*

- *The official Iraqi News Agency, which gives the daily tally of inspections, did **not** [**mention**] Ritter by name. (APW19980306.1001)*

- *Palace [inspections] are **not** [**expected**] to [start] until the new agreement's procedures are in [place]. (APW19980306.1001)*

- *The united states is **not** [**authorized**] to [use] force before [going] to the council. (CNN19980213.2130.0155)*

- *Annan has **no** [trip] [**planned**] so far. (CNN19980213.2130.0155)*

- *And law enforcement sources [say] they **can't** [**ignore**] letters penned under the name army of god. (CNN19980227.2130.0067)*

3.9 Superlative events

Superlative events are the events in an event is compared with a set of similar events. The measure of comparison can be good, bad, intense, quiet, high, low etc. It is not clear how we should annotate the duration of superlative events. It can be one of two things. It can either be the duration of being at the superlative state or it can be the entire duration of the interval of comparison. To explain the two types here is an example.

*Joblessness is now **at its highest level** in Germany since the second world [war].*

Here we can consider the duration to be the period of time in which the joblessness is at its highest level (e.g., being ata certain highest joblessness number, say 15%). On the other hand, we could also say that the entire duration from the second world war to the current time is the period of time in which the joblessness is highest.The argument for the latter position is that for the entire time between 1945 and 1998, the highest level of joblessness was in 1998.
We need to accumulate more examples to decide this issue.

Other examples:

- *Record figures couldn't have [come] at [**a worst time**] for Chancellor Kohl. (PRI19980205.2000.1998)*

- *You are the [**best friend**] I have ever [had].*

3.10 Positive infinite durations

Positive infinite durations are the durations which continue forever once they are started. A few examples are as shown below:

*He is **dead**.*
*The sun **shines**.*

Here the time durations continue for an infinite amount of time. The sun will keep shining, and once dead, a person will always remain dead.

More examples:

- *New evidence is [suggesting] that a series of [bombings] in Atalanta and last month's [explosion] at an Alabama women's clinic might be [**related**]. (CNN19980227.2130.0067)*

  "related" can be considered as a positive infinite duration event, since it's possible that such relationship is valid for ever (if it turns out to be the truth that they are indeed related).

- *Steel plates [recovered] at the Olympic park bombing [appear] to [**match**] those [found] at the abortion clinic [bombing] in Atlanta. (CNN19980227.2130.0067)*

  "match" event can last for ever if they do match.

3.11 Other problematic cases

1. **To Urge**

   - *General Abacha's supporters [began] a two day [rally] in the capital, Abuja, to [**urge**] him to [compete] in this year's election. (VOA19980303.1600.0917)*
     In the above sentence the most probable time duration for urging would be the time taken to hold the rally. As the rally is the medium of urging him to compete the elections.

2. **To make**

   - *[Weakened] oil prices have already [**made**] life [easier] for motorists at the gas pump. (CNN19980223.1130.0960)*
     The duration of "made" in this sentence would most likely be the duration of weakning. As the oil price weakens, it becomes easier and easier for motorists.

3. **Duration of living in a particular location**

4. **Duration of holding a post**

5. **Duration of an establishment**

Rutu: there are various such individual cases which need to combined together to form different categories.

More examples:

- *Ritter would not [**try**] to [visit] any of the eight presidential sites that Baghdad had [placed] off-limits to U.N. weapons inspectors. (APW19980306.1001)*

  "try" is an interesting event. When you "try to do something", normally you don't just try it once. You "keep trying" until either succeed or you finally give up. Then the problem for annotating this event is whether to annotate the total duration of all the "tryings" or just one "trying".

- *Tired of being sidelined, Hungarian astronaut Bertalan Farkas is [**leaving**] for the United States to [start] a new career, he [said] Saturday. (APW19980418.0210)*

  Is this "leaving" event is just like "leave a room", i.e. the time to pack the stuff and get on the plan? Or it's a more abstract "leaving", including the entire time of the preparation (similar examples: "leave a position/life/career...")?

  Since this present progressive tense suggests on-going events, does/should this tense make a difference here?

  Another similar example:

  *Farkas will [**move**] to the company's U.S. headquarters. (APW19980418.0210)*

3.12 Duration judgments inappropriate

There are some events for which it is simply inappropriate to make a duration judgment.

Examples:

- *Thomson, in [**India**] to [talk] to tourism leaders, [said]... (APW19980213.1320)*

  It seems the "in" relation, instead of "India", is the event that the annotator really wanted to mark, but there's no way to mark prepositions as events in the current TimeML annotation schema. (Should allow this?)