

Annotating Events in Catalan

TimeML Annotation Guidelines

(Version TempEval-2010)

Barcelona Media
Technical Report BM 2009-02

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1 Introduction

This document describes the annotation guidelines for marking up instances of event mentions in Catalan text, according to the TimeML language. TimeML (Pustejovsky et al., 2005) is a specification language for events and temporal expressions. It was first developed in 2002 in an extended workshop called TERQAS (Time and Event Recognition for Question Answering Systems),¹ which focussed on the issue of answering temporally based questions regarding events and entities in news articles. In 2003, TimeML was further developed in the context of the TANGO workshop (TimeML Annotation Graphical Organizer).² In addition, TimeML has been consolidated as an international cross-language ISO standard (ISO WD 24617-1:2007), and has been approved as the annotation language for TempEval,

¹<http://www.timeml.org/site/terqas/index.html>

²<http://www.timeml.org/site/tango/index.html>

one of the tasks in the SemEval International Workshop on Semantic Evaluations (Verhagen et al., 2007, 2009).

The current annotation guidelines parallel those for English and Spanish events (see Saurí, Goldberg et al. (2009), Saurí, Batiukova et al. (2009), respectively), while focussing on the specifics of events as expressed in the Catalan language. The annotation process will be split into two sequential subtasks. First, identifying what are the events in text, and then characterizing them with their appropriate attributes (e.g., tense, aspect, or polarity). The structure of the present document reflects this division. Section 2 gives an overview of the notion of event as understood in TimeML. Then, sections 3 and 4 address the issue of **event identification**, laying out first what to annotate as events and then describing how much text to mark up as such –i.e., its extent. Finally, section 5 focuses on the task of **attribute annotation**.

2 Events in TimeML

We use *event* as a cover term for situations that *happen*, *occur*, *hold*, or *take place*. Events can be punctual (1) or last for a period of time (2). We also consider as events those predicates describing *states* or *circumstances* in which something obtains or holds true (3).

- (1) El primer vaixell amb aigua potable de Tarragona **va arribar** dimarts passat.
- (2) Bolvir **explotarà** el jaciment íber més important del Pirineu.
- (3) Encara **esperem** que ens deixin un lloc per al nostre espectacle.

Events may be expressed by means of tensed (4) or untensed verbs (5), nominalizations (6), adjectives (7), or prepositional phrases (8):

- (4) El patronat del temple **va denunciar** que les obres **posaven** en perill l’edifici.
- (5) El govern no vol **assumir** el cost d’**aixecar** les barreres a l’autopista del Maresme.
- (6) L’**homenatge** a Lluís Maria Xirinacs es podrà veure en directe a sis sales de Catalunya.
- (7) Des de la formació es considera **abusiu** el sou de l’alcalde del municipi.
- (8) La direcció tècnica del taller és **a càrrec** de l’empresa Hac Grup.

In the interest of highlighting the point being made, in the sentences above there are “markables” (i.e. elements to be marked up in actual annotation) which here are not shown as tagged. In (6), for instance, neither *es podrà* nor *veure* are annotated. In practice, however, the annotator will mark up **all** markables during actual annotation. This will be true of many additional examples given as this document proceeds.

3 What to annotate as events

The current section details what expressions will be considered as denoting events. Each subsection focuses on a different part of speech: verbs, nouns, adjectives, prepositional phrases, and other constructions. For your convenience, these guidelines are summarized in tables 1 to 3 (appendix A).

3.1 Events denoted by VERBS

In this section and throughout the guidelines, we adopt the nomenclature for Catalan verbal tenses approved by the Institut d'Estudis Catalans (IEC) in 2000. See Pérez Saldanya (2000); Perea (2002). Table 4 in the appendix, extracted from Perea (2002), shows the mapping between this nomenclature and the one more traditionally assumed.

Most verbs express an event, and hence will be marked up as such, including those denoting states. In the examples below, the event-denoting verbs are indicated in bold face:

- (9) a. **És** molt difícil **conciliar** els interessos de l'empresa i **satisfer** les demandes del personal.
b. El jugador de l'Inter **va explicar** que **intentarien privar** d'espais al conjunt blaugrana i que **començar** contra ells els **serviria** per **avaluar-se** com a equip.
c. A nosaltres, que cada any **haguem de canviar** d'espai ens **suposa** unes dificultats extremes a l'hora de **fer** la programació de les activitats.
d. L'incident **registrat** abans-d'ahir a la central nuclear de Cofrents **va ser causat** per un curtcircuit elèctric en una vàlvula del circuit primari.

There are however some verbs that MUST NOT be annotated as events. These are:

1. *Verbs in temporal expressions.* Constructions like *fa un mes* ('a month ago'), *el que queda d'any* (lit. 'what is left from the current year'), *el que va d'any* (lit. 'what is gone of the current year'), or *la setmana que ve* (lit. 'the week that is coming'), are characteristic time expressions in Catalan. The verbs in these expressions (underlined below) will not be tagged as events. Specifically, the constructions to keep in mind are:

- (a) $\left\{ \begin{array}{l} \underline{falten/faltaven/...} \\ \underline{passen/passaven/...} \end{array} \right\} + \text{NP}_{time} + \left\{ \begin{array}{l} \underline{per} \\ \underline{de} \end{array} \right\} + \text{NP}_{time}$
(b) $\underline{fa/feia/farà} + \text{NP}_{time}$
(c) $\text{el que } \left\{ \begin{array}{l} \underline{queda} \\ \underline{segueix} \\ \underline{va} \\ \dots \end{array} \right\} \text{ de + dia/setmana/mes/any/gener...desembre/dilluns...diumenge}$
(d) $\left\{ \begin{array}{l} \underline{el} \\ \underline{la} \end{array} \right\} + \text{dia/setmana/mes/any/gener...desembre/dilluns...diumenge} + \text{que } \underline{ve}$

2. *Auxiliary verbs.* Auxiliary verbs in Catalan are the following:

- **The verb *haver* when used in compound forms (the so-called *temps compostos* in Catalan).** The compound forms par excellence in Catalan involve the auxiliary verb *haver* followed by a main verb in participle form, such as *hem cantat* or *haviem dormit*. See table 6 in the appendix for a complete overview of the regular paradigm of compound forms.
- **The forms in present of indicative of the verb *anar* (i.e., *vaig, vas, va, vam, vau, van*) when used in constructions of periphrastic past.** In Catalan, there are two types of periphrastic past structures:

Periphrastic Past. The auxiliary form is followed by a simple infinitive. For example, *vaig [cantar]*.

Periphrastic Past Anterior. The auxiliary form is followed by a perfect infinitive, as delimited by the square brackets in the example: *vaig [*haver* cantat]*.

Table 6 shows the realizations of this construction in different tenses.

- **The verb *ser* when used in passive constructions.** That is, constructions involving the auxiliary *ser* followed by a main verb in participle form, as in: *seran admirades*, *han estat jutjades*.

In constructions of this type, only the main verb, and not the auxiliary form, will be tagged as event, as underlined in the examples above.

3. *The conjugated form in periphrases expressing aspect progressive.* Catalan has a number of verbal periphrasis involving 2 verbs, sometimes connected by a preposition. Most of these constructions will be treated as introducing 2 independent events. That is, each verb will receive an event tag.

There is, however, one kind of periphrases in which only ONE of the verbal forms will be annotated as event. This is the case of periphrases denoting aspect progressive, also referred to as periphrases of duration or reiteration in the Catalan tradition (see, e.g., Badia i Margarit, 1994).

The main periphrasis conveying this meaning is ‘*estar* + GERUND’, whose complete conjugation is presented in the 4 column of tables 5 and 6 (appendix B.2). A further periphrasis with the same aspectual meaning is ‘*anar* + GERUND’:

$$(10) \left\{ \begin{array}{l} \textit{anar} \\ \textit{estar} \end{array} \right\} + \text{GERUND}$$

In these constructions, only the gerund form will be marked up as event, as underlined below, hence leaving the conjugated form untagged. In a way, we are considering the

conjugated element as the auxiliary, and the gerundive form as its main verb.³

- (11) a. Durant tot aquell mes, **va anar mirant** condicions d'hipoteques.
b. Actualment, Caixa Sabadell, Caixa Terrassa i Caixa Manlleu **estan negociant** aspectes de la fusió com la reestructuració de plantilla.

3.2 Events denoted by NOUNS

Nouns expressing an event can appear in at least two of the contexts listed below. Use them in order to determine whether a given noun denotes an event.

- NOUN *va durar alguns/pocs/força/bastants minuts/dies/...*
- NOUN *va ser immediat/instantani/molt ràpid/...*
- NOUN *va tenir/té/tindrà lloc* TEMPORAL EXPRESSION
- NOUN *va començar/continuar/acabar* TEMPORAL EXPRESSION

State-denoting nouns may be harder to identify. In some cases, not even two of the aforementioned contexts apply. For example, properties like *honradesa* ('honesty'), *experiència* ('experience'), or *incompetència* ('incompetence') can only appear in the first context, whereas others are more flexible, especially if they express states that come to existence as a result of a previous process (i.e., the so-called resulting states), or that can change into a different situation, such as *estat de setge* ('siege'), *pau* ('peace'), or *problema* ('problem').

Event-denoting nouns will be marked up according to the following guidelines:

- 1. Functional nouns.** Examples of functional nouns are: *temperatura*, *talla*, *pes*, *població*, *intensitat*, etc. They take an individual as argument (denoting, e.g., a person, physical location, group of individuals, etc.) and return a specific value on an appropriate scale, which can be numeric or not (e.g., *alt*, *baix*; *gran*, *petit*; *calent*, *fred*, etc.).

Functional nouns will be annotated whenever they are accompanied by their value (12) or a value expressing a difference with regard to the previous value (13). As can be appreciated in the examples below, economics terms such as *ingressos* ('income'), *inflació* ('inflation'), or *dèficit* ('deficit') are also functional nouns. Functional nouns to be annotated as events appear underlined, whereas the value-denoting expressions are in bold face.

- (12) a. La reducció d'impostos beneficiarà sobretot a les famílies amb ingressos inferiors **als 2.600.000 pessetes anuals**.
b. Els Pressupostos del 2000 preveuen un creixement del **2,2%** i una inflació del **1,3%**.

³Thus, the inflection information of the conjugated form (tense, aspect, mood, etc.) will be indicated in the tag of the gerundive form. This will be presented in more detail in section 5, on event attributes.

- (13) a. Aquest col·lectiu veurà com la seva tributació en l'impost sobre la renda baixa **una mitjana d'un punt**, del 27% al 26%.
- b. El govern ha previst reduir el dèficit públic en **més d'un bilió de pessetes**.

2. *Sortal states*. Sortal states are generally expressed by:

- Agentive nominals, which tend to be deverbal nouns referring to the agents of certain activities or actions (e.g., *patrocinador*, *guanyador*, *viatger*, *peató*).
- Nouns denoting professions, roles, or positions (e.g., *doctor*, *enginyer*, *ATS*, *investigadora*).
- Rigid designators; that is, terms referring to the same entity in all possible worlds; e.g., *el primer president de la Catalunya republicana*.

These elements will be annotated as events ONLY when functioning as the head of a *predicative complement*. A predicative complement is the complement of a verb (or possibly also, a noun) belonging to one of the classes listed below, among others. In the examples that follow, the sortal noun heading the predicative complement is in bold face, whereas the verbal predicate being complemented is underlined. Both elements will be marked up as events.

- Copulative predicates (e.g., *ser*, *estar*, *semblar*, etc.).

(14) Actualment és **president** honorari de l'empresa.
- Inchoative predicates (e.g., *passar a ser*, *esdevenir*, *convertir-se*). They express the coming to existence of a situation.

(15) L'any 1821, Bolívar es va convertir en el primer **president** de la República de Bolívia.
- Complements of aspectual predicates (e.g., *començar*, *seguir*, *acabar*, etc.).

(16) a. Miralpeix va continuar com a **directora** de l'Escola fins a acabar el seu mandat.
 b. El 1991 va iniciar-se com a **dramaturg** amb La vida perdurable.
- Change of state predicates, that is, any predicate expressing the coming to be or ending of the position expressed by the sortal state, such as *dimitir*, *nomenar*, *elegir*, etc.

(17) a. Aquell mateix any va acceptar el càrrec de **director** de Pont Blau.
 b. El 2004, Raventós va dimitir com a **regidor** i va abandonar el PSC.
- Predicates of evaluation and description (e.g., *considerar*, *descriure*, *presentar*).

(18) a. L'anglès James Cook és considerat avui com un dels més grans **exploradors** de tots els temps.
 b. Emily Dickinson és considerada per alguns com la **creadora** d'una tendència en la poesia contemporània.

3. *Periods from specialized calendars*, including sport seasons, academic courses, agricultural periods, etc. The problem with this kind of events is that they tend to be referred to by expressions carrying a strong temporal meaning, such as:

- *Temporada* ('season'), as in *la temporada futbolística* ('the soccer season').
- *Període, època* ('period', 'epoch'), e.g., *l'època de la collita* ('harvesting time')

We will annotate these expressions as events whenever the season or year does not correspond to the natural partition of the calendar (that is, one of the seasons or a specific year).

- (19) a. Cuba iniciarà l'**any** escolar el primer de setembre amb una situació favorable.
b. El Mataró rebrà l'Igualada en l'últim partit de la **temporada**.

On the other hand, these expressions will be annotated as time expressions when they refer to vague durations. For example:

- (20) a. Durant **una bona temporada**, va presentar signes evidents d'apatia.
b. Aquest crèdit ofereix fons per **un període curt de temps**.

Similarly, academic trimesters, semesters, quadrimesters, business quarters, and fiscal years will be annotated as temporal expressions as well. See the appropriate annotation guidelines document.

4. *Events expressed by means of time expressions*. Some time expressions such as *11-S*, *11-M*, etc., have been recategorized into proper nouns and refer to specific events (in these cases, the terrorist attacks that occurred on September 11th, 2001 and March 11th, 2004, respectively), and not simply to the original date. In TimeML, these expressions will be annotated as **timex3** and not as **events**. Other time expressions that will receive the same treatment are: *Festa de Sant Joan* ('Saint John's Festivity' –note, however, that the term *Festa* here will be tagged as **event**), *Dia internacional de la infància* ('International Day of the Childhood'), and *Primer de maig* ('Labor Day').

5. **The noun 'acord'**, in the construction '*d'acord amb*' ('according to'), introducing a reporting context. For example:

- (21) D'acord amb el que **estableix** el Decret Legislatiu 3/2008, de 25 de juny, ...

Note that this construction can embed an event expressed by either a verb, bold faced in example (86a), or a noun, bold faced in (86b). In addition to *acord*, we will also mark these embedded elements.

- (22) D'acord amb la **reconstrucció** de l'accident, Haider va perdre el control del seu Volkswagen pocs segons després.

In the case of embedded nouns, however, we will be cautious in considering whether they denote events. For instance, *informació* ('information') and *dades* ('data') in (87) will not be annotated as such, since they can be interpreted as information objects. On the other hand, *reconstrucció* in (86b) will be marked up as event.

- (23) a. D'acord amb la **informació** de Telleria, l'aliança va permetre establir un mecanisme de consultes directes.
b. D'acord amb les **dades**, en el cens del 1990 existien 2.065.500 professionals en actiu.

6. *All other event-denoting nouns* will be marked up as events ALWAYS. For example:

- (24) a. Caldria una **inversió** de 3.000 milions per sanejar el **deute** històric acumulat fins ara, l'**excés** de **pagaments** ajornats i la **recapitalització** dels hospitals de l'Institut Català de la Salut.
b. Després d'aquest **intent** de **magnicidi**, que va estar acompanyat d'un altre **atemptat** contra el primer ministre, el Parlament de l'antiga colònia portuguesa va aprovar la **declaració d'estat de setge** i un **toc de queda** per un període inicial de 48 hores.
c. Va descriure aquella **experiència** com un **malson**.

We recommend annotators to use table 1 and 3 (in appendix A) for a general overview of these conditions during the annotation process.

3.3 Events denoted by ADJECTIVES

Adjectives generally express a property or attribute of an entity, and as such, we consider them as denoting an event of a stative nature. Adjectives can appear in attributive or predicative positions.

Attributive adjectives. They function as pre- or post-modifiers of the noun:

- (25) a. reacció **madura**
b. ambient **insuportable**
c. militars **culpables**
d. **fallit** cop d'estat

Predicative adjectives. They can appear in three main contexts.

- As the predicative complement of a verb belonging to one of the types listed below, among others (refer to table 3 in appendix A).
 - Copulative and pseudo-copulative predicates (e.g., *ser*, *estar*, *semblar*, etc.).
- (26) Semblaven **disposats** a revisar les relacions de la metròpoli amb les Índies.

The adjective is considered predicative even if the copulative predicate has been ellided, as is the case of *netes* and *seques* below. This applies to all types of verbs presented here.

(27) La roba ja estava planxada i les cassoles **netes** i **seques**.

- Inchoative predicates (e.g., *passar a ser*, *esdevenir*, *resultar*). They express the coming to existence of a situation.

(28) Aviat esdevingueren extraordinàriament **abundants**.

- Aspectual predicates (e.g., *començar*, *seguir*, *continuar*, *acabar*, etc.).

(29) Motta i Gio continuen **malalts** i Oleguer podria ser baixa.

- Causative predicates (e.g., *fer*, *deixar*, etc.).

(30) La crítica que van rebre els va fer molt **contents**.

- Change of state predicates in general.
- Predicates of perception (e.g., *veure*, *sentir*, etc.).

(31) Se'ls veia agradablement **sorpresos**.

- Predicates of evaluation and description (e.g., *considerar*, *descriure*, *presentar*, *caracteritzar*, *trobar (que)*, etc.). Predicates of perception (e.g., *veure*) may sometimes be used to express evaluation as well.

(32) CC.OO. considera **abusiu** l'augment del 6,28% a les tarifes de Rodalies.

- As the predicative complement of an argument of the main verb, such as: the subject (33a), direct object (33b), or even adverbial complements (33c).

(33) a. En Pep i en Joan es van casar molt **contents**.

b. Li feia fàstic deixar les paelles **olioses**.

c. Van entrar a la sala amb les sabates **brutes** de fang.

- As the head in verbless clauses that are placed, generally between commas, after the noun they modify. For example:

(34) Els pescadors, [**molestos** per la regeneració de les platges] , demanaran compensacions econòmiques.

When annotating adjectives, the following guidelines apply:

1. **Attributive adjectives.** Adjectives in attributive position will be marked up as event only if they denote modal values of possibility (e.g., *possible*, *probable*, *improbable*, *capaç*) and necessity (e.g., *cert*, *segur*, *impossible*).

2. Predicative adjectives. We will only annotate as events those predicative adjectives that express a non-persistent property of the entity denoted by the noun.

There are indeed many properties of entities that can be considered as non-persistent. People, for instance, can change their nationality, and cars can be painted into a color different from their original one. According to these considerations, the adjectives *senegalesos* in (35), and *vermell* in (36) would be marked up as events.

(35) Els 75 immigrants rescatats ahir de les pasteras a la deriva son **senegalesos**.

(36) El cotxe de Vin Diesel és **vermell**.

However, we will ONLY annotate those events satisfying at least one of the following conditions:

a. The property they denote is clearly fluid, non-persistent, such as *vermell* in (37) but not in (36).

(37) El responsable europeu es va posar **vermell** i es va queixar de les formes dels governs espanyols i català en tot el procés de gestió de la MAT.

b. The property is presented as temporally bound to a particular point or period of time.

(38) Als anys vuitanta, no passava mai res i l'independentisme era poc més que **testimonial**.

c. The property is presented as the opinion, knowledge, or belief of somebody, or as a matter under discussion; e.g., *senegalesos* in (39) –but not in (35).

(39) El Govern del Senegal sosté que algunos dels que arriben a l'arxipèlag diuen que són **senegalesos** quan realment no ho són.

d. The adjective expresses a modal value of possibility (e.g., *possible*, *probable*) or necessity (*cert*, *segur*).

(40) Sabem que hi ha altres opcions que també són **possibles**.

Some cases may be hard to evaluate. As a general rule, **in case of doubt do NOT annotate** the adjective.

Furthermore, bear in mind that some of the adjectives presented as candidates susceptible to be tagged as events may, in fact, be participles (and thus verbal forms), and not adjectives –e.g., *carregades* in example (41). These should be treated applying the guidelines for verbs. Refer to section 5.1.3 for criteria on how to distinguish between adjectives and participles.

(41) Els anarquistes es van presentar a la reunió amb les armes **carregades**.

We recommend annotators to use tables 1 and 3 (appendix A) for a general overview of the guidelines for adjectives during the annotation process.

3.4 Events denoted by PPs

PPs which denote events will be annotated ONLY in two specific situations:

PPs introduced by the preposition *segons* ('according to') in contexts of report.
For example:

(42) **Segons l'OMS**, més de 200 mil persones moren a l'any a causa del soroll.

This construction parallels the structure *d'acord amb*, seen in the section on nouns (section 3.2). The same situation observed there applies here. That is, *segons* can embed an event expressed by either a verb, underlined in example (43a), or a noun, underlined in (43b). These elements will be marked as events as well.

- (43) a. **Segons** el que s'estableix a la Directiva d'instruments de mercats financers,...
- b. **Segons** la reconstrucció policial, l'empresari va ser segrestat per tres persones el dia 2 de juny.

As in the case of *d'acord amb*, we will be cautious in considering whether the embedded nouns denote events. We will not annotate them if they can clearly be interpreted as expressing an information object, such as *resultats* ('results'), *dades* ('data'), *estadístiques* ('statistics'), etc.

PPs functioning as predicative complements. That is, PPs that are complement of verbs belonging to the types listed below, among others (see Table 3 in appendix A).

- Copulative and pseudo-copulative predicates (e.g., *ser*, *estar*, *semblar*, etc.).
(44) Som a les portes d'unes eleccions vitals.
- Aspectual predicates (e.g., *començar*, *seguir*, *continuar*, *acabar*, *interrompre*, etc.).
(45) Actualment, Marcos i els Zapatistas continuen a la Selva Lacandona.
- Causative predicates (e.g., *deixar*, *causar*, *provocar*, *fer*, etc.).
(46) El discurs va deixar els assistents **sense paraules**.

Note that not all PPs which denote events will have their preposition head tagged as such, but the verb, noun, or adjective head of the complement of that preposition instead, whenever this is the element conveying the event. We mark up the head preposition only *in case the verb, noun, or adjective head within the PP does not denote the event itself*. The following are examples where the element to be tagged as event is the head of the preposition complement (underlined), and not the preposition (bold face). Example (66) illustrates the case for verbs, (67) for nouns, and (68) for adjectives.

- (47) El públic es va quedar [**sense veure** el programa], ja que la BBC no el va emetre mai.
- (48) Les al·lusions a la seva participació en Solidaritat van ser rebudes [**amb aplaudiments** dels eurodiputats].
- (49) Raúl no té el carisma ni l’oratoría del seu germà, tot i que se’l descriu [**com a dur i ortodox**].

Careful, however, with PPs whose complement denotes an event –in particular, in the case of idioms and other frozen expressions. For example, the noun *prova* in the PP ‘*a prova de bomba*’ (50) denotes an event. But this event in itself has not much to do with the event that the whole PP actually expresses, which is the property of stability and robustness of something. Hence, the element to be marked up here is the preposition.

- (50) És una relació [**a** prova de bomba].

Refer to tables 1 and 3 (appendix A) for a general overview of the guidelines for PPs during the annotation process.

3.5 Events denoted by OTHER ELEMENTS

Events can also be referred to by other elements, most typically locative adverbs such as *aquí* and *allà* (51). They will be marked up only when functioning as the head of a predicative complement.

- (51) Som **aquí** per deixar clar al poble de Mèxic i al món que sense llibertat i justícia no hi ha democràcia.

4 Event extents

This section addresses what to mark as the span, or extent, of the event tag. Since events correspond to situations that occur or hold, they describe not only a specific action or state, but include also their participants (who, to whom, etc.), as well as other relevant entities, such as time (when), place (where), etc. However, TimeML adopts a minimalist and highly compositional approach, and thus marks as events only the lexical elements referring to the action or state, disregarding any type of participant or related entity.

4.1 Events expressed by VERBAL CONSTRUCTIONS (sentences, clauses, VPs)

The general rule for events expressed by sentences (52a), clauses (52b), or VPs (52c) is to *annotate only the verbal head of the construction*. In the examples below, the event construction is delimited by square brackets, whereas the extent to mark up is indicated in bold face. Note that the examples may present other event expressions, but this section focuses just on those verbal events delimited by the brackets.

- (52) a. [L'any 2003 es va **tancar** la fàbrica].
 b. [Quan es va **preparar** l'excursió], pràcticament ja no rajava.
 c. Fa 20 anys, el Til Stegmann em va demanar de [**traduir** uns fragments per una publicació].

There is a variety of verbal constructions expressing events. In some of them, the general rule above applies straightforwardly, others need additional guidance. They are covered in what follows.

Simple forms. These include all verbal tenses constituted by one single verbal form, as presented in table 5 (third column) of appendix B.2. The extent tag covers the verbal head (in bold face in the examples below), as stipulated by the general rule.

- (53) a. La Troba Kung-Fu **tocarà** a Nova York.
 b. **Digué** adéu tot **somrient** davant de la càmera.
 c. El Subcomandante Marcos **visità** els colons de Morèlia.

Compound forms. There are two kinds of compound forms in Catalan. Compounds par excellence consist of the auxiliary verb *haver* and the main verb in participle form. For example: *ha cantat*, *havien vingut*, etc. Refer to table 6 in the appendix.

In constructions of this type, the event tag extends only over the verbal head (which corresponds to the participle form). In the following examples, the span of the verbal construction is underlined, whereas the extent of the event tag is marked in bold face.

- (54) a. Un andorrà ha **dirigit** la creació del primer protocol de sistemes de prevenció de la propagació de la Grip A.
 b. Fins ahir eren cinc els ajuntaments que havien **decidit** acompanyar processos com el que es va impulsar al poble maresmenc.
 c. Si m'ho haguessis **dit** l'hauria **llegit** abans.

The second type of compound structures corresponds to constructions of periphrastic past. These are composed of a form of the verb *anar* ('to go') in present indicative and conjugated in person and number (i.e., *vaig*, *vas*, *va*, *vam*, *van*, *van*), followed by the main verb in infinitive. The main verb can be expressed as an infinitive (simple), resulting in the periphrastic past construction (e.g., *vaig cantar*), or as an infinitive perfect, then resulting in the periphrastic past anterior (e.g., *vaig haver cantat*). As in the previous type of compounds, only the verbal head of the construction will be tagged as event.

- (55) a. Fins ahir eren cinc els ajuntaments que havien decidit acompanyar processos com el que es va **impulsar** al poble maresmenc.
 b. Quan van **haver acabat** la feina al bosc, va **venir** l'hora de pintar el poble.

Passive forms. Constituted of the verbal auxiliary *ser* and the main verb in participle form. Like in the previous constructions, the event tag extends only over the verbal head. For example:

(56) Els cinc agents de la Comissaria de les Corts van ser **suspesos** d'ocupació i de sou.

Verbs with pronominal clitics. Some verbs in Catalan must be conjugated with a reflexive pronoun (e.g., *espavilar-se*, *asseure's*, *casar-se*). When preceding the verb, the reflexive pronoun appears as an independent form or apostrophated to the verb (57). It is annexed (hyphenated or with an apostrophe) to the verb when positioned after it (58). These two phenomena are known as proclisis and enclisis, respectively. In the following examples, the pronoun is in bold face whereas the verb appears underlined.

(57) a. **Es** va espavilar molt quan va passar aquells mesos a Londres.
b. **S'** escrivien cada dia.

(58) a. Cal asseure's d'una manera determinada.
b. Casem-nos l'any que ve.

The same situation happens when the direct object (59) or the indirect object (60) is expressed by means of a pronominal clitic:

(59) a. **El** mesurem bé.
b. Mesurem-lo.

(60) a. No **li** fan mai res.
b. Feu-li lleties per dinar.

When annotating events expressed by verbs with clitics, the tag extent will ideally include ONLY the verbal form, in cases of both proclisis and enclisis –hence, spanning only over the underlined fragments in the examples above. Nevertheless, this may not be possible depending on the annotation tool employed for annotating, or the prior tokenization process of the text.

Idioms. Only the main verbal predicate will be tagged as event, as indicated below in bold face.

(61) a. Al Molar **llencen** la casa per la finestra durant els cinc dies que dura la festa major.
b. Ningú de nosaltres estava disposat a **jugar-s'hi** la pell.

4.2 Events expressed by NPs

As in the case above, the general rule here is to *mark up only the noun head of the NP*. The following situations can be distinguished.

Regular NPs. The event tag extends only over the head noun, disregarding specifiers, complements, or modifiers. In the following examples, the extent of event-denoting NPs is indicated in square brackets, whereas the event-markable expression is in bold face.

- (62) [Les **pressions** d’altre temps per tal que els independentistes de l’esquerra abertzale fessin política] s’han convertit ara en [**prohibicions**].

Note that restricting the event extent to only the NP head does not prevent to annotate several event-denoting nouns belonging to the same NP, as is the case of *balanç* and *eleccions* below. The second noun is the head of its own NP, which is embedded in the PP complement of *balanç*.

- (63) [El **balanç** inicial d’ [aquestes **eleccions**]] és [el **resultat** de tota una estratègia tramada pacientment i que té ben poc de democràtica].

Named events. These are events referred to by proper nouns, such as *la Guerra Civil*, *la Revolució Industrial*, *el 23F*, or *l’11M*. We will mark up only the head noun (i.e., *Guerra*, *Revolució*, *23F*, and *11M* in the previous examples).

Sortal states. As seen earlier, sortal states are generally expressed by (a) agentive nominals (e.g., *guanyador*, *client*, *peató*); (b) nouns denoting professions, roles, or positions (e.g., *metge*, *electricista*, *llauner*, *director general*, *investigador*, *acadèmica*); and (c) rigid designators (e.g., *el primer president de la República de Bolívia*). We will annotate only the head noun of the construction (in bold face below). Recall, however, that not all of them will be marked up (refer to section 3.2).

- (64) a. L’any 1821, Bolívar es va convertir en [el primer **president** de la República de Bolívia].
 b. Miralpeix va continuar com a [**directora** de l’Escola] fins a acabar el seu mandat.

4.3 Events expressed by APs

Like VPs and NPs, *event-denoting APs will have only their head adjective annotated as the event*. In the following sentences, the extent of the AP is indicated by brackets, whereas the markable event is in bold face.

- (65) a. Inicialment es va declarar [**culpable** de quatre dels sis càrrecs a qué s’enfrontava].
 b. Mao Zedong va ser [**responsable** de la mort de més de 70 milions de persones en temps de pau, més que cap altre líder del segle XX].

4.4 Events expressed by PPs

The element tagged as event is *only the preposition head of the PP*.

As already mentioned above, in some PPs the event of interest is conveyed by their embedded complement. This is for instance the case of the PPs marked with brackets in the phrases ‘trobar-se [en una festa]’, and ‘rebre [amb aplaudiments]’, where *guerra* and *conflicto*

are nouns referring to events and thus are the elements to be tagged. The following sentences illustrate this situation for verbal, nominal, and adjectival complements, respectively. They are repeated from an earlier example for the sake of clarity. The underlined element is the expression that will be marked up as event.

(66) El públic es va quedar [**sense** veure el programa], ja que la BBC no el va emetre mai.

(67) Les al·lusions a la seva participació en Solidaritat van ser rebudes [**amb** aplaudiments dels eurodiputats].

(68) Raúl no té el carisma ni l'oratória del seu germà, tot i que se'l descriu [**com a** dur i ortodox].

On the other hand, other PPs do not embed any event-denoting phrase and, given that they appear as predicative complement, they need to be marked up. Only in these situations, the preposition head will receive the event tag, as indicated by the underlining.

(69) a. Sierra Leone autoritza el desembarcament a Freetown de prop de 1.000 fugitius més que eren [**a** bord del Victory Refeer] des de feia més d'una setmana.

b. Actualment, Marcos i els Zapatistes segueixen [**a** la Selva Lacandona].

4.5 Events expressed by OTHER ELEMENTS

Whenever appropriate, the locative adverb will be annotated as event. For example:

(70) Som **aquí** per deixar clar al poble de Mèxic i al món que sense llibertat i justícia no hi ha democràcia.

4.6 Complex event constructions

There are several constructions in Catalan which involve two event expressions. In some cases, both of them are verbs. In others, NPs, APs, and PPs are also involved. For the sake of simplicity, we present all of them together here. The following subsections will provide guidelines on how to mark them up. In order to facilitate their annotation, table 2 (in appendix A) summarizes these guidelines into a convenient chart.

4.6.1 Verbal periphrases

General treatment. Catalan has a number of verbal periphrastic expressions to express semantic nuances of some sort. They involve 2 verbs, sometimes connected by a preposition. In most cases, the second verb corresponds to a non-finite form (i.e., infinitive, participle, or gerund).

(71) a. La imminent victòria d'Allende preocupava a la dreta, que va **acabar votant** al Partit Demòcrata Cristià més que al seu candidat.

- b. Em van **arribar a dir** que no m'haurien de donar suport perquè faig servir Linux.
- c. Els Bombers de la Generalitat van **haver de fer** diverses sortides per retirar arbres caiguts.

Most of these constructions will be treated as introducing 2 independent events. That is, each verb will receive an event tag, which will be annotated following the general guidelines provided above for simple, compound and pronominal forms. In the examples below, the span of the periphrasis is in bold face, the square brackets delimit the two verbal forms, whereas the extent of the event tag is underlined.

- (72) a. La imminent victòria d'Allende preocupava a la dreta, que va **[acabar] [votant]** al Partit Demòcrata Cristià més que al seu candidat.
- b. Em van **[arribar] [a dir]** que no m'haurien de donar suport perquè faig servir Linux.
- c. Els Bombers de la Generalitat van **[haver] [de fer]** diverses sortides per retirar arbres caiguts.

Periphrases expressing aspect progressive. There is, however, one kind of periphrases in which only ONE of the verbal forms will be annotated as event. This is the case of periphrases denoting aspect progressive, also referred to as periphrases of duration or reiteration within the Catalan tradition (e.g., Badia i Margarit, 1994).⁴

The main periphrasis conveying this meaning is '*estar* + GERUND', whose complete conjugation is presented in the 4th column of tables 5 and 6 (appendix B.2). A further periphrasis with the same aspectual meaning is '*anar* + GERUND':

$$(73) \left\{ \begin{array}{l} \textit{anar} \\ \textit{estar} \end{array} \right\} + \text{GERUND}$$

Only the gerund form will be marked up as event, as underlined below, hence leaving the conjugated form untagged.

- (74) a. Durant tot aquell mes, **va anar mirant** condicions d'hipoteques.
- b. Actualment, Caixa Sabadell, Caixa Terrassa i Caixa Manlleu **estan negociant** aspectes de la fusió com la reestructuració de plantilla.

4.6.2 Constructions with predicative complements

These consist of a verb (or noun) belonging to one of the classes listed in table 3 (appendix A) and which have an event-denoting NP (75), AP (76), or PP (77) as complement.

- (75) a. Joan Carles I **és** [el sucesor designat per Franco per a la direcció de l'estat].
- b. El balanç inicial d'aquestes eleccions **és** [el resultat de tota una estratègia tramada pacientment].

- (76) a. L'Olympique de Marsella no **serà** [present a l'Audiència de l'Atlètic de Madrid].

⁴These considerations were already introduced in section 3.1, but are repeated here for completion's sake.

- b. El sector pesquer es **mostrà** [optimista amb les mesures anunciades].
- (77) a. A l'Argentina, les economies regionals **són** [en mans de petits productors].
 b. El discurs va **deixar** els assistents [sense paraules].

In these examples, the main predicate is in bold face, the predicative complement is in square brackets, and the elements to tag as events are underlined. As can be seen, both the verbal predicate and the predicative complement are marked up. All of the involved elements (verb, NPs, APs, or PPs) will be annotated according to the rules specified in the previous sections.

4.6.3 Aspectual constructions

These consist of an aspectual verb (e.g., *començar*, *acabar*, *mantenir*) or noun (*comiençament*, *final*), and an event-denoting complement, which can be expressed by either a VP (78a-b) or an NP (78c). Both the aspectual predicate and its complement will be tagged as independent events (as underlined). Sentences in (78) illustrate cases in which the aspectual predicate is a verb, whereas sentences in (79) exemplify cases involving aspectual nouns.

- (78) a. Argentona ja **ha començat a preparar** la seva consulta independentista.
 b. A principis de març, l'expedició va **acabar de preparar** tots els estris que cal enviar a Kathmandú.
 c. Les comunitats indígenes **continuen a l'espera** d'una solució al desplaçament forçat.
- (79) a. Al **final del partit** hi va haver celebracions de la victòria a la gespa i a la graderia.
 b. L'**inici de la vaga** fou espontani, tot i que més tard s'hi apunteren i li donaren suport militants de CNT, FNC, FNEC i altres.

4.6.4 Light verb constructions

These events involve a verb of very light semantic content (e.g., *fer*, *tenir*, *prendre*, *posar*, *deixar*) and a nominal event acting as its selected complement. In these situations, both the verbal and nominal elements are tagged as independent events (as underlined), given that they both contribute relevant information.

- (80) a. Els jutges **prengueren la decisió** d'illegalitzar Iniciativa Internacionalista la matinada de divendres.
 b. Brunelleschi, doncs, va **fer una contribució** espectacular a l'arquitectura amb els seus enginys i grues.

4.6.5 Causative constructions

Examples of causal predicates are the following verbs, in their causative senses: *causar*, *engendrar*, *fer (que)*, *induir*, *produir*, *resultar*, *tenir com a resultat*, etc. Two different constructions can be distinguished here:

1. **EVENT**_{e₁} *causar*_{e₂} **EVENT**_{e₃}. The causal expression (*e₂*), its logical subject (*e₁*) and its event complement (*e₃*) are tagged as independent events.

(81) El **foc**_{e₁} que causà_{e₂} l' apagada_{e₃} de Barcelona començà a una planta de REE i Endesa.

2. **ENTITY** *causar*_{e₁} **EVENT**_{e₂}. Both the causal expression (*e₁*) and its event complement (*e₂*) are tagged as independent events.

(82) Una rata va causar_{e₁} el **foc**_{e₂} que va arrasar 350 hectàrees.

4.6.6 Constructions with functional nouns

In the following 3 constructions, the functional noun will be marked up as event, together with the main verb of its clause. Some examples are provided below for different types of constructions, where all the markable expressions are underlined. In addition, the functional noun is in bold face and the main verbal predicate of its clause, in italics.

1. **INDIVIDUAL** *tenir un/a* **NOUN**_{functional} *de X*.

The annotated elements are underlined:

- (83) a. Bielorrússia té una **població** de 10 milions d'habitants.
b. Els protons i els neutrons es crearen quan l'univers tenia una **temperatura** de 100.000 milions de graus.

2. **NOUN**_{functional} *ser (de)/estar sobre/... X*.

- (84) a. La **població** de Catalunya està sobre els 7 milions d'habitants.
b. El seu **valor** actual és de 400.000 euros.

3. **NOUN**_{functional} *pujar/baixar/passar/... Z (de X) (a Y)*.

- (85) a. Sis mesos després, el **preu** del petroli baixà un 75%.
b. Agrium Inc. passà d'un **preu** de 112,45 dòlars al juny a 41,61 dòlars en tancar de la jornada d'ahir.

Note that in all these 3 constructions, the annotation guidelines adheres to the guidelines for this type of nouns (established in section 3.2).

4.6.7 Contexts of report introduced by structures like “*d’acord amb*” or ‘*segons*’ (‘according to’).

These construction can embed an event expressed by either a verb, underlined in example (86a), or a noun, underlined in (86b). In addition to *acuerdo*, we will also mark these embedded elements.

- (86) a. D’**acord** amb el que circula als mitjans especializats, “Battle in Seattle” té problemes de distribució als Estats Units.
- b. D’**acord** amb la reconstrucció dels fets i les proves de balística, existeixen greus inconsistències.

In the case of nouns, we will be cautious in considering whether the embedded noun denotes an event. For example, *informació* (‘information’) and *dades* (‘data’), in examples (87), will not be annotated as events, since we will consider they are interpreted as information objects. On the other hand, *reconstrucció* and *proves* (‘tests’) in (86b) will be marked up.

- (87) a. D’**acord** amb la informació de Telleria, l’aliança permetrà establir un mecanisme de consultes creditícies directes.
- b. D’**acord** amb les dades, al cens de 1990 existien 2.065.500 professionals en actiu.

For annotating complex constructions in general, annotators are strongly encouraged to use table 2 in appendix A for guidance.

4.7 Multiword expressions

We consider as multiword expressions the following constructions:

- **Idioms**. For example, *fer-se creus*, *jugar-se la pell* (section 4.1).
- Some **named events** expressed by several lexical items; e.g., *La Guerra Civil Espanyola* (section 4.2).
- Some **sortal states** expressed by several lexical items; e.g., *professora emèrita de matemàtiques* (section 4.2).

The tag extent will comply with the general guidelines for annotating VPs, NPs, APs, and PPs. However, the annotator will indicate that the event is expressed by means of a multiword expression (see the annotation tool manual for further details).

4.8 Expressions referring to several event instances

Some event-denoting expressions refer to two or more instances of the same event type. For example, sentence (88) has only one verb (in bold face) which nevertheless denotes two separate events, each of them anchored to a different temporal expression –i.e., *dilluns* vs. *dimarts*.

(88) Aquesta setmana, en Pep ha **fet** classes el dilluns i el dimarts.

Another example:

(89) En Pep **fa** classes dos cops a la setmana.

In the case of events denoted by nouns, multiple instances can be expressed with the use of plural:

(90) En els últims cinquanta anys, als EUA hi ha hagut diverses **caigudes** del PIB per càpita.

Because there is only one expression, we can introduce only one event tag, even though there is need for more than one event reference. We will mark the event expression following the guidelines just presented for annotating event extents, and then indicate how many event instances the expression is referring to. If the precise number is not clear (for instance, in the case of plural nouns, as in example (90) above), we will write down the comment: `cardinality=plural` –note that it contains no blank spaces, and it is all in lower case. For further details, refer to the annotation tool manual.

5 Event attributes

There are ten different attributes which need to be marked up for event tags when annotating Catalan data. Some of these attributes are shared with other languages, some others are not. English, for example, has the attribute `modality`, which is not employed for Catalan. On the other hand, Romance languages like Catalan, Spanish, and Italian, have the attribute `mood`.

1. Part of speech (`pos`)
2. Verb form (`vform`)
3. Tense
4. Aspect
5. Mood
6. Polarity
7. Class
8. Type
9. Genericity
10. Cardinality

In the current annotation edition (to be used for the TempEval 2010 contest), attributes `type`, `genericity`, and `cardinality` will be disregarded.

The function and possible values for each of the event attributes that are relevant here are laid out in the following subsections. It is worth noticing that the first 5 attributes listed above (`part of speech`, `verb form`, `tense`, `aspect`, and `mood`) reflect grammatical features of the event-denoting expressions. The set of tables in Appendix C provide a complete overview of the values for each of these 5 attributes in the whole verbal (as well as non-verbal) system for Catalan.

5.1 Attribute part of speech (pos)

This attribute captures syntactic distinctions among the expressions that are marked up as events. It can have the following values: **VERB**, **NOUN**, **ADJECTIVE**, **PREP**, **OTHER**, which are distinguished using standard criteria in linguistics. Below, we provide some examples of each part of speech for the sake of guidance:

1. **VERB:** Including both finite and non-finite forms. Sentences in the first example have finite forms signaled in bold face, whereas those in the second illustrate the use of non-finite forms.

(91) a. Els neandertals ja **menjaven** tortugues fa més de 120.000 anys.
b. D'altra banda, s'està **intentant** d'implicar el sector privat en les millores.

(92) a. Va aconseguir un botí d'uns cinc-cents euros i se'n va anar **caminant** tranquil·lament.
b. Millet va voler **tancar** els cors de l'Orfeó Català l'any 2005, **dient** que no hi havia pressupost per **mantenir**-los.

2. **NOUN:** For example:

(93) a. Rússia estén els **atacs** a Geòrgia mentre els EUA asseguren que l'**agressió** no quedarà impune.
b. Als poblats de les ètnies bediks, mandingues i terengues hi ha molta **hospitalitat**, però també han sabut treure **rendiment** de les **visites** dels turistes.

3. **ADJECTIVE:** For example:

(94) a. És una intèrpret consumada, intel·ligent i tremendament independent que de nena va quedar **cega** a causa d'un terrible accident.
b. És **possible** que Miló es refugiés, durant el setge, a Trencianum.

Special attention must be paid to this part of speech. Sometimes, it is hard to distinguish between adjectives and participles. In (95a), for example, the participle *carregades*, conjugated in number and gender, is employed in a typically adjectival context (95b).

(95) a. Els anarquistes es presentaren a la reunió amb les armes **carregades**.
b. Van haver de menjar amb les estovalles **brutes**.

In order to decide whether an element is an adjective or a verb (participle), a dictionary look-up can help. Moreover, there are some tests that can be applied here, such as:

- Adjectives tend to accept the prefix *in-* (or one of its alternative forms: *im-*, *ir-*, *il-*), whereas participles do not:

- (96) a. esperat – inesperat
b. preparat – *impreparat

- Adjectives tend to accept a prenominal position, whereas participles do not:

- (97) a. l'esperat alumne
b. *el preparat alumne

- Some pseudo-copulative verbs (e.g., *tornar-se*, *posar-se*) are only compatible with adjectives, but not with participles:

- (98) a. En Pep es va tornar avorrit.
b. *En Pep es va tornar preparat.

4. **PREPOSITION:** For example:

- (99) a. El públic es va quedar **sense** veure el programa.
b. D'altra banda, la debilitat de la pesseta posa **en** entredit la viabilitat del sistema.

5. **OTHER:** That is, locative adverbs when functioning as the head of a predicative complement.

- (100) a. Som **aquí** per deixar clar al poble de Mèxic i al món que sense llibertat i justícia no hi ha democràcia.
b. Son **allà** des de fa dies.

5.2 Attribute verb form (vform)

The name of this attribute, **vform**, stands for *verb form*. It encodes information of non-finite verbal elements. Its values for annotating Catalan data are:

- **INFINITIVE:** For events in infinitival form, either simple (101) or perfect (102), and belonging to the regular paradigm (examples *a* below) or to the paradigm for periphrases of progression (examples *b*).

- (101) a. **Cantar** es **unir-se** al so de l'univers.
b. Cate Blanchett podria **estar mirant** l'Òscar número 2.

- (102) a. El futur primer ministre belga es disculpà per **haver cantat** la Marsellesa en lloc de l'himne belga.
b. La idea va sorgir per casualitat, després d'**haver estat discutint** sobre diverses propostes.

- **GERUNDIVE:** For gerundive forms, either simple (103), or perfect (104), from both the regular paradigm (examples *a*) or for periphrases of progression (examples *b*). Note that the simple form must not be preceded by the auxiliary *estar* (as in: *estaven cantant*).

(103) a. **Cantant** se'n van les penes.

b. **Estant cantant** tot el dia no se soluciona res.

(104) a. **Havent solucionat** la qüestió plantejada, s'arxiva l'expedient.

b. **Havent estat parlant** tanta estona del tema com heu estat, les coses haurien de ser més fàcils.

- **PARTICIPLE:** For participle forms (105), which cannot be preceded by either the auxiliary *haver* (as in the case of compound verbal forms, e.g., *haver cantat*) or the auxiliary *ser* (for passive constructions, e.g., *essent/sent cantat*).

(105) Hi ha un acord amb el Banc Bilbao Biscaia per a la publicació conjunta de les dades un cop **acabat** l'any 2000.

- **NONE:** For all events expressed by means of a finite verbal form, noun, adjective, preposition, or locative adverbial.

5.3 Attribute tense

The **tense** attribute captures standard distinctions in the grammatical category of verbal tense. In the Catalan system, it can have any of the following values: **PRESENT**, **PAST**, **FUTURE**, **NONE**.

- **PRESENT:** For events expressed by means of a verb conjugated in present. In Catalan, this includes the grammatical tenses listed below. Note that in the case of compound forms, the tense is determined by the conjugation of the auxiliary verb. That is why the forms of, e.g., *perfet d'indicatiu* ('Perfect Indicative'), traditionally referred to as belonging to a past tense (*pretèrit indefinit*, 'Preterite Indefinite') are here treated as denoting present. This principle applies to all compound forms.

Indicative mood:

- Present (e.g., *canto*, *cantes*,...).
- Perfet (e.g., *he cantat*, *has cantat*,...).

Subjunctive mood:

- Present (e.g., *canti*, *cantis*,...).
- Perfet (e.g., *hagi cantat*,...).

- **PAST:** For events expressed by means of a verb conjugated in a past form. In Catalan, this includes the following grammatical tenses:

Indicative mood:

- Imperfet (e.g., *cantava, cantaves, ...*).
- Plusquamperfet (e.g., *havia cantat, havies cantat, ...*).
- Passat simple (e.g., *cantí, cantares, cantà ...*).
- Passat perifràstic (e.g., *va cantar, vas cantar, va cantar, ...*).
- Passat anterior (e.g., *hagué cantat, hagueres cantat, ...*).
- Passat anterior perifràstic (e.g., *va haver cantat, vas haver cantat, ...*).

Subjunctive mood:

- Imperfet (e.g., *cantés, cantessis*).
- Plusquamperfet (e.g., *hagués cantat, haguessis cantat*).
- Passat perifràstic (e.g., *vagi cantar, vagis cantar*).
- Passat anterior perifràstic (e.g., *vagi haver cantat, vagis haver cantat*).

- **FUTURE:** For events expressed by means of a verb conjugated in a future form. In Catalan, this includes the following grammatical tenses:

Indicative mood:

- Futur (e.g., *cantaré, cantaràs,...*).
- Futur perfet (e.g., *hauré cantat, hauràs cantat,...*).

- **NONE:** For events expressed by means of a verb in conditional or imperative mood, a non-finite form (i.e., infinitive, gerund, or participle), or any non-verbal form (i.e., noun, adjective, PP, or locative adverbial).

5.4 Attribute aspect

Capturing standard distinctions in the grammatical category of verbal aspect. In the Catalan system, it can have any of the following values: `IMPERFECTIVE`, `PERFECTIVE`, `IMPERFECTIVE_PROGRESSIVE`, `PERFECTIVE_PROGRESSIVE`, `NONE`.

- **PERFECTIVE:** For events which are presented as completed. They are expressed by means of a verb conjugated in a perfective form (e.g., *perfet, plusquamperfet*, etc.). Refer to the tables in Appendix C to see what are these forms.⁵
- **IMPERFECTIVE:** For events with (unmarked or) imperfective aspect. They are expressed by means of verbs conjugated in, e.g., *present of indicative, imperfet of indicative*, etc.). Refer to Appendix C.

⁵As can be appreciated, TimeML does not distinguish between aspects perfect and perfective, and assumes instead the traditional view which considers aspect perfect as a subtype of aspect perfective.

- **PERFECTIVE_PROGRESSIVE**: For events which are marked for both perfective and progressive. This is the case of periphrases expressing aspect progressive in Catalan (section 4.6.1), when used with the auxiliary form conjugated in a perfective tense. Refer to the tables in Appendix C to review the whole paradigm.
- **IMPERFECTIVE_PROGRESSIVE**: For events which are marked for both imperfective and progressive. Similar to the previous value, this is the case of periphrases expressing aspect progressive, when used with the auxiliary verb conjugated in an imperfective tense. Refer to the tables in Appendix C to review the whole paradigm.
- **NONE**: For those events expressed by means of any non-verbal form (noun, adjective, PP, or locative adverbial), a verb in imperative mood, or a verb in participle. Refer to Appendix C.

5.5 Attribute mood

It captures the grammatical mood of the expression denoting the event. It can have any of the following values: **INDICATIVE**, **SUBJUNCTIVE**, **CONDITIONAL**, **IMPERATIVE**, **NONE**.

- **INDICATIVE**: For events expressed by means of verbal forms in indicative mood.
- **SUBJUNCTIVE**: For events expressed by means of verbal forms in subjunctive mood.
- **CONDITIONAL**: For events expressed by means of verbal forms in conditional mood.
- **IMPERATIVE**: For events expressed by means of verbal forms in imperative mood.
- **NONE**: For events expressed by means of a non-finite verb (infinitive, gerund, participle), or by means of a non-verbal form (noun, adjective, PP, or locative adverbial).

5.6 Attribute polarity

The polarity of an event instance is represented by the boolean attribute **polarity**. **Polarity** should be set to **negative** for event instances which are negated. This should be done for any negative example, such as these below, where the negation of the event in bold face is introduced by different means (underlined).

- (106) a. No **terminaron** el artículo.
 b. Nunca **terminaron** el artículo.
 c. Nadie les **avisó**.

Polarity should be set to **positive** otherwise.

5.7 Attribute modality

It is generally considered that languages like Catalan and Spanish have no distinctive grammatical elements (like modal auxiliaries in English) to mark the modality of the event being expressed. Instead, modality in these languages is expressed by means of subordination constructions involving specific predicates (e.g., *poder* 'be able/be allowed', *haver de* 'have to', *gostar* 'dare', *necessitar*, 'need', etc.) and the item denoting the event at hand. For example:

- (107) *poder jugar* 'be able/allowed to play'
haver de menjar 'have to eat'
necessitar dormir 'need to sleep'

Subordination relations of this kind are annotated in TimeML by means of SLINK (subordination link) tags. This is how it will be done in the current annotation for Catalan. Refer to the appropriate guidelines document for that.

5.8 Attribute class

Each event should be marked up as belonging to one of the following classes:

- Reporting
- Perception
- Aspectual
- I.Action
- I.State
- State
- Occurrence

Note, however, that, due to the polysemous nature of words, the same predicate can often be classified in different ways, depending on the context in which it is used. The following subsections describe each class in detail.

Reporting. Reporting events describe the action of a person or an organization declaring something, narrating an event, informing the addressee(s) about a situation, and so on. Some verbs which express this kind of event are *dir*, *informar*, *comentar*, *explicar*, and *afirmar*. The preposition *segons* when used in contexts of reporting, as in (108c), belongs to this class as well.

- (108) a. Magna **diu** que encara no hi ha cap acord amb General Motors.
b. Les agustines de Terrassa **comentaren** a les de Barcelona que havien rebut una carta d'Argel.
c. **Segons** el portaveu de la Plataforma, el consens social i polític ha permès garantir la preservació d'aquest entorn.

Perception. This class includes events involving the physical perception of another event. Such events are typically expressed by verbs like *veure*, *mirar*, *contemplar*, *observar*, *sentir*, and *escoltar*.

- (109) a. Alguns veïns del centre de Badalona van **veure** l'incendi que es va originar al magatzem de la drogueria centenària.
- b. Tothom va poder **sentir** com l'home cridava ben fort.

Aspectual. In languages such as English and Catalan, there is a grammatical device of aspectual predication for focusing on different parts of the temporal structure of a given event, including the event's beginning, intermediate, or final part. This device consists on a predicate which selects an event as its argument, and points to some structural aspect of the event. Note that this predicate can be either a verb (e.g. *començar*) or a noun (e.g. *començament*). We will classify as aspectual events those predicates expressing:

- Initiation: *començar*, *iniciar*, *posar-se a*, *trencar a*, *originar*, *encetar*.
- Reinitiation: *reiniciar*, *reengegar*, *rellançar* (in its metaphoric sense, as in *rellançar les vendes* or *rellançar l'activitat*).
- Termination: *parar*, *cancel.lar*, *acabar*, *cesar*, *interrompre*, *deixar*, *abandonar*, *bloquejar*, *suspendre*, etc.
- Culmination: *acabar*, *rematar*, *completar*.
- Continuation: *continuar*, *seguir*, *prossequir*, *persistir*, *mantener*, *romandre*, *perseverar*.

In the following examples, the aspectual predicate is in bold face, while its event argument is underlined:

- (110) a. Es va **començar** a construir l'any 1924.
- b. A finals del 2008, s'**acaba** la revisió de les substàncies actives registrades a Europa abans del 1993.

I_Action. I_Action stands for *intensional action*. I_Actions are dynamic events selecting for an event-denoting argument, which must be explicitly present in the text. The label *intension* is used for historical reasons here, and so, currently, I_Actions and I_States actually cover more than what is denoted by *intension*.

The class I_Action compares with classes Reporting, Perception, Aspectual, and I_State (this last one described next) in that all five refer to events that select for a second event as their complement, where this second event is commonly expressed by a subordinated clause, a nominalization, or an untensed VP.

Nevertheless, classes **Reporting**, **Perception**, and **Aspectual** differ from **I_Action** due to their very specific semantics. And **I_Actions** and **I_States** can be distinguished by the fact that the former are dynamic events, whereas the second are stative.

For the most part, the events that should be tagged as **I_Actions** form a closed class. The following list, where **I_Actions** are in bold face and the events they select for are underlined, is representative (but not exhaustive) of the types of events included in this class:

- *Intentar, procurar (de/que), pretendre, lluitar per:*
(111) Diverses ONG envien equips al Pakistan per **intentar** trobar víctimes del terratrèmol.
- *Investigar, indagar, estudiar:*
(112) El Govern **estudiarà** el conflicte entre Iberia i les agències de viatge.
- *Retardar, posposar, ajornar, endarrerir:*
(113) El Parlament Europeu ha aconseguit **endarrerir** fins a la tardor la votació per ratificar el nomenament del conservador Jos Manuel Durao Barroso.
- *Evitar, impedir, prevenir:*
(114) La nevada no ha **impedit** el pas de camions per la frontera.

Explicit performative predicates like some of those exemplified below (e.g., *demanar, exigir, ordenar, autoritzar*, etc.) are also included here.

- *Demanar, ordenar, persuadir, exigir, sol·licitar, pregar, imposar, instar, autoritzar:*
(115) El teatre català tingué dificultats, perquè les autoritats **exigiren** que les obres fossin enviades a Madrid, a censura.
- *Prometre, oferir, assegurar, proposar, acordar, decidir:*
(116) Amb aquesta finalitat, el març del mateix any es va **acordar** de construir l'Hospital de la Santa Creu.
- *Nomenar, proclamar, declarar, designar.*
- *Reivindicar, al·legar, suggerir.*

I_State. **I_State** stands for *intensional state*. Like **I_Actions**, **I_State** events select for an argument expressing any sort of event. Unlike **I_Actions**, however, the **I_State** class is used for events which are states.

Also like **I_Actions**, the event complement selected by **I_States** can be expressed by subordinated clauses (117-118), nominalizations (119), or untensed VPs (120). They appear in square brackets in the following examples:

- (117) La ciutadania **intueix** que la relació de forces no és favorable per a les lògiques aspiracions de la societat catalana.

- (118) **Confiem** que el Parlament escolti la veu dels ciutadans.
- (119) Els gegants d'Olesa **necessiten** una reparació urgent.
- (120) Duran destaca que Solbes hagi estat **incapaç** de concretar la xifra d'inversió pública de l'Estat a Catalunya.

The following list of **I_State** predicates is, once again, representative but not exhaustive.

- *Creure, pensar, sospitar, imaginar, dubtar, sentir, intuir, estar segur, posar en dubte:*
 (121) Els grups ecologistes **sospiten** que la contaminació a Ascó és molt més greu del que es reconeix.
- *Voler, agradar, desitjar, ansiar, cobejar:*
 (122) Els partits catalans celebren la victòria d'Obama i **desitgen** que millori les relacions amb Europa.

Given that all **I_States** necessarily require an event-denoting argument, the predicate *voler* in an example like (123) would NOT be considered an **I_State**.

(123) En Pep **vol** faves amb pèsols.

- *Esperar, aspirar, planejar, idear:*
 (124) Els promotors d'aquesta iniciativa **planegen** [convertir la ciutat en un plató cinematogràfic].
- *Témer, odiar, preocupar-se, tenir por:*
 (125) Els veïns d'aquesta zona **temen** que el pas de l'AVE generi vibracions en passar soterrat pel carrer Mallorca.
- *Necessitar, exigir, requerir.*
- *Estar a punt, estar preparat.*
 (126) El govern francès no estava **preparat** per rebre tanta gent.
- *Ser capaç, ser incapaç.*
 (127) L'oposició acusa el govern d'haver estat **incapaç** d'eliminar la rigidesa de l'economia].

State. States describe *circumstances* in which something obtains or holds true. Note that the class **State** does **not** contain states that have been tagged as **I_States**.

Occurrence. This class includes all of the many other kinds of events that describe something that happens or occurs in the world. Some examples are given as illustration:

- (128) a. Un capità de l'exèrcit ha **llegit** un comunicat per ràdio en el qual s'informa de la **creació** d'un consell nacional.
- b. Amb el bon temps s'han **recuperat** les pasteres cap a les Canàries i ahir al matí van **arribar** al port de l'Estaca.
- c. L'**actuació** dels gestors de la central nuclear d'Ascó en la **gestió** de l'episodi de la **fuita** de partícules radioactives de novembre del 2007 pot haver vulnerat el dret a la seguretat de totes les persones afectades.

5.9 Attribute type

Attribute not applicable for the TempEval 2010 annotation task.

5.10 Attribute genericity

Attribute not applicable for the TempEval 2010 annotation task.

5.11 Attribute cardinality

Attribute not applicable for the TempEval 2010 annotation task.

The cardinality will be indicated as integer, except for cases where the number of events is higher than 10 (129a), or when the context expresses an indefinite number of plural events (129b).

- (129) a. L'any passat, els Bombers de Barcelona van realitzar **16.686 serveis**, **694** menys que el 1999.
- b. Ja hi ha **uns quants incendis** estabilitzats, tot i que continua l'alt risc de foc .

In these situations, the annotators will add the following comment: `event_expression: cardinality=plural`.

A Identifying events and their extents

Event-denoting expressions. Table 1 summarizes the situations in which events can or cannot be marked up as events, classified by part of speech. Code \forall means *in all cases*, code \exists means *only in some cases*, and code \emptyset means *never*. A small comment is added when considered necessary.

Table 1: When to annotate event-denoting expressions.

Construction	Annotate	Comment
Verbs	\exists	Annotate all, except for: (a) verbs in temporal expressions (e.g., <i>fa un dia</i> .) (b) auxiliary verbs, i.e., <i>haver</i> , <i>anar</i> , and <i>ser</i> when used as such. (c) verbs <i>estar</i> and <i>anar</i> in periphrases of progression.
Nouns		
- <i>Functional nouns</i>	\exists	Annotate when they are accompanied by their value, or a value expressing a difference with regard to the previous value.
- <i>Sortal states</i>	\exists	Annotate only when functioning as the head of a predicative complement.
- <i>Specialized calendars</i>	\exists	Annotate when the season does not correspond to a natural partition of the calendar.
- <i>Time expressions recategorized as Proper Nouns</i>	\emptyset	
- <i>The noun 'acord' in the construction 'd'acord amb'</i>	\forall	
- <i>Others</i>	\forall	
Adjectives		
- <i>Attributive adjectives</i>	\exists	Annotate only when expressing epistemic modality (e.g., <i>possible</i> , <i>certa</i> , etc.)
- <i>Predicative adjectives</i>	\exists	Annotate when the adjective expresses a property which is: (a) non-persistent, clearly fluid, or (b) temporally bound to a point in time, or (c) the opinion or knowledge of somebody, or a matter under discussion, or (d) of an epistemic nature (e.g., <i>probable</i>).
PPs		
- <i>PPs introduced by the P "segons" (contexts of report)</i>	\forall	
- <i>Predicative complements</i>	\forall	
- <i>Others</i>	\emptyset	
Locative adverbs		
- <i>Predicative complements</i>	\forall	
- <i>Other</i>	\emptyset	

Complex event constructions. Table 2 lists the different complex constructions identified in section 4.6, and indicates what constituents of these constructions need to be marked up as events, which appear underlined.

Table 2: Complex constructions: What elements to annotate.

Construction	What to annotate	Examples
Verbal periphrases	Both elements are annotated as independent events, except for the following periphrases: – Progressive: $\left\{ \begin{array}{l} \textit{anar} \\ \textit{estar} \end{array} \right\} + \text{GERUND}$	Underlined are the extents of the elements to annotate: $\left\{ \begin{array}{l} \textit{Vaig} \\ \textit{Estic} \end{array} \right\} \textit{analitzant el tema...}$
Constructions with predicative complements	Annotate both: – the verbal predicate – the complement	<u><i>és raonable</i></u> , <u><i>està contenta</i></u> <u><i>és el president</i></u> <u><i>és a bord</i></u> , <u><i>sembla en bones mans</i></u>
Aspectual constructions	Annotate both: – the aspectual predicate – the complement	<u><i>parar d'interferir</i></u> <u><i>començar la construcció</i></u> <u><i>esclatar la guerra</i></u>
Light verb constructions	Annotate both: – the light verb – the nominal complement	<u><i>prendre una decisió</i></u> <u><i>fer un petó</i></u> <u><i>fer conversa</i></u>
Causal constructions	Possible constructions: – EVENT <u><i>causes</i></u> EVENT – ENTITY <u><i>causes</i></u> EVENT	<u><i>Un foc causà l'apagada.</i></u> <u><i>Una rata causà el foc.</i></u>
Functional Nouns	Possible constructions: – $N_{\text{funct}} \left\{ \begin{array}{l} \textit{ser} \\ \textit{estar per sobre/sota} \end{array} \right\} + \textit{de X}$ – ENTITY <u><i>tenir un/a N_{funct} de X</i></u> – $N_{\text{funct}} \textit{canvi-d'estat (X) (PP}_{de}) (PP}_a)$	<u><i>El valor actual és de 300M.</i></u> <u><i>Bielorússia té una població de 10M.</i></u> <u><i>El preu del petroli baixà un 75%.</i></u>
Contexts of report (e.g., <i>según, acuerdo</i>).	Annotate both: – The element introducing the context (e.g., <i>segons</i>) – The embedded verb or noun, if denoting an event.	<u><i>D'acord amb el que circula...</i></u> <u><i>Segons la reconstrucció policial, ...</i></u>

Constructions with predicative complements. Table 3 lists some of the predicate classes that accept predicative complements.

Predicate class	Example
Copulative and semi-copulative	<i>ser, estar, semblar.</i>
Inchoative	<i>passar a ser, esdevenir, convertir-se.</i>
Aspectual	<i>començar, seguir, interrompre, acabar.</i>
Change of state	<i>augmentar, disminuir; dimitir, nomenar.</i>
Causative	<i>causar, fer, convertir.</i>
Evaluation/description	<i>considerar, descriure, presentar, avaluar.</i>
Perception	<i>veure, sentir.</i>

Table 3: Predicative contexts.

B Catalan tense system

B.1 Nomenclature

The nomenclature used here for the system of Catalan tenses is the one currently assumed by the authoritative source of the Institut d'Estudis Catalans (IEC), which was approved in 2000. Refer to Pérez Saldanya (2000, 2002) for a more detailed presentation of this system. Given that it differs somewhat from the nomenclature generally assumed by the Catalan tradition, the table below provides a mapping between the two systems, inspired on an equivalent table in Perea (2002). Furthermore, it indicates what is the English translation assumed here for each of the terms.

Denomination used here (IEC)	Traditional denomination	English translation	Example
Indicative			
Present	Present	Present	<i>canta</i>
Perfet	Pretèrit indefinit	Perfect	<i>ha cantat</i>
Imperfet	Pretèrit imperfet	Imperfect	<i>cantava</i>
Plusquamperfet	Pretèrit plusquamperfet	Pluperfect	<i>havia cantat</i>
Passat simple	Pretèrit perfet simple	Past Simple	<i>cantà</i>
Passat perifràstic	Pretèrit perfet perifràstic	Periphrastic Past	<i>va cantar</i>
Passat anterior	Pretèrit anterior	Past Anterior	<i>hagué cantat</i>
Passat anterior perifràstic	Pretèrit anterior compost	Periphrastic Past Anterior	<i>va haver cantat</i>
Futur	Futur simple	Future	<i>cantarà</i>
Futur perfet	Futur compost	Future Perfect	<i>haurà cantat</i>
Conditional			
Condicional	Condicional simple	Conditional	<i>cantaria</i>
Condicional perfet	Condicional compost	Conditional Perfect	<i>hauria cantat</i>
Subjunctive			
Present	Present	Present	<i>canti</i>
Perfet	Pretèrit perfet	Perfect	<i>hagi cantat</i>
Imperfet	Pretèrit imperfet	Imperfect	<i>cantés</i>
Plusquamperfet	Pretèrit plusquamperfet	Pluperfect	<i>hagués cantat</i>
Passat perifràstic	Pretèrit imperfet perifràstic	Periphrastic Past	<i>vagi cantar</i>
Passat anterior perifràstic	Pretèrit anterior compost	Periphrastic Past Anterior	<i>vagi haver cantat</i>
Imperative			
Imperatiu	Imperatiu	Imperative	<i>canta</i>
Non-finite			
Infinitiu	Infinitiu	Infinitive	<i>cantar</i>
Infinitiu perfet	Infinitiu compost	Infinitive Perfect	<i>haver cantat</i>
Gerundi	Gerundi	Gerund	<i>cantant</i>
Gerundi perfet	Gerundi compost	Gerund Perfect	<i>havent cantat</i>
Participi	Participi	Participle	<i>cantat</i>

Table 4: Nomenclature for Catalan tenses.

B.2 Simple and compound forms

The following tables exemplify simple and compound tenses in Catalan, for both the regular paradigm and the periphrases of progression, which here we have included as part of the general verbal system.

Mood	Tense	Regular Paradigm	Periphrases of Progression
Indicative	Present	<i>canto</i>	<i>estic cantant</i>
	Imperfet	<i>cantava</i>	<i>estava cantant</i>
	Passat simple	<i>cantí</i>	<i>estiguí cantant</i>
	Futur	<i>cantaré</i>	<i>estaré cantant</i>
Conditional	Condicional	<i>cantaria</i>	<i>estaria cantant</i>
Subjunctive	Present	<i>canti</i>	<i>estigui cantant</i>
	Imperfet	<i>cantés</i>	<i>estés cantant</i>
Imperative	Imperatiu	<i>canta</i>	<i>estigues cantant</i>
Non-finite forms	Infinitiu	<i>cantar</i>	<i>estar cantant</i>
	Gerundi	<i>cantant</i>	<i>estant cantant</i>
	Participi	<i>cantat</i>	<i>?estat cantat</i>

Table 5: Simple tenses in Catalan.

Mood	Tense	Regular Paradigm	Periphrases of Progression
Indicative	Perfet	<i>he cantat</i>	<i>he estat cantant</i>
	Plusquamperfet	<i>havia cantat</i>	<i>havia estat cantant</i>
	Passat perifràstic	<i>vaig cantar</i>	<i>vaig estar cantant</i>
	Passat anterior	<i>haguí cantat</i>	<i>haguí estat cantant</i>
	Passat anterior perifràstic	<i>vaig haver cantat</i>	<i>vaig haver estat cantant</i>
	Futur perfet	<i>hauré cantat</i>	<i>hauré estat cantant</i>
Conditional	Condicional perfet	<i>hauria cantat</i>	<i>hauria estat cantant</i>
Subjunctive	Perfet	<i>hagi cantat</i>	<i>hagi estat cantant</i>
	Plusquamperfet	<i>hagués cantat</i>	<i>hagués estat cantant</i>
	Passat perifràstic	<i>vagi cantar</i>	<i>vagi estar cantant</i>
	Passat anterior perifràstic	<i>vagi haver cantat</i>	<i>vagi haver estat cantant</i>
Non-finite forms	Infinitiu perfet	<i>haver cantat</i>	<i>haver estat cantant</i>
	Gerundi perfet	<i>havent cantat</i>	<i>havent estat cantant</i>

Table 6: Compound tenses in Catalan

C Values for attributes `pos`, `vform`, `tense`, `aspect`, and `mood`

The following tables give a complete overview of the values for the attributes `pos`, `vform`, `tense`, `aspect`, and `mood` for each different part of speech.

C.1 Verbal forms

Indicative forms. `pos=VERB`, `vform=NONE`, `mood=INDICATIVE`. Furthermore, attributes `tense` and `aspect` are assigned as follows:

Aspect:	Tense:	PRESENT	PAST	FUTURE
IMPERFECTIVE		Present <i>canta</i>	Imperfet <i>cantava</i>	Futur <i>cantarà</i>
PERFECTIVE		Perfet <i>ha cantat</i>	Plusquamperfet <i>havia cantat</i> Passat simple <i>cantà</i> Passat perifràstic <i>va cantar</i> Passat anterior <i>hagué cantat</i> Passat anterior perifràstic <i>va haver cantat</i>	Futur perfet <i>haurà cantat</i>
IMPERFECTIVE_PROGR.		“Present progressiu” <i>està cantant</i>	“Imperfet progressiu” <i>estava cantant</i>	“Futur progressiu” <i>estarà cantant</i>
PERFECTIVE_PROGR.		“Perfet progressiu” <i>ha estat cantant</i>	“Plusquamperfet progressiu” <i>havia estat cantant</i> “Passat simple progressiu” <i>estigué cantant</i> “Passat perifràstic prog.” <i>va estar cantant</i> “Passat anterior prog.” <i>hagué estat cantant</i> “Passat anterior perifr. prog.” <i>va haver estat cantant</i>	“Futur perfet progr.” <i>haurà estat cantant</i>

Table 7: Indicative mood. Values for attributes `tense` and `aspect`.

Here and in the coming tables, we treat periphrases denoting progressive aspect (those in quotations above) as realizations of specific grammatical tenses, although they are not typically treated as such in the Catalan tradition. We do that taking advantage of the expressivity of TimeML, which was originally created for English, and therefore has the value `PERFECTIVE_PROGRESSIVE` already available for the attribute `aspect`. The progressive-denoting periphrasis are: “*anar/estar + GERUND*”. Their values for `tense` will be assigned according to the conjugation of the auxiliary form (*estar* or *anar*).

Subjunctive forms. pos=VERB, vform=NONE, mood=SUBJUNCTIVE. Furthermore, attributes tense and aspect are assigned as follows:

Aspect:	Tense:	PRESENT	PAST	FUTURE
IMPERFECTIVE		Present <i>canti</i>	Imperfet <i>cantés</i>	
PERFECTIVE		Perfet <i>hagi cantat</i>	Plusquamperfet <i>hagués cantat</i> Passat perifràstic <i>vagi cantar</i> Passat anterior perifràstic <i>vagi haver cantat</i>	
IMPERFECTIVE_PROGR.		“Present progressiu” <i>estigui cantant</i>	“Imperfet progressiu” <i>estés cantant</i>	
PERFECTIVE_PROGR.		“Perfet progressiu” <i>hagi estat cantant</i>	“Plusquamperfet progr.” <i>hagués estat cantant</i> “Passat perifràstic prog.” <i>vagi estar cantant</i> “Passat anterior perifr. prog.” <i>vagi haver estat cantant</i>	

Conditional forms. pos=VERB, vform=NONE, mood=CONDITIONAL.

Conditional forms do not have tense. They can be used to express conditionality in the past, the present, and the future. Instead, the distinction among different conditional forms has to do with aspect. Hence, attributes tense and aspect are assigned as follows:

Aspect:	Tense:	NONE
IMPERFECTIVE		Condicional <i>cantaria</i>
PERFECTIVE		Condicional perfet <i>hauria cantat</i>
IMPERFECTIVE_PROGRESSIVE		“Condicional progressiu” <i>estaria cantant</i>
PERFECTIVE_PROGRESSIVE		“Condicional perfet progressiu” <i>hauria estat cantant</i>

Imperative forms. pos=VERB, vform=NONE, mood=IMPERATIVE. Imperative forms do not have either tense or aspect. Hence:

Aspect:	Tense:	NONE
NONE		<i>canta, canteu</i>

Infinitives. pos=VERB, vform=INFINITIVE, mood=NONE. Like any other non-finite verbal form (i.e., gerunds, participles), infinitives will have the attributes mood and tense set to NONE. Infinitives and gerunds, however, present distinctions concerning aspect.

Aspect:	Tense:	NONE
IMPERFECTIVE		Infinitiu <i>cantar</i>
PERFECTIVE		Infinitiu perfet <i>haver cantat</i>
IMPERFECTIVE_PROGRESSIVE		“Infinitiu progressiu” <i>estar cantant</i>
PERFECTIVE_PROGRESSIVE		“Infinitiu perfet progressiu” <i>haver estat cantant</i>

Gerunds. pos=VERB, vform=GERUNDIVE, mood=NONE. Like any other non-finite verbal form (i.e., infinitives and participles), gerunds will have the attributes mood and tense set to NONE. Gerunds and infinitives, however, present distinctions concerning aspect.

Aspect:	Tense:	NONE
IMPERFECTIVE		Gerundi <i>cantant</i>
PERFECTIVE		Gerundi perfet <i>havent cantat</i>

Participles. pos=VERB, vform=PARTICIPLE, mood=NONE. Like any other non-finite verbal form (i.e., infinitives and gerunds), participles will have the attributes mood and tense set to NONE. Moreover, gerunds do not present any distinction at the aspect level, either.

Aspect:	Tense:	NONE
NONE		Participi <i>cantat</i>

C.2 Non-verbal forms

In the case of events expressed by means of non-verbal forms, only the attribute `part of speech` (`pos`) is not set to `NONE`, as illustrated in what follows.

Nouns:

`pos=NOUN`
`vform=NONE`
`tense=NONE`
`aspect=NONE`
`mood=NONE`

PPs:

`pos=PREPOSITION`
`vform=NONE`
`tense=NONE`
`aspect=NONE`
`mood=NONE`

Adjectives:

`pos=ADJECTIVE`
`vform=NONE`
`tense=NONE`
`aspect=NONE`
`mood=NONE`

Others:

`pos=OTHER`
`vform=NONE`
`tense=NONE`
`aspect=NONE`
`mood=NONE`

D TimeML attributes and values for events in Catalan

Attribute:	Possible values:
Part of speech (pos)	ADJECTIVE NOUN VERB PREP OTHER
Verb form (vform)	INFINITIVE GERUNDIVE PARTICIPLE NONE
Tense	FUTURE PAST PRESENT NONE
Aspect	IMPERFECTIVE PERFECTIVE IMPERFECTIVE_PROGRESSIVE PERFECTIVE_PROGRESSIVE NONE
Mood	INDICATIVE SUBJUNCTIVE CONDITIONAL IMPERATIVE NONE
Polarity	NEG POS
Class	ASPECTUAL PERCEPTION REPORTING I_ACTION I_STATE STATE OCCURRENCE

Acknowledgments. This work has been supported by an EU Marie Curie International Reintegration Grant (PIRG04-GA-2008-239414) to the first author.

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