# Event Semantics and Secondary Predication*

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## 1  Introduction

In this paper we outline the semantics of the class of sentences represented in (1).

(1) a. María arrivó contenta
    *María arrived happy*

   b. María habló dormida
    *María spoke in her dreams*

   c. María escribió la carta nerviosa
    *María wrote the letter nervous*

The term *depictive* is generally used to refer to the secondary predicate that occurs in these sentences —the adjectives *contenta, dormida, nerviosa* in agreement with the subject term. In this paper I adopt this terminology and I shall speak of depictive predicates, predication and sentences. Depictive predication has been discussed in works by several writers including (Green 1970),(Dowty 1972), (Nichols 1978), (Luján 1980), (Rothstein 1985), (Demonte 1988), (Napoli 1989), (Guemann 1990), (Grubig 1992):178, (Larson and Gabriel Segal 1995), (Winkler 1996). I shall, uncontroversially, assume in this paper that each depictive sentence expresses a temporal relation between its primary and its secondary predicate. I shall then show that this temporal relation is closely related to the semantics of temporal *when*-clauses. This was the view exposed by Dowty in the mentioned paper.

This article is organised as follows. Section 2 rehearses the most basic features of Davidson's treatment of adverbial modification. Section 3 presents Dowty's view on depictive predication. The central task of section 4 is to unify the two previous sections. Roughly speaking, the proposal we will develop in this paper casts Dowty's basic intuition within an event-based semantics. We stress in this section the similarity of our theory

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with the semantics for depictive predication developed in (Larson and Gabriel Segal 1995).

The next three sections are of a miscellaneous nature. Section 5 discusses the role of the Spanish imperfective past in the understanding of depictive sentences and its consequences for our semantics. Section 6 addresses the question of the low acceptability of the so-called *ser* adjectives in depictive sentences. We point out that this question is related to the (cross-linguistically attested) low acceptability of individual-level predicates in such sentences.

# 2   Eventualities and Adverbial Adjectives

Davidson's analysis of natural language presupposes the existence of a set of eventualities to which we can refer and in which eventualities variables can be interpreted. (*Eventuality* is the generic term from (Bach 1981) for states, activities, achievements and accomplishments). Verb phrases and adverbials are for Davidson predicates of eventualities. Consider for instance the sentence (2)

(2)  María arrivó rápido
     *María arrived quickly*

In this sentences the adjective *rápido* lacks agreement with the subject and it is interpreted as expressing adverbial modification. In Davidson's view adverbial modification can be interpreted as predication on events. Therefore, a Davisonian representation of (2), in the modified version that has its roots in (Parsons 1985), is (3):

(3)  ∃e (arrivar(e) ∧ Agent(e, maría) ∧ rápido(e))

According to this interpretation (2) means that there is an event of arriving and that the event itself has the property of being a quick event. This is namely the content of the formula in (3).

This representation of the adverbial adjective suggests an analogue representation for depictive sentences. For instance (1a) can be associated with (4):

(4)  ∃e (arrivar(e) ∧ Agent(e, María) ∧ contento( María))

Thus (1a) is taken to mean that there is an event of arriving, that María is the agent of this event and that this agent has the property of being happy. This is namely the content of (4).

The motivation for this paper is the realisation that (4) fails to capture important semantic intuitions concerning depictive predication. There exist, namely, the robust intuition that the depictive predicate modifies the verbal one and not only the agent of the verbal eventuality —such intuition is voiced in (Real Academia de la Lengua 1985) by saying that in depicitive predication 'the adjective expresses a quality or state of the subject but at the same time it expresses an adverbial modification of the verb'.

Larson and Segal have successfully explored a way to improve on (4). There is also an elegant alternative course for achieving the same improving result. This alternative we shall pursue here. Roughly speaking, we assume that

- the temporal relation relevant for depictive predication holds among achievements, accomplishments and activities at the one hand and states at the other hand;

- this temporal relation is temporal inclusion or overlap;

- the Aktionsart of the primary predicate correlates with the nature of the temporal relation involved.

- In *when*-clauses the Aktionsart of the root sentence induces the same temporal relation between root and subordinate clause as it does in depictive sentences.

I shall argue that these facts hook this theory to the proposal in (Dowty 1972). Before outlining the details of our proposal I will present a brief review of Dowty's treatment of depictive predication.

# 3 Dowty's and Depictive Predication

(Dowty 1972) draws attention to the sentence in (5) which is obviously similar to those in (1).

(5) The girl married young

Dowty refers to depictive predicates by the name of *temporally restricted adjectives*. In his view such adjectives behave semantically rather like *when*-clauses. Thus he paraphrases (5) with

(6) The girl married when she was young

The *when*-paraphrase shows that Dowty adopts an adverbial frame interpretation of depictive predicates. The adjective sets the temporal background within which the eventuality corresponding to the verbal predicate takes place.

Dowty's *when*-paraphrase has been rejected for Spanish in (Luján 1980). The author argues that the main limitation of Dowty's proposal lies in its limited range. His proposal does not reach beyond a small class of adjectives that denote temporal properties. For other predicates, she judges, the paraphrase is far from satisfactory. For instance, in her view the a sentences below are not equivalent to the corresponding b sentences:

(7) a. La maestra llegó cansada
*The teacher arrived tired*

b. La maestra llegó cuando estaba cansada
*The teacher arrived when she was tired*

(8) a. Nació ciega
*She was born blind*

b. Nació cuando era ciega
*She was born when she was blind*

Equally skeptical is the commentary of Steven Guemann. In his dissertation (Guemann 1990) accuses Dowty of 'conflating' depictive predicates and adverbials. In Guemann's view, the analysis proposed by Dowty is undermined by its relative low acceptability. There are, in his view, intuitively better *when*-representations than those that conform to Dowty's proposal. So, better *when* representations of (5) and (8) are, respectively, (9a) and (9b):

(9) a. When she married she was young

   b. When she was born she was blind

This observation echoes Dowty's semantic misgivings about his own proposal. I come back to this question in subsection 5.2. For the moment I want to stress that by general agreement there exists a temporal relation between the eventualities involved in depictive predication. The question marks, if any, concern the nature of the temporal relation rather than its existence. Let me illustrate this point with two examples.

1. Bernhard Grubig points out that depictive predication is partially determined by the temporal subordination of the depictive predicate to the primary one and by the fact that the depictive predicate predicates the state of its argument, while the eventuality associated with the main predicate takes place (cf. (Grubig 1992):178).

2. Similarly Violeta Demonte in her (Demonte 1988):3, takes 10b to be the proper paraphrase of 10a.

   (10) a. Juan come la carne mientras está cruda
        *Juan eats the meat while it is raw*

   b. Juan come la carne cruda
      *juan eats the meat raw*

These two examples show partiality for the *while* paraphrase. Guemann's position suggests a preference for the reading in which the main predicate correlates with a *when*-clause. These two positions contrast with the view Dowty defends as far as the nature of the temporal relation involved. The basis fact that there is such a relation goes unchallenged. However, the lack of agreement about the exact nature of the temporal relation expressed calls for a direct semantic interpretation of depictive sentences. This is the task in which we are going to be engaged in the next section.

# 4   An Event Based Semantics

We are now ready to engage in our main task —the outlining of a event based semantics for depictive predication. As I have mentioned before I am interested in temporal relations among eventualities. In particular, I take for granted that two eventualities can be related by temporal inclusion (Notation: $\sqsubseteq$) or temporal overlap (Notation: $\bigcirc$). Thus $e \sqsubseteq e'$ expresses that the eventuality e is temporally included within e'. $e \bigcirc e'$, on the other hand, expresses that the eventualities e and e' temporally overlap.

I shall assume that verbs and verb phrases correspond to predicates of eventualities. Moreover, I shall assume that, characteristically, the eventuality associated with verbs plays a role in the determination of the Aktionsart of sentences. Thus, I shall assume the following classification of the root sentences below:

(11) a. *arrivar* is an achievement predicate and *María arrivó* is an achievement sentence,

b. *hablar* is an activity predicate and *María habló* is an activity sentence, and

c. *escribir una carta* is an accomplishment predicate and *María escribió una carta* is an accomplishment sentence.

Before going on, remember that we treat depictive predication as asserting a relation between two eventualities. Therefore we have to determine to which kind of eventuality adjectives correspond. A look at the literature, shows the existence of a consensus with regard to this matter. (Vendler 1967) adopts the view that adjectives are state words:

> From the point of view of time schemata, being married, being present or absent, healthy or ill, and so on also behave like states. But then we can take one more step and realize that this is true of all qualities. Indeed something is hard, hot, or yellow for a time, yet to be yellow, for instance, does not mean that a process of yellowing is going on. Similarly, although hardening is a process (activity of accomplishment), being hard is a state.

The same intuition is voiced in (Napoli 1989) and (Higginbotham 1985). According to the first author: 'an adjective is always an event word. That is because adjectives denote states (whether stative or active)'.

In this paper I adopt this view: adjectives are eventuality words that denote states. Therefore I assume that the representation of depictive sentences must quantify over the state denoted by the adjective and the eventuality denoted by the primary predicate.

Let us now turn to a closer look at the representation of the sentences in (1).

## 4.1 Achievements and Depictive predication

With regard to (1a), the view I am exposing assumes a semantic player, María, involved in two eventualities:

1. the state of this role player being happy denoted by
   contento(e') $\land$ Agent(e', María) and

2. the accomplishment of this player's arrival denoted by
   arrivar(e) $\land$ Agent(e, María).

These considerations lead by themselves to the following (temporary) representation of (1a):

(12) $\exists e\ e'$(arrivar(e) $\land$ Agent(e, maría) $\land$ contenta(e') $\land$ Agent(e', maría))

However, as I observed earlier, this formula is not good enough. It still lacks the expression of the temporal relation between the eventualities. In our view the inclusion relation yields a representation that captures the content of (1a):

(13)  ∃e e'(arrivar(e) ∧ Agent(e, maría) ∧ contento(e') ∧ Agent(e', maría) ∧ e ⊑ e')

This representation is satisfactory given the facts we want to capture. Our original sentence (1a) is interpreted as asserting the existence of two events with a shared semantic player and the event corresponding to the primary predicate is temporally included in the eventuality corresponding to the depictive predicate.

## 4.2  Activities and depictive predication

Activities are eventualities with the so-called *additivity property*. This means that if e and e' are two adjacent activities with the property P, then the sum of this activities is also an activity with the property P. Consider now the following situation. Yesterday, María spoke for two hours. During the second hour she was tired. In this situation (14) true while (14b) may invite the wrong inferences.

(14)  a.  María habló cansada
          *María talk tired*

      b.  ∃e e'e"(hablar(e) ∧ Agent(e, maría) ∧ cansada(e') ∧ Agent(e', maría) ∧ e ⊑ e')

The point is that (14b) suggests that the whole activity took place while María was tired. Of course, the whole activity does not need to be the witness of this sentence. But there is a strong tendency of taking the whole event and not only one of its proper sub-events as the temporary interpretation of the variable. Let us take a look at another misleading representation. The sentence

(15)  María habló cansada y descansada

is consistent, while the corresponding representation is not:

(16)  ∃e e'e"(hablar(e) ∧ Agent(e, maría) ∧ cansada(e') ∧ Agent(e', maría) ∧ e ⊑ e' ∧
      descansada(e") ∧ Agent(e")', maría ∧ e ⊑ e")

These considerations lead us to believe that temporal overlap is a better choice for the temporal relation we want to establish between the depictive predicates and the activity predicate. Thus, our proposal use the following representations in which overlap takes the place of inclusion.

(17)  a.  ∃e e'e(hablar(e) ∧ Agent(e, a) ∧ dormido(e') ∧ Agent(e', a) ∧ Agent(e', a) ∧
          e○ e')

      b.  ∃e e'e"(hablar(e) ∧ Agent(e, maría) ∧ cansada(e') ∧ Agent(e', maría) ∧ e ○ e'
          ∧ descansada(e") ∧ Agent(e")', maría ∧ e ○ e")

## 4.3   Accomplishments and Depictive Predication

At first sight the account provided for (1a) can be generalised to account for accomplishments. Overlap is in this case too weak because we want the depictive state to span the whole of the accomplishment. *María wrote two letters nervous* has for us the reading in which María was nervous at the inception of the eventuality. Moreover, she must have remained in that state during the process that led to the point in which the eventuality was completed. Prima facie, the formula in (18) captures nicely the meaning of (1b).

(18)   $\exists e \; e'($escribir-dos-cartas$(e) \wedge$ Agent$(e, a) \wedge$ nerviosa$(e') \wedge$ Agent$(e',$ maría$) \wedge e \sqsubseteq e')$

We shall see in subsection 6 that (18) is not the end of the matter. But for the present it will suffice. Let us now give a brief reformulation of our findings so far.

## 4.4   Final Formulation

To conclude this section let us recapitulate what we have done so far as informal conditions on semantic representations. The representation of depicitive sentences must

1. have an eventuality, e, corresponding to the verbal predicate. So the semantic value of a verb V must be something like $\lambda x \exists z( V(z) \wedge$ Agent$(z, x))$,

2. have a state, e', corresponding to the depictive predicate. So the semantic value of the adjective A must be something like $\lambda v \exists u(A(u) \wedge$ Agent$(u, v))$,

3. there must be a level, presumably the VP level, at which the agent arguments of the eventualities are identified and a temporal relation between these two eventualities is asserted:

   $\lambda y \; \lambda \; R \; \exists z \exists u( V(z) \wedge AD(u) \wedge$ Agent$(z, y) \wedge$ Agent$(u, y) \wedge R(z, u))$

4. the combination of this complex predicate with its argument must boil down, via lambda reduction, to the root sentence

   (19)   $\lambda \; R \; \exists e \; e' \; (V(e) \wedge A(e') \wedge$ Agent$(e,a) \wedge$ Agent$(e',a) \wedge R(e, e'))$

5. the further stages in the process make use of a syntactic representation that encodes information about the Aktionsart in whose scope the root sentence occurs. This information will induce an operation that replaces the schematical formula R(e, e') by the relevant temporal relation:

   (a) S(ACHIE) =
      i. $\lambda \; R \; \exists e \; e' \; (V(e) \wedge A(e') \wedge$ Agent$(e,a) \wedge$ Agent$(e',a) \wedge R(e, e'))(\sqsubseteq) =$
      ii. $\exists e \; e' \; (V(e) \wedge A(e') \wedge$ Agent$(e,a) \wedge$ Agent$(e',a) \wedge \sqsubseteq(e, e'))$

   (b) S(ACTI) =
      i. $\lambda \; R \; \exists e \; e' \; (V(e) \wedge A(e') \wedge$ Agent$(e,a) \wedge$ Agent$(e',a) \wedge R(e, e'))(\bigcirc) =$
      ii. $\exists e \; e' \; (V(e) \wedge A(e') \wedge$ Agent$(e,a) \wedge$ Agent$(e',a) \wedge \bigcirc(e, e'))$

(c) S(ACCOM) =

    i. $\lambda$ R $\exists$e e' (V(e) $\wedge$ A(e') $\wedge$ Agent(e,a) $\wedge$ Agent(e',a) $\wedge$ R(e, e'))($\sqsubseteq$) =

    ii. $\exists$e e' (V(e) $\wedge$ A(e') $\wedge$ Agent(e,a) $\wedge$ Agent(e',a) $\wedge$ $\sqsubseteq$(e, e'))

This is as far as I want to go in this paper. The next step is, of course, to outline a syntactic framework that incorporates the previous points. This is something we are not going to address. We shall, instead, turn to the relation between our event based semantics and Dowty's *when*-paraphrase.

# 5 Temporal clauses and depictive predication

In this subsection we argue that Dowty's position on depictive predication is in harmony with the theory outlined above. The claim is that *when*-clauses induce a temporal ordering that coincides with the relations introduced above.

## 5.1 Heinämäki on When

(Heinämäki 1974) gives an analysis of *when*-clauses that proved to be relevant for our purposes: Let B be a durative sentence. Suppose that sentences correspond to intervals. A sentence of the form *A when B* means in Heinämäki's semantics

- if A is an achievement, then the A interval is a subinterval of the B interval

- If A is durativ,e then A and the B interval overlap

- if A is an accomplishment, then the A interval is a subinterval of the B interval

To see the connection between our semantics and Heinämäki's analysis we only need to make a terminological remark. By the expression *durative sentence* Heinämäki refers to a state or an activity sentence. Therefore, letting B to stand for a state sentence, we see that *when*-sentences and depictive predicates induce the same temporal relation. A corollary of this observation is that our semantics of depictive predication coincides with Dowty's approach —provided we assign to *when*-clauses the semantics that Heinämäki proposes.

Of course, Heinämäki's analysis of *when*-clauses is more general that this but we are only interested in cases when which the subordinate clause and the depictive predicate share the same Aktionsart. In the next subsection we comment on one of the points that have led to the rejection of Dowty's paraphrase. We argue there that the existence of two syntactically different paraphrases has no semantic content. Both paraphrases cover the same semantic ground.

## 5.2 The criticism of Dowty's paraphrase

As we mentioned before, it has been claimed that (20a) has the *when*-readings (20b) and (20c):

(20) a. María married young

    b. María married when she was young

    c. When María married she was young

Somehow, the multiplicity of readings has contributed to undermine the acceptability of Dowty's paraphrase. I wish to argue that, modulo Heinämäki's semantics, the two *when*-sentences are equivalent. The argument is this. In Heinämäki's view, (20c) expresses overlap while (20b) expresses inclusion. But for achievements, which are conceptualized as punctual eventualities, overlap and inclusion are the same. Thus, as Dowty himself noticed, the existence of two *when*-readings does not militate against his approach because these two readings are equivalent.

In fact, we can improve on this result. Within the framework of Heinämaki's semantics the following proposition holds:

(21) If B is a state sentence, then the propositions (A when B) and (B when A) are equivalent

To see that this proposition holds, we must expand our comment on Heinämäki's work. In her view,

- If A is an achievement and B is durative, then *B when A* means that the B and the A interval overlap

- If A is an accomplishment and B is durative, then *B when A* means that the A interval is included in the B interval

This assertion is proved by cases.

**A is an activity sentence and B is a state sentence.** The overlap of the A and the B interval corresponds with *A when B* and *B when A*.

**A is an achievement sentence and B is a state sentence** In this case, *A when B* corresponds to the inclusion of A in B. *B when A* , on the other hand, corresponds with overlap. But we have seen that these two relations coincide for achievements.

**A is an accomplishment and B is a state sentence.** In this case *A when B* and *B when A* correspond both to the inclusion of A in B. Q.E.D.

The proposition in (21) shows that the question of the proper *when* paraphrase of depictive sentences is no more than a *Scheinproblem*. There is no semantic discrepancy between the alternatives —given that the depictive predicate corresponds to a state.

## 5.3   Heinämäki on While

We mentioned before that some linguists prefer a *while*-paraphrase above the *when*-paraphrase. In this section we argue that there is, semantically speaking, nothing to separate these paraphrases. In Heinämäki's semantics a sentence of the form *A while B* is well-formed provided that B does not correspond to an achievement (cf (Heinämäki 1974):35). The case in which B corresponds to a state is therefore a special case. The temporal relations induced by these connective are familiar to us:

1. If A is an activity of achievement, then  *A while B*  means that the A and the B interval temporally overlap.

2. If A is an accomplishment, then  *A while B*  means that the A interval is temporally included in the B interval.

It is then clear that the temporal relations induced by the *when* and the *while* paraphrases coincide within the framework of Heinämäki's semantics.

# 6   Fine-tuning the semantics

The event semantics for depictive sentences that I have outlined is only a first approximation. In this section we will discuss some cases that require a more sophisticated view of the matter.

## 6.1   Object oriented depictive predication

In the first place, I have restricted my attention to depictive predication in which the predicate is subject oriented. But, of course, there are also object oriented predicates. In fact, Dowty's account was inspired by the proposal in (Green 1970). Georgia Green's main concern were depicitive predicates that are object rather than subject oriented as in

(22)  He ate his steak well done

Moreover, the *when*-paraphrase was already a part of her view on depictive prediciation. For her, the content of (22) is captured by (23):

(23)  He ate his steak when it was well done

Object oriented depictive predicates were used in (Nichols 1978) to question such a *when* paraphrase. Consider the sentence below together with its putative interpretation

(24)  a.  Quemaron viva a María
            they burned María alive

      b.  $\exists e\ e'(\text{quemar}(e) \wedge \text{Object}(e, a) \wedge \text{vivo}(e') \wedge \text{Agent}(e', a) \wedge e \sqsubseteq e')$

The interpretation encoded by (24b) is counter-intuitive. We assume that at the start of the burning María was alive. This is captured by (24a). But this formula invites the inference that the burning did not go on after she she was not longer alive. However, in a situation in which they burned her alive and continue to burn her after she was dead, (24a) would be true and its putative representation false. The point is, of course, that to be dead and to be alive are disjoint events. The burning included in the state of being alive cannot be included in the burning of being dead.

There is, fortunately, just another way of looking at the matter. In the first place we can make use of this observation: eventualities can be factored into phases:

1. initial phase

2. culmination point and

3. final phase

Now what, according to us, (24a) conveys is that the initial phase and the culmination point of the burning are included in the alive state. So, the semantic metalanguage will have to be expanded with theoretical predicates of eventualities. If e is an eventuality, IP(e), CP(e) and FP(e) will denote the initial, the culmination or the final phase of e. These predicates are used in the next representation of (25):

(25) $\exists e\ e'(quemar(e) \land Object(e, a) \land vivo(e') \land Agent(e', a) \land IP(e) \sqsubseteq e' \land CP(e) \sqsubseteq e')$

## 6.2 The perfective/imperfective contrast

The semantics of depictive sentences developed in the preceding sections ignore all the questions related to the perfective/imperfective aspectual distinction. The sentences with which we have illustrated the secondary predication phenomenon are all of them perfective (in the sense that this sentences present the eventualities as completed). Spanish, however, makes a clear cut distinction between imperfective and simple past (perfective) sentences. A question we have to address concerns the interplay between aspect and depictive predication. Consider for example the imperfective version of the perfective sentence 1a

(26) María llegaba contenta
*María was arriving happy*

The understanding of this sentence is at odds with the semantics we have proposed here. The point is that according to its standard interpretation this sentence means that the event of coming of which María is the agent does not need to have ever reached its culmination point. The imperfective perspective seems, then, to ask for a factorisation similar to the factorisation we assumed for achievements in the previous subsection. If we are prepared to associate with *llegar* the three phases: initial, culmination and result phase, then we can represent the imperfective reading as follows:

(27) $\exists e\ e'\ (llegar(e) \land cansads(e') \land Agent(e, maría) \land Agent(e', maría \land IP(e) \sqsubseteq e')$

We shall close this section presently. Before that let us make first some remark on stative depictive sentences. Then we make a brief comparison of our semantics with the proposal in (Larson and Gabriel Segal 1995).

## 6.3 A Brief Word on States

We have adopted the uncontroversial view that depictive predication expresses a temporal relation between eventualities. We have also adopted the uncontroversial assumption that adjectives correspond to states. But we have been silent about a combinatorial possibility: depictive state sentences. We have kept away from these sentences because the facts around them are not clear for us. Consider the following two sentences:

(28) a. María ama a Juan deprimida
       *María loves Juan depressed*

    b. María ama a Juan extasiada
       *María loves Juan enraptured*

For Spanish speakers, (28a) is more acceptable than (28b) (cf. (Demonte 1991):127, 164). We have no explanation for this judgement beyond this remark. Depictive predicates in depictive senteces means more than a pure temporal relation. Such predicates tend to have a causal interpretation. The acceptability of such sentences is related to the plausibility of the existence of a cause-consequence relation between the (denotations of the) primary and secondary predicates. Perhaps is the state of being depressed a more plausible cause of being in love than the state of being enraptured. Consider now these two sentences:

(29) a. María sabe Inglés deprimida
       *María knows English depressed*

    b. María sabe Inglés borracha
       *María knows English enraptured*

Note that this explanation enforces a temporally restricted reading of the state root sentences. But again, the discussion around Kratzer's Davisonian has shown that such readings are always possible. Again, these sentences seem to be fine as long as we accept that the state of being drunk or depressed can be the cause of the state of knowing English. Stative sentences that have no plausible causal reading are far less acceptable. It would be difficult to find speakers of Spanish that would accept this stative sentence:

(30) María tiene un auto feliz
     *María has a car happy*

## 6.4   The Alternative Representation

Suppose that we identify an achievement with its culmination point. In this case we obtain the following representation of 1a:

(31) $\exists e\ e'(arrivar(e) \wedge Agent(e, a) \wedge contenta(e') \wedge Agent(e', a) \wedge CP(e) \bigcirc e')$

We willpay now some attention at alternative ways of of expressing the content of (31). Let CP(e, t) mean that the event e culminates at point t, while H(e, t) means that the state e holds at point t. Then the following formula has the same meaning as (31):

(32) $\exists e\ e't(arrivar(e) \wedge Agent(e, a) \wedge contenta(e') \wedge Agent(e', a) \wedge CP^*(e, t) \wedge H^*(e', t)$

This formula says that there is an eventuality of arriving and an eventuality of being happy. These two eventualities share a semantic role player and a point in time. This is, in fact, another way of expressing the representation we have in our semantics for (1a). It is important to note here that this formula is the representation that Larson and Segal offer for depictive achievement sentences.

# 7 Restrictions on Depictive Predicates

Until now I have made no comments on the type of adjectives available for depictive use. But not all the choices are equally felicitous. Our explanation glosses over the typical Spanish distinction between *ser* and *estar* predicates. By the same token, it glosses over the formal semantics distinction between individual and stage-level predicates. These distinctions can be used to characterize adjectives that are unconfortable as depictive predicates. For instance, the following sentences are not as acceptable as those in (1).

(33) a. María llegó generativista
   *María arrived generativista*

     b. María habló holandesa
   *María spoke Dutch*

     c. María escribió la carta zurda
   *María wrote the letter left handed*

There are at least three explanations for the deviance of these sentence.

1. First, the adjectives *generativista, holandés, mortal* are normally combined with *ser* rather than *estar* in Spanish copulative sentences. The expected generalisation is then

> Only *estar* adjectives are depictive predicates.

2. Secondly, the adjectives used in these sentences express properties of individuals that, in Dowty's turn of phrase, 'cannot be lost or acquired by that individual as time passes'. The generalisation is then

> Only temporally restricted adjectives are depictive predicates.

Finally, we can take into account the mentioned the distinction between stage-level predicates and individual-level predicates introduced by (Carlson 1977). Stage-level predicates correspond to transitory propeties of individuals while individual-level predicates express more permanent properties. Thus, the predicates in our deviant sentences are individual-level predicates. The generalisation, actually suggested in (Grubig 1992) is that

> 3. Only stage-level predicates are depictive predicates.

Incidentally, there is an amusing link between Dowty's temporally restricted adjectives and the Spanish adjectives that are characteristically used with *estar*. In Dowty's view, the traditional distinction between accident and essence corresponds to his distinction between 'tensed' versus 'non tensed' adjectives. To support his attribution, Dowty refers to (Bolinger 1971). In (Bolinger 1975):151, on the other hand, we come accross the following interesting passage

An example is the paired opposites *essence* and *accident* that are overtly manifested in certain languages —for example, Spanish, Portuguese, and Gaelic. *Essence* referes to *what* something is, its inner nature; *accident* refers to the *way* soemthing is, the superficial appearances or positions it assumes. In Spanish the function words *ser* and *estar* make the distinction systematically.

Let us now turn back to the three possible explanations listen above. Whether such generalisations will hold is unclear. The problem is that it is difficult to find *ser* (temporally unrestricted, individual-level) predicates that prohibit a temporalized interpretation. For instance, the next sentence is quite acceptable:

(34)   María llegó generativista y se fué funcionalista
       *María arrived generativist and left functionalist*

Incidentally, the suggestion that (34) is fine because it signals actual change of state is open to criticism. In the next sentence the change of state may have not occurred:

(35)   María llegó generativista y se fué generativisa
       *María arrived generativist and left generativist*

Similarly, as Demonte observed the next sentence is quite acceptable

(36)   La música me gusta armoniosa
       I like the music harmonious

The acceptability of this sentence suggests that a characteristically individual-level predicate may be interpreted as a stage-level predicate. Perhaps we can put this matter in the following way. If predicates that are characteristically individual-level predicates are used in depictive predicates, then their contribution to the meaning of the sentence is similar to the contribution of stage-level predicates. They denote spatiotemporal manifestations of their arguments. Or as Dowty himself put it in his paper, the unacceptability of our example sentences 'is to be explained in terms of the speaker's belief about the real world, rather than by the form of the grammar of English.' The same situation, it seems, arises for Spanish. If we are able to modify our beliefs about the world, our acceptability judgements will also be modified. Characteristically, *ser* adjectives do not qualify for depictive predication. But if we modify our world view some of them will so qualify. So, in Boliger's words 'if we say that something expresses essence we are understood to mean not necessarily essence in the natural world but essence as we view it.'

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