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ESSE AND *STA*: AUXILIARY SELECTION IN THE AQUILAN DIALECT[1]

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Abstract

This paper presents data on auxiliary selection in Aquilan dialect. It focuses on the two auxiliary verbs *esse* and *sta*, which respectively express a permanent and temporary property that holds for a given predicate. The goals of the paper are twofold. A first goal is to offer data on the distribution of these auxiliary verbs, filling an empirical void in the literature. A second goal is to offer a formal syntactic and semantic treatment of these two auxiliaries. This treatment is shown to make several predictions on the properties of these auxiliaries, and their interaction with other parts of speech.

Key words

Aquilan, auxiliary selection, syntax, semantics

ESSE Y *STA*: SELECCIÓN DE AUXILIAR EN EL DIALECTO DEL AQUILA

Resumen

En este trabajo se presentan datos sobre la selección de auxiliar en el dialecto del Aquila. Se centra en los dos verbos auxiliares *esse* y *esta*, que respectivamente expresan una característica permanente y temporal que se mantiene para un predicado dado. Los objetivos del artículo son dos. El primero es ofrecer datos sobre la distribución de estos verbos auxiliares, llenando un vacío empírico en la

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bibliografía. El segundo es ofrecer un tratamiento formal de carácter sintáctico y semántico de estos dos auxiliares. Este tratamiento permite hacer varias predicciones sobre las propiedades de estos auxiliares y su interacción con otras partes del discurso.

Palabras clave

Dialecto de l'Aquila; selección auxiliar; sintaxis; semántica

1. Introduction: Auxiliary introduction and Aquilan. The case of *esse* and *sta*

The Aquilan dialect (Aquilan) is an Italian dialect spoken in L'Aquila and surrounding zones. Aquilan belongs to the "middle Italian" dialects, which are spoken in a zone including Northwest Abruzzo, Northeast Lazio and Southern Umbria (Vignuzzi 1997; Avolio 2009). There is a wealth of scientific literature on this dialect, covering phonological, lexicographic and syntactic properties (Avolio 1992, 1993). A well-known fact concerns auxiliary verbs, or *copulae*. Aquilan has four copulae that can combine with other verbs: *esse, ave', tene'* and *sta* (Giammarco 1973; Avolio 1993; Savoia 1997). Their distributional properties have been in some detail, except for *sta*. It is known is that *sta* denotes that a property that temporarily applies to the subject. *Esse*, instead, denotes a permanent property of the subject. So, *sta* and *esse* seem semantically equivalent to the well-documented Spanish *estar* and *ser* (Maierborn 2005; Camacho 2010). Consider (1)-(2):

(1) *Mario è rasso*
Mario is-S fat
'Mario is fat'

(2) *Mario sta rasso*
Mario is-E fat
'Mario is (currently) fat'

The example[2] in (1) says that Mario has always been fat, from childhood to the present, and possibly in the future. The example in (2) says that Mario is now

[2] I follow Maierborn (2005) and gloss *esse* and *sta* as instances of the copula *be*, plus a marker that denotes whether a property is temporary (is-E, for Spanish *Estar*), or permanent (is-S, for Spanish *Ser*).

overweight, but may have been slimmer in the past, or will be in the future. So, while *esse* denotes permanent properties of the subject (like Spanish *ser*), *sta* denotes temporary properties, like Spanish *estar*.

Much literature has studied this alternation in auxiliary distribution in Spanish, but little is known on the alternation between *esse* and *sta* in Aquilan. Two problems stand out. A first problem is that there is little evidence on basic empirical data, such as the distributional relation between the examples in (1) and (2). A second problem is that, since there is little evidence, there is no formal treatment of these data, and no discussion on their importance for a wider theory of copula selection. The goals of this paper are thus twofold. A first goal, met in section 2, is to present data on the distribution of *esse* and *sta*, data which aim to fill the empirical void on this topic. A second goal is to offer a formal treatment of these copulae that correctly captures their syntactic and semantic properties. This goal is met in section 3 and 4, and is cast in a combination of Minimalist Syntax (Chomsky 1995), and Event Semantics (Parsons 1990). Section 5 offers the conclusions.

2. First Problem: The Aquilan data

The copulae *esse* and *sta* can combine with the four main lexical categories: Nouns, Prepositions, Adjectives and Verbs. This combination is possible as long as any of these phrases has a predicative role: when it introduces a property that is holds for the subject.

We start by looking at how these copulae interact with "quantified" Noun Phrases (NPs). The examples are as follows:

(3) *Mario è nnu quatranu*
Mario is-S a boy
'Mario is a boy'

Other abbreviations for glosses are: SG.=singular, PL.=Plural, 1ST, 2ND, 3RD PS.=First, Second, Third person.

(4) **Mario sta nnu quatranu*
Mario is-E a boy
'Mario is a boy'

Examples (3)-(4) present sentences including the NP *nnu quatranu*, 'a boy'. As a predicative NP combined with a copula, it denotes that Mario is a member of the class or 'kind' of boys (Chierchia 1998). Their distribution with copulae is restricted: only *esse* can combine with *nnu quatranu* (example (5)), but not *sta* (example (6)). Since being a boy is a property that is stable over time, the matching copula is *esse.* This stems from the *lexical aspect* of NPs: predicative NPs are assumed to denote *states*, temporally stable properties that hold of the subject (Chierchia 1995, 1998).

The data about Verb Phrases are more complex. Aquilan is similar to other Italian Dialects, since auxiliary selection that is sensible to the semantic features of the subject. Tenses such as the *passato prossimo* ('present perfect') consist of a copula that combines with the past participle of a verb, and must have morphological agreement with the subject (Manzini & Savoia 2005). Several works report that the copulae *esse* and *ave'* are in complementary distribution (Giammarco 1973; Legendre 2007, 2010). First and second person subjects, both singular and plural, must combine with the copula *esse* (*Ji so magnato*, 'I have eaten'). Third person subjects must combine with the copula *ave'* (*Mario ha magnato*, 'Mario has eaten'). However, auxiliary selection in Aquilan is also sensible to temporal and aspectual features, as it is the case in several Romance Languages (Sorace 2000; Legendre 2007). Two cases play a crucial role in our discussion.

The first case involves verbs of motion. Verbs of motion never combine with *ave*, regardless of the person. Their distribution with *esse* and *sta* depends on the lexical aspec*t* form of the verb. *Esse* combines with verbs that denote completed or *perfect events*, such as the *passato prossimo* ('present perfect') form. *Sta* combines with verbs in the progressive form, which denote ongoing or *progressive* events (Kratzer 2003; Rothstein 2004; Zwarts 2005; Ramchand 2008). Some examples are the following:

(5) *Mario è jjit-o aj-ju negozziu*
Mario is-S gone-3RD.PS.SING. at-the shop
'Mario has gone to the shop'

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(6) **Mario sta jjit-o ajju negozziu*
Mario is-E gone-3RD.PS.SING. at-the shop
'Mario has gone to the shop'

A verb such as *ji'*, 'to go', must combine with *esse* for the third singular person, as (5) shows, and cannot combine with *sta* when it takes *ajju negozio* as a Complement, as (6) shows. *Sta* denotes that a certain action is ongoing. A verb in past participle form denotes that an action is completed, so the combination with *sta* would be contradictory, and yield an ungrammatical sentence as (6). So, aside the form of agreement between Verb Phrase and subject, the copula is also sensible to the lexical aspect features of the verb it combines with[3].

The opposite pattern can be observed when a verb is in the progressive from:

(7) *Mario sta a magna'*
Mario is-E at eat
'Mario is eating'

(8) **Mario è a magna'*
Mario is-S at eat
'Mario is eating'

(9) *Mario sta a ji aj-ju negozziu*
Mario is-S at go at-the shop
'Mario is going to the shop'

In Aquilan, progressive forms are expressed by the preposition *a* ('at'), followed by the infinitive form of the verb, here *magna'* 'to eat' (Avolio 1992). Since the progressive form denotes that an event of eating is ongoing, only *sta* can combine with progressive forms. While the example with *sta* in (7) is grammatical, the example with

3 Note that the preposition *ajju* is the *conflation* of the preposition *a* and the definite article *ju*. Conflation is defined as the combination of two syntactic heads into one (Talmy 1985; Hale and Keyser 2002), which in Italian dialects is often marked by *Raddoppiamento Sintattico*, 'Sintactic doubling'. See Frascarelli (2000) on this phenomenon.

esse in (8) is not. This holds for verbs that normally combine with *esse*, as well. In (9), the event of going to the shop is ongoing, so *sta* is the only possible copula that can occur in this sentence.

These examples show that progressive verbs in Aquilan involve Prepositions as well. The other data on Prepositions and their distribution with these copulae offer a more complex picture. Two macroclasses of Prepositions can be distinguished: Prepositions that denote spatial relations, and those that denote other relations. Spatial Prepositions can be divided in two classes: *locative* and *directional* Prepositions (Jackendoff 1983, 1990). Simplifying to some extent, locative Prepositions denote a state in which there is a spatial relation between two entities. Directional Prepositions denote an event of one entity moving in the direction of another entity. Both types of Prepositions involve some form of lexical aspect. Only locative Prepositions directly combine with copulae, while directional Prepositions combine with a Verb of motion such as *ji* 'go', as shown in examples (5) and (9). These examples with locative prepositions illustrate the point:

(10) *Mario sta ajju letto*
Mario is-E at+the bed
'Mario is at the bed'

(11) **Mario è ajju letto*
Mario is-S at+the bed
'Mario is at the bed'

(12) *L'Aquila sta 'n Abruzzo*
L'Aquila is-E in Abruzzo
'L'Aquila is in Abruzzo'

In examples (10)-(12) the Preposition *a* 'at' has a different semantic role, as it denotes a spatial relation, like the Preposition *'n* 'in'. Both Prepositions introduce the NP that denotes the 'landmark object', the centre of reference of the underlying spatial relation (*Abruzzo* in (12)). Whether this relation is temporary (as in (11)) or permanent (as in (12)), the copula *sta* is the only copula that can occur with locative Prepositions.

Note, however, the Preposition *'n* ('in') captures the "temporal" stability of this relation, in this and similar cases.

Non-spatial Prepositions show subtler patterns of distribution. The lexical category of constituent they introduce also influences the licensed copula. When a constituent is an NP, only *esse* is allowed:

(13) *Mario è dde coccio*
Mario is-S of ceramic
'Mario is obtuse'

(14) *Mario è dde Coppito*
Mario is-S of Coppito
'Mario is from Coppito'

(15) *La mela è pe Mario*
The apple is-S for Mario
'The apple is for Mario'

Prepositions such as *dde* can either denote a property that holds for Mario ('of', example (13)) or the place of origin, for Mario ('from', example (14)), which are introduced by the noun they combine with. In both cases, they can only combine with *esse*. The same holds for *pe*, 'for', a Preposition that introduces the "beneficiary" entity of the apples, and that can only combine with *esse*. These Prepositions denote states, with respect to lexical aspect, since they denote a "permanent" property.

The same Prepositions can also combine with *sta*, when the constituent they introduce is an Adjective or Verb. Look at the examples:

(16) *Mario sta dde prescia*
Mario is-E of hurry
'Mario is in a hurry'

(17) *Mario sta pe chiama'*
Mario is-E for call
'Mario is about to call'

Both examples (16) and (17) show that *dde* and *pe* can also combine with *sta*, provided that the constituent they introduce is an Adjective, or a Verb in its infinitival form. The corresponding properties hold only temporarily: Mario is on a hurry, or about to call, at the moment of speaking. These data support an aspectual analysis, too. Overall, these data support the well-known fact that Prepositions also contribute to the lexical aspect reading of a sentence, whether they are spatial or non-spatial (Krifka 1998; Zwarts 2005; Camacho 2010).

Let us now focus on Adjectives, starting from deverbal adjectives. As in several other Romance Languages and Dialects, Aquilan has a productive series of deverbal adjectives. The subclass of deverbal adjective determines which copula occurs in a sentence, as in Spanish, Catalan or both Portuguese variants (Schmitt 1996; Gallego and Uriagereka 2009). Some examples are:

(18) *Mario è gnorante*
Mario is-S stubborn
'Mario is stubborn'

(19) **Mario sta gnorante*
Mario is-E stubborn
'Mario is stubborn'

(20) *Mario è ncredibbile*
Mario is-S incredible
'Mario is incredible'

(21) **Mario sta ncredibbile*
Mario is-E incredible
'Mario is incredible'

(22) **Mario è mpegnato*
Mario is-S busy
'Mario is busy'

(23) *Mario sta mpegnato*
Mario is-E busy
'Mario is busy'

Examples (18)-(19) involve the present participle adjective form *ignorante*, 'stubborn'. As the examples show, this present participle can only combine with *esse* but not with *sta*. Examples (20)-(21) show that the 'inchoative' class of deverbal adjectives, such as *ncredibbile* 'incredible', can only combine with *esse* but not with *sta* (Gallego and Uriagereka, 2009). The reverse pattern holds for past participle adjectives, as *mpegnato* 'busy' in (22)-(23), since only *sta* can combine with these adjectives, and other adjectives of this class.

Standard, gradable adjectives display more flexible patterns of distribution. Examples are:

(24) *Mario è nniro*
Mario is-S black
'Mario is black'

(25) *Mario sta nniro*
Mario is-E black
'Mario is angry'

(26) *Mario è uno mpegnato*
Mario is-S one busy
'Mario is a busy person'

(27) *Mario è ju mpegnato dejju gruppo*
Mario is-S the busy of+the group
'Mario is the busy one of the group'

Examples (24)-(25) show that the adjective *nniro* can combine with both copulae, as many similar others (e.g. *stupido*, 'stupid', *roscio*, 'red'). However, since *sta* denotes a temporary property holding for Mario, when *nniro* combines with *sta*, it denotes a non

literal meaning. Mario is conceived as being so angry that his face has blackened. It is possible that past participle adjectives may syntactically act as Noun Phrases, as examples (26)-(27) show. The adjective *mpegnato* acts as a nominal-like constituent, which combines with the pro-nominal form *uno* ('one' or 'person'), to form a predicate holding of Mario. The same holds in (27), in which the definite article *ju*, within the partitive construction *ju mpegnato dejju gruppo*, turns the adjective into an NP. As for the other three lexical categories, these distributional patterns follow from the lexical aspect contribution of adjectives. Deverbal and gradable adjectives alike seem to denote states, properties that hold of the subject temporarily (*mpegnato*, 'busy'), permanently (*gnorante*, 'stubborn'), or both (*nniro*, 'black').

These examples cover most, if not all, the possible combinations between *esse*, *sta* and the four main lexical classes. Except for NPs, *sta* can combine with all the lexical classes; *esse* can combine with all four lexical classes, although with specific restrictions. Both copulae can combine with 'pure' Adjectives and non-spatial PPs. However, in doing so they offer a different interpretive contribution to the sentences they occur in. So, the following two generalisations can be made, which address the first question: what are the basic data on the distribution of *esse* and *sta*.

First, the syntactic structure of the sentences in which these copulae occur tends to be structurally uniform. Both copulae combine with a subject NP and one of the four lexical categories, or rather their corresponding phrase (N(oun)P(hrases), A(djective)Ps, P(reposition)Ps, (Verb)Ps). So, both copulae combine with a subject and a Predicate Phrase, or PredP. So, the difference between the two copulae seems to be not syntactic, but rather semantic in nature. Second, this semantic difference between *esse* and *sta*, and their interaction with PredPs, seems to be a lexical aspect matter. Intuitively, while *esse* combines PredPs that denote "permanent" states, *sta* combines with PredPs that denote "temporary" states or events. So, a correct account of these copulae and their distribution must capture this semantic difference, and its relation to the shared syntactic structure. I offer this account in the next two sections, starting from syntactic matters (section 3), then moving to semantic matters (section 4).

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3. Second Problem: A Syntactic Treatment of *Esse* and *Sta*

The syntactic treatment I offer is as follows. As mentioned in the introduction, I assume the Minimalist Program as my syntactic background (Chomsky 1995). The variant of Minimalism used here is based on the following assumptions. I follow traditional approaches to Phrase Structure that adopt the *X' (X-bar) structure* for Phrases (Moro 2000; Boeckx 2008; Shlonsky 2010). I assume that a syntactic phrase has the following basic template. A head, e.g. the copula, *merges* with Complement and Specifier, to form a minimal clause. The result is shown in (34-a):

(28) a. [$_{\text{HeadP}}$ [Specifier] Head [Complement]]
b. [$_{\text{VP}}$ [$_{\text{NP}}$ Mario] loves [$_{\text{NP}}$ Peach]]

Merge is a *binary* operation that takes two syntactic units as an input, and produces a "larger" constituent as an output (akin to *set union*) (Chomsky 1999: 2-4). So, the structure in (28-a) can be seen as the result of merging two constituents (Head and Complement) that form a bar-constituent (Head'), then merging this bar-constituent with the third constituent, so that a Phrase is obtained (HeadP). The example in (28-b) shows that this structure can represent "basic" sentences, such as those that include a verb and two proper noun NPs (*Mario loves Peach*).

We now need to define the "direction" by which Merge generates larger constituents. I adopt the *Parser Is Grammar* (PIG) approach of Phillips (1996, 2003, 2006). This approach assumes that sentence production works under the same principles of sentence processing and is an online, "left-to-right" derivation. So, in (28-b) *loves* is merged with Mario, then with Peach. This approach differs from standard minimalist approaches that assume a "right-to-left" direction for derivations (e.g. *loves* is merged with *Peach*, then with *Mario*). As it will become clear in the remainder of the paper, this assumption straightforwardly allows a treatment of the relation between *esse* and *sta*, and their predicates. I will leave aside whether such simple treatment is possible in "right-to-left" approaches. The two basic principles of PIG on syntactic derivations are defined as follows.

First, syntactic derivations proceed according to the *merge right* principle. The merge right principle says that constituents are merged by adding them on the right of

previous constituents. In a structure such as (28-b), the subject NP *Mario* is selected first, then merged with the verb *loves* on its right. The result is the V' constituent *Mario loves.* The object NP *Peach* is then merged, so the VP *Mario loves Peach* is obtained, which represents the structure of the sentence in (28-b). Second, constituents may change their syntactic status as Complement or Specifier, during a syntactic derivation (their "sisterhood" relation). A constituent may be merged as a Complement, but may become a Specifier if a "new" head is merged. Since principle is subtler in its import, I will discuss its relevance when I will treat the data in which it plays a crucial role.

I represent syntactic derivations as follows. I introduce an *Index Set I* to mark the distinct steps in a derivation, with *I={t,t+t,t+2,...,t+n}*. Here, the symbol "+" represents *addition*, a slightly different operation than merge, and represents that our indexes represent progressive intervals of time in sentence production. In each derivation, the operation s*elect* represents the selection of a lexical item as an active syntactic unit in the derivation. The derivation that generates (28-b) is:

(29) *t.* [$_{SubP}$ Mario] (Select)
t+1. [$_{Cop}$ loves] (Select)
t+2. [$_{SubP}$ Mario]+[loves]=[$_{Cop'}$ [$_{SubP}$ Mario] loves] (Merge)
t+3. [$_{PredP}$ Peach] (Select)
t+4. [$_{Cop'}$ Mario loves]+[$_{PredP}$ Peach]=[$_{CopP}$ [$_{SubP}$ Mario] loves [$_{PredP}$ Peach]] (Merge)

The derivation in (29) reads as follows. *Mario* is merged with *loves* to form the temporary constituent *Mario loves* (steps *t* to *t+2*). This constituent is then merged with *Peach*, forming the sentence *Mario loves peach* (steps *t+3* and *t+4*). The syntactic derivations that I will discuss for our sentences will all follow this basic template, although they will involve "more" cycles.

The last assumption I will make concerns the precise syntactic structures involved in our derivations. Within the Minimalist Program, two approaches to the syntactic properties of lexical items exist. A first approach is the so-called "Cartographic approach", which assumes that lexical items have a rigid syntactic structure (Cinque 1999; Shlonsky 2010). A second approach is the theory of argument structure of Hale & Keyser (2002), which assumes that lexical items may have a flexible syntactic structure, instead. A closely related theory is the theory of predication of den Dikken (2006). The

first approach offers a very fine-grained, but also rigid approach to syntactic structure, while the second approach is more flexible although less fine-grained, to an extent. Since our data already suggest that a flexible syntactic approach is called for, I will adopt the second approach, leaving open the possibility that a solution based on the first approach is possible.

The theory of argument structure of Hale & Keyser (2002) assumes a flexible relation between morpho-syntactic category (Noun, Adjective) and abstract syntactic category. For instance, Verbs and Prepositions are morpho-syntactically different, but they may both take two phrases as their Complement. A Verb example is (34-b), a Preposition example is *the boy in the garden*, with the two NPs *the boy* and *the garden* as arguments. Conversely, a verb can also be an argument-like constituent, as for the sentence *Mario is eating*. In this sentence, the verb *eating* acts as an argument of the copula *is*, intuitively. So, Hale & Keyser (2002) assume that lexical items can represent four abstract syntactic types, called "(a)-type" to "(d)-type". For our purposes, the (b)-type and the (d)-type are the crucial types. These types are represented in (30):

(30) a. [$_{\text{HeadP}}$ [XP] Head [YP]] ((b)-type)
b. [XP] ((d)-type)

The (b)-type is the type of heads, syntactic units that combine with two Phrases to form a larger Phrase. For English, Hale & Keyser assume that Copulae receive this type (Hale & Keyser 2002: ch. 4). They also assume that lexical items that occur in Complement or Specifier position receive the (d)-type, as syntactic (and semantic) arguments. English Examples include nouns in subject or object position, but also adjectives, and nouns as Complements to Prepositions.

Another important assumption is the following. Both Hale & Keyser (2002) approach and other minimalist frameworks assume that syntactic categories may be phonologically null, i.e. they may not be overtly expressed by lexical material. For our discussion, the relevant cases are those in which Phrases in argument position may not be realised. The intuition is that a phonologically null Phrase is a Phrase whose content is implicit, or can be "retrieved" from the previous context (e.g. ellipsis cases). I mark these phrases as "(XP)", and mention when they occur in our derivations.

Let us move to the analysis of the data. Our data suggest that copular sentences vary in one aspect: the complexity of the internal structure of their predicate Phrase. Intuitively, the various examples we have seen differ on "how much" structure is realized in this Phrase, but not in "how" this structure is realized. I assume that this difference can be captured by allowing that the Complement Phrase may either correspond to a (d)-type, or a (b)-type syntactic unit. The simplest case is (d)-type, since it instantiates the structure in (30-a). Examples of this structure include copular sentences involving adjectives, whether they are deverbal or not. I repeat example (18) with its matching derivation, to explain the point:

(31) a. *Mario è gnorante*

b. *t.* [$_{SubP}$ Mario] (Select)

t+1. [$_{Cop}$ è] (Select)

t+2. [$_{SubP}$ Mario]+[è]=[$_{Cop'}$ [$_{SubP}$ Mario] è] (Merge)

t+3. [$_{PredP}$ gnorante] (Select)

t+4. [$_{Cop'}$ Mario è]+[$_{PredP}$ gnorante]]=[$_{CopP}$ [$_{SubP}$ Mario] è [$_{PredP}$ gnorante]] (Merge)

The syntactic derivation in (31-b) reads as follows. A copula, as a syntactic (b)-type unit, merges with a Noun and an Adjective (a PredP), which are (d)-type syntactic units, Phrases without internal structure. Since the (d)-type is the type of Phrases, a copula merges with two phrases to form a Cop(ular) Phrase. So, the simplest type of copular sentence is the *result* of combining a (b)-type constituent, a copula, with two arguments in Specifier and Complement position.

Let us now consider the case in which the Complement Phrase instantiates a (b)-type. In this case, this Phrase will have its own internal structure, which in turn can have its own internal structure, in a recursive fashion. Examples including progressive V(erb)Ps, NPs and P(repositional)Ps clearly fall in this category. I repeat (3) as (32-a), and (10) as (33-a):

(32) a. *Mario è nnu quatranu*

b. *t.* [$_{SubP}$ Mario] (Select)

t+1. [$_{Cop}$ è] (Select)

t+2. [$_{SubP}$ Mario]+[è]=[$_{Cop'}$ [$_{SubP}$ Mario] è] (Merge)

t+3. [$_{PredP}$ (XP)] (Select)

t+4. [$_{Cop'}$ Mario è]+[$_{Pred}$ (XP)]=[$_{CopP}$ [$_{SubP}$ Mario] è [$_{PredP}$ (XP)]] (Merge)

t+5. [nnu] (Select)

t+6. [$_{CopP}$ [$_{SubP}$ Mario] è [$_{PredP}$ (XP)]]+[nnu]=[$_{CopP}$ [$_{SubP}$ Mario] è [$_{PredP}$ (XP)] nnu] (Merge)

t+7. [quatranu] (Select)

t+8. [[$_{CopP}$ [$_{SubP}$ Mario] è[$_{PredP}$ (XP)] nnu]+[quatranu]=
[$_{CopP}$ [$_{SubP}$ Mario] è [$_{PredP}$ (XP)] nnu [quatranu]]] (Merge)

(33) a. *Mario sta ajju letto*

b. *t.* [$_{SubP}$ Mario] (Select)

t+1. [$_{CopP}$ sta] (Select)

t+2. [$_{SubP}$ Mario]+[sta]=[$_{Cop'}$ [$_{SubP}$ Mario] sta] (Merge)

t+3. [$_{PredP}$ (XP)] (Select)

t+4. [$_{Cop'}$ Mario sta]+[$_{PredP}$ (XP)]=[$_{CopP}$ [$_{SubP}$ Mario] sta [$_{PredP}$ (XP)]] (Merge)

t+5. [ajju] (Select)

t+6. [$_{CopP}$[$_{SubP}$ Mario] sta [$_{PredP}$ (XP)]]+[ajju]=[$_{CopP}$ [$_{SubP}$ Mario] sta [$_{PredP}$ (XP)] ajju] (Merge)

t+7. [letto] (Select)

t+8. [[$_{CopP}$ [SubP Mario] sta [$_{PredP}$ (XP)] ajju]+[letto]=
[$_{CopP}$ [$_{SubP}$ Mario] sta [$_{PredP}$ (XP)] ajju [letto]]] (Merge)

The derivations read as follows. The sentence *Mario è nnu quatranu* is obtained by merging the subject and copula temporary constituent, *Mario è*, with a complex predicate, *nnu quatranu*. The assumption that the indefinite article is a head is consistent with the general assumption that determiners are heads that combine with Noun Phrases (Chierchia 1998; Szabolczi 2010). I assume that the syntactic unit in Specifier position of *nnu quatranu* is a silent XP, which can be instantiated by lexical material in other cases.[4] The silent constituent enters the derivation as the Complement of the copula, but it becomes the Specifier of the NP as the derivation continues (steps *t+4* to *t+6*). Once *quatranu* is merged, the full sentence is formed.

4 A possibility within this approach is the following. When a determiner is a a definite article, such as *the*, the element in Specifier position can be 'quantifier' such as *all*. The resulting structure would correspond to the Quantified Noun Phrase *all the boys*. This is consistent with the discussion in Szabolcsi (2010: ch. 3-4), *modulo* syntactic differences.

This structure minimally differs from the structure in (32-b) since it involves "more" constituents, but not in the underlying derivation that brings it about. Since the merged PredP is a (b)-type constituent, the derivation involves a more complex structure, which however still has a PredP in Complement position. This derivation is identical with the derivation offered in (39-b), which follows the same steps but involves different lexical items. In this case, the silent constituent could be a PP denoting spatial content: we may have *nnanzi ajju letto* 'in front of the bed', rather than *ajju letto*. This is consistent with Jackendoff (1983, 1990), Hale & Keyser's "P-within-P" hypothesis (Hale & Keyser 2002: ch. 7), and other current approaches to spatial Prepositions (Svenonius 2010; Cinque & Rizzi 2010). Crucially, it is consistent with our syntactic proposal.

As these examples suggest, sentences may instantiate "complex", recursive structures. If a PredP instantiates a (b)-type syntactic unit, then it may contribute with more syntactic units to a sentence. A possibility is that this process may be further iterated: PredP, as a (b)-type syntactic unit, contains another PredP as a (b)-type unit. Sentences involving Past participle verbs and progressive verbs of motion seem to support this intuition. To see the results of this assumption, I repeat (9) as (34-a). I start from step *t+7*, as the derivation is identical with (39) until this step:

(34)

a. *Mario sta a ji ajju negozziu*

b. *t+7.* [jji]

t+8. [$_{Cop'}$ Mario sta (XP) a]+[jji]=[$_{CopP}$ [$_{SubP}$ Mario] sta [$_{PredP}$ [(XP)] a [[jji]] (Merge)

t+9. [a] (Select)

t+10. [$_{Cop'}$ Mario sta (XP) a [[jji]]+[ajju]=[$_{CopP}$ [$_{SubP}$ Mario] sta [$_{PredP}$ [(XP)] a [[jji] aju] (Merge)

t+11. [negozziu] (Select)

t+12. [$_{CopP}$ [$_{SubP}$ Mario] sta [$_{PredP}$ [(XP)] a [[jji] ajju]+[negozziu]=

[$_{CopP}$ [$_{SubP}$ Mario] sta [$_{PredP}$ [(XP)] a [[jji] ajju [negozziu]] (Merge)

The derivation in (34-b) should be straightforward to read. I need to clarify some assumptions on syntactic types assigned to the various constituents. The Preposition *a* occurs without definite article, and the verb *magna'* is akin to a noun-like lexical item, since it receives a syntactic (d)-type. The nominal nature of infinitive forms, especially

in Italian dialects, is a well-attested datum (Zucchi 1993; Savoia 1997). Several works have offered an almost identical analysis in our theory (Mateu 2002). So, the structure in (34-b) is consistent with previous proposals and our approach to copular sentences, and further supports the empirical coverage of our proposal, a welcome result.

Let us take some stock. The treatment of copular sentences I offered so far can be extended to all the examples we have discussed. The three variations of the basic structure I have offered for our sentences are represented in (35):

(35)

a. [$_{CopP}$ [SubjP] Cop [PredP]] (PredP=(d)-type: Adjectives)

b. [$_{CopP}$ [SubjP] Cop [$_{PredP}$ [XP] Pred [YP]]] (PredP=(b)-type: Nouns, Prepositions)

c. [$_{CopP}$ [SubjP] Cop [$_{PredP}$ [XP] Pred [$_{PredP}$ [ZP] Pred [YP]]]] (PredP=iterative (b)-type; Verbs)

The subtle differences among sentences involve the "amount" of involved syntactic units and their type. In our formalization, this corresponds to the complexity of the PredP part. The predicate that combines with the copula can be quite complex. Its structure is governed by the rules of Hale & Keyser's theory. However, insofar as we focus on the basic structure that underlies sentences involving both *esse* and *sta*, we have no syntactic differences. Whether one or the other copula appears in a sentence, the underlying syntactic structures appear to be the same, as the derivations in (32-b) and (33-b) suggest.

Although we have not covered all examples discussed so far, the fact that these basic syntactic derivations can be covered all the discussed examples should be pretty obvious. So, we have a unified syntactic treatment of sentences involving *esse* and *sta*, which is a welcome result. To meet our second goal, we need to offer a semantic (formal) treatment of the data. This treatment must capture the lexical aspect differences among predicates, and their relation to *esse* and *sta* as a semantic relation, mediated by the Syntactic process. The next section offers the semantic solution.

4. Solution: Semantics

The facts we have discussed in section 2 suggest that both copulae are sensible to the lexical aspect features of the predicates they combine with. The problem, then, is to offer a semantic treatment that can capture these distributional patterns, and connects with our syntactic treatment in a clear and transparent way. I make this intuition formally precise in the following way. I adopt a type-theoretical variant of *Situation Semantics*, a particular variant of *First Order Logic* (Kratzer 1989, 2007; von Fintel 1994). The key assumptions are as follows.

I assume that all our syntactic entities denote *situations*. Situations can be seen as spatio-temporal entities that can be "complex", as events and states denoted by verbs (e.g. being a man, running). They can also be "simple", so that they represent referents[5] in discourse (e.g. Mario). The domain of situations is a *partially ordered set S* (i.e. a *Lattice* $<S,\leq>$: see Link 1983, 1998; a.o. for an introduction). In this domain, the following holds: $s \leq s'$ holds if $s \cap s' = s$ and $s \cup s' = s'$ (Kratzer 1989, 2007; Barwise & Etchemendy 1990; von Fintel 1994). In words, if a situation is part of another situation, then their intersection will be the "smaller" situation, and their union will be the "bigger" situation. Situations correspond to the *semantic* type $<s>$, the semantic type of variables and constants (referents) in Logic. The basic "lexical" type $<s>$ can be used to define complex or "functional" types, via *function abstraction*. If σ is a type and τ is a type, then $<\sigma,\tau>$ is a type. Conversely, if $<\sigma,\tau>$ and $<\sigma>$ is a type, their combination will be the type $<\tau>$, via *function application*. The import of this definition will be clear in a few paragraphs, after I define the relation between syntactic and semantic type.

I start from the semantics of Specifiers and Complements. Let us take a SubjP such as *Mario*. This Phrase denotes a non-logical constant, the object *m*. This object represents Mario as a simple situation, in a model of situations. We can think of Mario of a certain spatio-temporal entity or "thin referent", in our model of discourse. As a simple situation, it receives semantic type $<s>$. I assume that "simple" Adjectives and Verbs, in Complement position, have the same type. The intuition is as follows. If an adjective is of syntactic (d)-type, that of arguments, then it will denote the same semantic type of the Specifier. This entails that Adjectives such as *gnorante* and Verbs

5 I use the label "referent" for non-logical constants that represent entities under discussion, as it is common practice in Discourse Representation Theory (DRT, Kamp *et al.* 2005).

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such as *jjito* denote properties taken as complex situations, or "thick referents". Since *s'* can be defined as a situation that includes other situations as its proper parts, then these constituents will denote this type of complex situations. The property denoted by *gnorante* denotes the union of all individuals such as Mario, denoted as *m*, that make up the extension of this property. So, Mario as *m*, Luigi as *l* form the (minimal) situation that corresponds to a property, *s:G={s,m}*. I use capital letters for properties (i.e. *G*) to capture the intuition that properties can be thought as "complex referents" (Keenan and Faltz, 1985; Chierchia & Turner, 1988; DRT's *conditions*, Kamp *et al.* 2005).

Let us move to the copulae *esse* and *sta*. At a syntactic level, a copula merges with two phrases to form a phrase. As it is commonly assumed in the literature, a copula such as *esse* denotes a part-of relation. I preliminarily represent this relation as: $\lambda x_s.\lambda y_s.s:(x \leq y)$, with λ-operators. These operators represent the "open" argument slots that must be filled by the specific values denoted by Specifier and Complement. This relation says that there is a "main" situation, *s*. In this situation, a (smaller) situation *x* is part of a (larger) situation *y*. The two referents have the subscript *s*, which represents their semantic type. This relation is defined between the entity denoted by the subject and the property denoted by the predicate that merges with the copula (Chierchia 1998; Landman 2000, 2004; Kratzer 2007). In type-theoretical terms, a relation is represented as <*s*,<*s*,*s*>>, a relation that applies to two arguments to yield a saturated relation, or a complex situation. So, our minimal set of Types is *TYPE={s}*. This is a set that also includes sub-types such as properties or referents, as in other similar theories (Chierchia & Turner 1988; Partee 2006).[6]

These definitions define a strong *isomorphism*, a one-to-one correspondence between syntactic and semantic types. A syntactic (d)-type, e.g. PredP or SubjP, will have semantic type <*s*>. A syntactic (b)-type, a Copula or Predicate head, will have semantic type <*s*,<*s*,*s*>>. Each "simple" Phrase denotes an argument, each head a relation. So, I adopt a variant of the *type-driven translation* approach, an approach that offers a transparent relation between Syntax structure and Semantic interpretation (Klein & Sag 1985). I focus now on a formal treatment of aspect.

The cited works on lexical aspect adopt various, and sometimes contrasting approaches. Situations Semantics approaches commonly represent aspect as a form of

6 Ursini (2011) defines a slightly more complex type set that also includes truth-values *t*. The difference is immaterial, for the purposes of this paper.

quantification on situations (Chierchia 1995; Kratzer 2003, 2007). For instance, Chierchia (1995) suggests that identity statements involve the "generic" operator **Gen'**. This operator binds the situation referent in a predicate, an example being **Gen**s[**P'**(x,s)]. In words, an identity statement denotes a property that holds for an individual, except for possible exceptions. Progressive verbs and other "temporary" expressions are associated to the general label of "episodic" aspect. The existential quantifier ∃ represents this temporary status, as in ∃s[**P'**(x,s)]. In words, there is at least one situation in which a certain property holds. So, different forms of lexical aspect correspond to different operators that bind a situation referent in the denotation of a property.

I will follow a slightly different approach, defined as follows. I adopt a recent proposal for Spanish, offered in Ursini (2011) (see also von Fintel 1994: ch.2; Maierborn 2005). I assume that identity statements denote a form of "neutral" lexical aspect, which I call "Identity" aspect. This aspect is represented via the operator (function) **Id**, which binds a situation referent, so that we have **Id**s[s:(x≤y)]. In words, this operator says that we consider that single situation in which Mario is part of the "stubborn" situation/property, and no other possible situations. We do not consider exceptions, or other situations in which Mario may not be stubborn. Episodic aspect, instead, is represented as an existential quantifier that binds the situation referent in a relation, ∃s[s:(x≤y)]. In words, the episodic aspect takes at least one situation in which Mario is part of the "black" property, to use a pertinent example (the adjective *nniro*, 'black'). In other situations, the property *nniro* may not include Mario, so Mario's status as a black individual is conceived as only being temporary, not holding in all situations.

We can now give the semantics of our copulae. I assume that *esse* and *sta* denote a relation having identity and episodic aspect, respectively. Their denotations are as follows:

(36) [[*esse*]]:=λxs.λys.**Id**s[s:(x≤y)], type <*s*,<*s*,*s*>>

(37) [[*sta*]]:=λxs.λys.∃s[s:(x≤y)], type <*s*,<*s*,*s*>>

In words, *esse* denotes a minimal situation in which a relation between subject and property holds. *Sta* denotes at least one situation in which a relation between subject and property holds. This approach is a bit coarse-grained: temporal reference is set aside, for

instance. It captures, however, the intuition that predicates can denote their own value lexical aspect value. For instance, NPs always denote identity aspect properties, and so do other PredPs that only combine with *esse*. Importantly, the following holds: ***Id****(s)*=*s*. So, simple properties can be represented as *Id(G)=G*.

With these definitions in hand, I turn to the analysis of our examples. I start by offering a derivation for *Mario è gnorante*, in (31). In the derivations I only represent the semantic steps on the left side. I represent syntactic operations, and targeted syntactic units, on the right side:[7]

(38)

t. m	(Select *Mario*, type <*s*>)
t+1. λxs.λys.**Id**s:(x≤y)	(Select *è*, type <*s*,<*s*,*s*>>)
t+2. λxs.λys.(m)s:(x≤y)=λys.**Id**s:(m≤y)	(Merge and Function Application, type <*s*,*s*>)
t+3. **Id** s:*G*	(Select *gnorante*, type <*s*>)
t+4. λys.s:(m≤y)(G)=**Id**s:(m≤**Id**s:G)= **Id**s:(m≤G)	(Merge and Function A., type <*s*>)

In words, the derivation in (38) says that *Mario è gnorante* is interpreted as denoting that situation in which the individual standing for Mario is part of the "stubborn" property. Since both copula and adjective have identity aspect reading, they introduce the operator **Id** to bind the main situation referent. A basic rule of logic, *distributivity*, says that if the same operator applies to properties making up a complex formula, then this operator can be prefixed to the entire formula.[8] This is what happens in (44), since the operator **Id** becomes a prefix to the whole denotation of the sentence.

Let us now consider a case in which *sta* merges with a PredP denoting the identity aspect. I take (26), **Mario sta ntelliggente*, as an example. The derivation is as follows:

(39)

t. m	(Select *Mario*, type <*s*>)
t+1. λxs.λys.∃s:(x≤y)	(Select *sta*, type <*s*,<*s*,*s*>>)
t+2. λxs.λys.(m)∃s:(x≤y)=λys.∃s:(m≤y)	(Merge and Function A., type <*s*,*s*>)

7 Formally, this is defined as: [[*Mario*]]:=*m*, [[*gnorante*]]:=***Id****G*, [[*è*]]=λxs.λys.**Id**s:(x≤y) . The "[[.]]" represents the *interpretation function*, the function that assigns a semantic value to each syntactic unit.
8 See Blackburn, van Benthem and Wolter (2006: 20) for discussion of this property in the closely-related Modal logic.

t+3. **Id** s:G (Select *gnorante*, type <*s*>)

t+4. λys.s:(m≤y)(G)=∃s:(m≤**Id**s:G) =* (Merge and Function A., derivation crashes)

In words, the derivation in (39) says that, once *sta* and *ntelligente* are interpreted, their non-matching features bind the same situation referent, resulting in the sentence being ungrammatical.

I offer now a semantic analysis of sentences involving (b)-type PredPs. The derivation for (10), *Mario sta ajju letto*, is as follows:

(40) *t. m* (Select *Mario*, type <*s*>)

t+1. λxs.λys.∃s:(x≤y) (Select *sta*, type <*s*,<*s*,*s*>>)

t+2. λxs.λys.(m)∃s:(x≤y)=λys.∃s:(m≤y) (Merge and Function A., type <*s*,*s*>)

t+3. s' (Select (XP), type <*s*>)

t+4. λys.∃s:(m≤y)(s)=∃s:(m≤s') (Merge and Function A., type <*s*>)

t+5. λxs.λys.∃s:(x≤y) (Select *ajju*, type <*s*,<*s*,*s*>>)

t+6. (∃s:(m≤s')) λxs.λys.∃s:(x≤y)=

λys.∃s:(∃s:(m≤s')x≤y) = λys.∃s:((m≤(s'≤y)) (Merge, Comm. and F. A., type <*s*,*s*>)

t+7. s (Select *letto*, type <*s*>)

t+8. λys.∃s:((m≤(s'≤y))(l)=∃s:((m≤(s'≤y)) (Merge, Function A., type <*s*>)

The derivation shows that operator conversion can occur also when a second head is merged and the silent XP changes syntactic status (steps *t+5* to *t+6*). The only constraint is that both heads must introduce the same lexical aspect operator. So, we can capture these more complex cases without supplementary assumptions. The silent Phrase XP is interpreted as the generic situation *s'*. More complex PPs may denote a more specific location/situation (e.g. *nnanzi a*, 'in front of').

At this point, I offer a final derivation that shows why sentences such as (11), **Mario è ajju* letto, are ungrammatical. I skip the relevant passages, and give the derivation in (41):

(41) *t+4.* **Id**s:(m≤s) (Select *Mario è*, type <*s*>)

t+5. λxs.λys.∃s:(x≤y) (Select *ajju*, type <*s*,<*s*,*s*>>)

t+6. (**Id**s:(m≤s)) λxs.λys.∃s:(x≤y)=* (Merge and Function A., derivation crashes)

So, again the derivation is blocked because the two merged heads introduce different operators binding the same main situation referent. The derivations in (38)-(41) also make clear the import of our syntactic assumptions, in particular the PIG approach. The "left-to-right" method of derivation predicts that, as soon as a PredP is merged, the operator conversion will occur, and determine whether a sentence successfully converges or not. So, the tight mapping between syntactic and semantic types, *and* between syntactic and semantic derivations correctly predicts that *esse* and *sta* merge only with PredPs that having matching lexical aspect features.

This approach can be also extended to cover all of the examples we have discussed so far. For reasons of space, I shall leave the details aside, as the bulk of the treatment is by now clear. One consideration before the conclusions is the following. In the case of the ambiguous simple adjectives, such as *nniro*, 'black' in (24)-(25), I just assume that these adjectives may be "underspecified", aspect-wise. The intuition is simple: these adjectives may have no specific aspect value, so the copula uniquely determines the lexical aspect reading of a sentence. A more thorough treatment of this phenomenon is well beyond the scope of this paper, so I defer the reader to the literature on "underspecification" (see Kamp *et al.* 2005: ch. 4 and cited references). The important fact is that we now have a theory of the syntax and semantics of *esse* and *sta* and the sentences they occur in, which is a welcome result.

5. Conclusions

In this paper I have presented a novel approach to the syntax and semantics of two copulae in the Aquilan dialect, *esse* and *sta*. The novelty of this approach lies in the following two aspects.

First, I have presented the data about the distribution of these two copulae in fine-grained detail. In this presentation, I have discussed how *esse* and *sta* interact with predicates of various types, and what are the similarities and differences in these distributional patterns. I have shown that, while the syntactic role of these two copulae is the same, their semantic contribution to the interpretation of sentences is different,

and regulates their ability to occur with predicates. This descriptive analysis fills an empirical void in the literature on this dialect.

Second, I have offered a formal treatment of these two copulae that correctly captures their semantic distinction. The syntactic treatment I offered correctly captures that both *esse* and *sta* act as "linkers" between subject and predicate, as the name "copula" entails. At the same time, it captures the fact that copular sentences may involve Predicates with a rich internal structure. Whether Predicates are simple or complex, our treatment of syntactic structures and derivation can correctly capture their properties, and their subtle differences in complexity. So, we can offer a unified account of both *Mario è gnorante*, 'Mario is stubborn', and *Mario sta a ji ajju negozziu*, 'Mario is at the shop (now)'. The semantic treatment I offered correctly captures that the differences between these copulae are semantic in nature. They involve the difference between a unique situation in which a subject instantiates a property (*esse*), or more than one situation that does so (*sta*). If this situation does not match with the situation denoted by the predicate, if copula and predicate do not match in lexical aspect, then the sentence becomes ungrammatical. So, our theory correctly predicts the data discussed in the paper.

This paper does not offer a complete treatment of the syntax and semantics of *esse* and *sta*, since it does not offer a treatment of the agreement phenomena that occur between subject and copula. It also assumes, rather than explains, the lexical aspect readings of the various Predicates. So, the theory presented here is still incomplete, to an extent. I leave a more complete treatment, however, for future research.

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