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<th>UCD Working Papers in Italian Studies</th>
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<td><strong>Authors(s)</strong></td>
<td>Acquaviva, Paolo; Cappellaro, Chiara; Casalicchio, Jan; Franco, Ludovico; Larrivée, Pierre; Lorusso, Paolo; Masutti, Vania; Passino, Diana; Pescarini, Diego; Poletto, Cecilia; Ursini, Fresceco-Alessio</td>
</tr>
<tr>
<td><strong>Publication date</strong></td>
<td>2018-09</td>
</tr>
<tr>
<td><strong>Series</strong></td>
<td>Foundation for Italian Studies Working Papers</td>
</tr>
<tr>
<td><strong>Publisher</strong></td>
<td>University College Dublin. School of Languages, Cultures and Linguistics</td>
</tr>
<tr>
<td><strong>Link to online version</strong></td>
<td><a href="http://www.ucd.ie/t4cms/Foundation_for_Italian_Studies_%20Working_Papers2.pdf">http://www.ucd.ie/t4cms/Foundation_for_Italian_Studies_%20Working_Papers2.pdf</a></td>
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Chorophorics in the Aquilan dialect

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Abstract: This article outlines the properties of chorophorics (“spatial pronouns”) in the Italian dialect Aquilan. It is shown that chorophorics (e.g. pe’nfronte ‘to in front (of the place)’) display similar morphological properties to spatial prepositions (e.g. ‘nfronte alla machina ‘in front of the car’). However, they differ in their syntactic distribution, and their semantic interpretation in intra- and inter-clausal structures. An outline of the data is offered, and a sketch of chorophorics’ lexical and anaphoric potentials are defined via a minimal fragment of Discourse Representation Theory. The article concludes with some general considerations on the nature of chorophorics.

1. Introduction

Aquilan is a central Italian dialect spoken in L’Aquila, Northwest Abruzzo, and its surrounding valley (Vignuzzi, 1997; Loporcaro and Paciaroni 2016). Some of its lexical, phonological, and morpho-syntactic properties are well-studied. One example is morphological alternation in lexical items, due to the influence of other Abruzzese dialects (e.g. ju piete vs. ju pee ‘the foot’, respectively: Lolli 1982; Marra et al. 2000: Cavalieri 2001). A phonological example includes a dearth of diphthongs (e.g. bbonu ‘good’, cf. Italian buono: Avolio, 1992, 1993, 2009a). A lexical example includes the distinction between copulas respectively denoting stable and temporary relations over time: esse and sta’ (Giammarco 1973; Manzini and Savoia 2005). However, other domains of the grammar and the lexicon of Aquilan seem understudied.

One such domain includes spatial prepositions and chorophorics, two categories that belong to the set of spatial categories. Spatial categories are usually defined as categories that can contribute spatial information to sentences (Hagège 2010: Ch.1; Libert 2013; and references therein). Spatial prepositions are usually defined as (syntactic) heads that describe the location of one entity, or figure, with respect to a landmark object or ground (Talmy 2000: Ch.1). Prepositions in Italian dialects are generally understudied (cf. Maiden and Parry 1997: Ch.1; Ledgeway 2016; Garzonio and Rossi 2016 on Sicilian). Italian prepositions, instead, have received relatively more attention over the years (e.g. Rizzi 1988; Serianni 1988; Taylor 1988; Folli 2008; Tortora 2008; Luraghi 2009). A more homogeneous picture emerges when one focuses on chorophorics, defined as vocabulary items that can act as “spatial” pronouns (Hagège 2010, 2013). Studies on chorophorics are still rare; hence, their properties in Italian, Aquilan and other Italo-Romance dialects are virtually unexplored.

The properties of spatial prepositions and chorophorics in Aquilan, together with their categorial, lexical and distributional relations can be preliminarily illustrated via (1)–(3):

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1 The list of abbreviations used in this paper is as follows: A=sense cluster associated to a; DEF=sense cluster associated to de; DEF= definite marker; E=copula, extended aspect; ML= male gender; INF= infinitival marker; MED= deixis, medial marker; N=sense cluster associated to ‘n’; PE=sense cluster associated to pe’; S=copula, stable aspect; SELF= reflexive clitic; SING= singular number.
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(1) Luigi sta ‘n-fronte a-jju divano
Luigi is.E N-front A-the sofa
‘Luigi is behind the sofa’

(2) Luigi s’assetta de-fronte (#a-jju divano)
Luigi SELF.sits DE-front (A-the sofa)
‘Luigi sits down behind (the sofa)’

(3) Paolo va pe’n-fronte a-jju divano. Luigi va pe-rrete/#arrete a-jju divano
Paolo goes PE-front A-the sofa. Luigi goes PE-back/#A-back A-the sofa
‘Paolo goes in front of the sofa. Luigi goes behind (of the sofa)’

The sentence in (1) includes the preposition ‘nfronte a ‘in front of’, which takes the Noun Phrase (NP) ju divano ‘the sofa’ as its complement and forms a Prepositional Phrase (PP), ‘nfronte ajju divano. The article ju ‘the.ML.SING’ conflates with the head of this preposition, a, to form the preposizione articolata ajju via raddoppiamento sintattico, or “syntactic doubling” in English (cf. Napoli and Blevins 1987; Rizzi 1988: 498 for Italian). The copula sta describes the relation between Luigi and the sofa as being temporary (Avolio 2009a). It takes this PP and the NP referring to the figure as its arguments, thereby acting as a copula that can have a “locative predication” function (Stassen 2013).

The sentence in (2) includes the chorophoric defronte, which refers to the posterior axis of a given sofa in context. Chorophorics cannot take a ground NP as their complement, unlike prepositions. If this happens, a sentence becomes uninterpretable, as we show via the “#” symbol. This is because chorophoric and ground NP end up introducing two ground referents, when only one is accessible in context. Consider now (3). In the first sentence, the PP ‘nfronte ajju divano introduces a frontal location that Paolo occupies with respect to a given sofa. The second sentence establishes that Luigi occupies a posterior location with respect to this sofa. However, the presence of the obligatory chorophoric derrete ‘behind’ prevents the overt repetition of the ground NP.

Overall, these initial data seem to suggest that chorophorics and PPs stand in a complementary distribution at an intra-sentential level but can establish anaphoric relations at an inter-sentential level. These data also suggest that the apparently different morphological structures of prepositions and chorophorics involve the same categories: spatial nouns and prepositions. Thus, ‘nfronte, defronte and the related pe’nfronte seem to act as members of a more abstract categorial paradigm: prefixes ‘n-, pe-, and de- seem to determine which preposition/chorophoric must occur in a sentence. Nevertheless, these converging grammatical, lexical, and discourse-bound properties seem still poorly understood.

The first goal of this article is therefore descriptive in nature. We aim to offer a thorough presentation of these patterns and show how properties of these two categories are tightly intertwined. The second goal is instead theoretical. We aim to offer an account of the different properties of chorophorics and connect these properties to their grammatical and discourse distribution. Thus, we aim to offer an analysis that allows us to show how these categories form the grammar and the lexicon of “space” of the Aquilan dialect (cf. Levinson 2003; Levinson and Meira 2006). We also aim to offer a contribution to the broader typological debate on adpositions, chorophorics, and their structural relations (cf. Haspelmath 2003; Hagège 2010, 2013; Dryer 2013; Libert 2013). To reach these goals we present the relevant data in section 2. We then offer a theoretical account based on Lexical Syntax (Hale and Keyser 2002) and Discourse Representation Theory (Kamp et al. 2011) in section 3. Section 4 concludes.
2. Methodology and Data

2.1 Background information, material, and methods

Aquilan is a central Italian dialect from *cicolano-reatino-aquilano* sub-branch (Lopez 1988; Avolio 2009a, b). Aquilan has a semi–standard spelling system, used in literary texts (e.g. poetry, theatrical plays) and in modern social media communication (e.g. satire: Lolli 1975, 1982; AA.VV. 2017, [https://www.facebook.com/ngulochestrina](https://www.facebook.com/ngulochestrina)). Language-specific forms of spelling include the use of “j” for /j/ (e.g. *jemo* ‘we go’), apocope and syntactic doubling (e.g. ‘*nnanzi*’ lit. ‘a–head’) (Marra et al. 2000; Cavalieri 2001). Diastratic variation involves older generations (>60 years) including near-monolingual speakers, unlike younger generations (<40 years). Diatopic variation involves South-Eastern varieties having influences from Southern Abbruzzese dialects (e.g. frequent apocope: Avolio 2009b). Code-switching is common regardless of register and social context: dialect carries a form of covert prestige. Hence, Aquilan and Italian co-exist in a condition of *diglossia*, (cf. Chambers and Trudgill 1998: ch. 4; Berruto 2012).

Because of these factors, we collected data by using the following methodology. A group of near mono-lingual NORM speakers (N=13; cf. Chambers and Trudgill 1998: 28–30) over 60 years of age were interviewed during a period of fieldwork. The goal was to reduce the influence of Italian to a minimum, since no participant was genuinely monolingual. Participants were asked to offer dialect “lessons” to the field researcher, who explicitly asked to be educated in the use and understanding of these expressions. The researcher started the interview by using Italian, but slowly switched to Aquilan as the interview unfolded. The use of a naturalistic context and the acknowledgement of the informants’ expertise on dialect greatly facilitated a cooperative attitude from the participants (Chelliah, Shobhana and Willem 2010: ch.5; Margetts and Margetts 2012).

Since the goal was to test how spatial prepositions and chorophorics are used in context, we adapted parts of the “Topological Picture Research Series” task method for use in the interviews. Speakers of a target language are asked to name and describe spatial relations as they are presented with pictures from a closed set (Bowerman and Pederson 1992; cf. Levinson and Wilkins 2006: Ch.1). The elicited expressions were then compared across speakers. In this way, a researcher can establish which preposition can better describe a given relation (e.g. *in* vs. *on* for ‘inclusion’ in English). One minor obstacle was that this series mostly focuses on geometrical relations. For projective relations, fully described in the next section, we adopted an extension of the task. We thus used toy characters and props to “act out” these other spatial relations (cf. Levinson 2003: Ch.1). We applied the same method to test chorophorics, since the use of props allowed us to always make clear which were the grounds that could be implicitly be referred to, in context. Interviews were usually conducted in rooms furnished with a table. Hence, the researcher could easily move the props and change their spatial configuration as required. The elicited sentences were then transcribed, analysed, and organized into sub-categories, as discussed in the next section.

2.2 The Data

Aquilan Prepositions can be distinguished between *simple* and *complex* prepositions, like their Italian counterparts (Rizzi 1988; Serianni 1988). Complex prepositions can be further distinguished between *projective* and *place* prepositions, due to a semantic alternation
reflected in their morphosyntactic structure (Cresswell 1978; Jackendoff 1983, 1990; Wunderlich 1991; Zwarts and Winter 2000; a.o.). The structural relations between prepositions and chorophorics follow subtle patterns that can be best understood once we present each category.

Simple prepositions form a sub-set of mono-morphemic, monosyllabic lexical items. These prepositions are highly polysemous: they can cover or colexify several related senses. They introduce the complement ground NP in Basic Locative Constructions (BLCs), defined as the predominant type of declarative sentences or answers in a language that can describe a spatial relation (Levinson 2003; Levinson and Meira 2003; Levinson and Wilkins 2006: ch.1). Simple prepositions must occur with a ground NP, lest a sentence be ungrammatical, and can alternate between a directional and a locative sense type. Directional senses involve a relation between figure and ground as changing over time; locative, as remaining stable. Thus, Aquilan seems a “verb-framed” language like Italian (cf. Talmy 2000: Ch.3; Folli 2008).

Complex prepositions involve the combination of simple prepositions and spatial nouns, defined as nouns that refer to parts, sections, and axes of objects (Levinson 1994; Svenonius 2006). Most spatial nouns can also be attested as distinct lexical items (e.g. la fronte dejju quatrano ‘the boy’s front’ vs. ‘nfronte ‘in front’). However, only prefixed spatial nouns can occur in complex prepositions: “bare” spatial nouns are disallowed. Projective prepositions include ‘n-, pe- and a- as prepositions re-interpreted as prefixes (e.g. ‘n-fronte, a-rrete). Place prepositions include preposizioni articolate aju and alla (e.g. aju lato ‘at the side’, alla senistra ‘at the left’). Note that aju includes ju and alla includes la, respectively male and female gender (singular) forms of the definite article. Spatial nouns follow gender assignment rules for nouns in this dialect, although no semantic distinction is related to these patterns.

Projective prepositions include a and de (e.g. ‘assenistra de) as their head. Place prepositions include only de (e.g. aju lato de ‘at the side of’). Both categories include prefixed arguments (e.g. ‘nfronte), or a silent prefix (e.g. lungo in lungo a ‘along’). Consider (4)–(10), with the proviso that we only use examples involving locative prepositions and static verbs. In (4)–(5) we illustrate the distribution of simple prepositions, in (6)–(8) the distribution of complex projective prepositions, and in (9)–(10) that of complex place prepositions. In (11) we offer the list of simple prepositions, and in (12)–(13) non-exhaustive lists of complex prepositions:

(4) Luigi sta a-ju tavolo
Luigi is.E A-the table
‘Luigi is at the table’

(5) *Luigi sta a(jju tavolo)
Luigi is.E A(-the table)
‘Luigi is at (the table)’

2 Polysemy holds when one lexical item has several related senses, hence it offers a semasiological perspective. Colexification holds when several related senses are associated to one item, and thus captures an onomasiological perspective (François 2008, 2015). In this article, we only focus on the polysemy of simple prepositions as heads, and as affixes in chorophorics.

3 Most authors use the labels “body part”, “place”, and “relational” nouns for this macro-category (cf. Levinson and Wilkins 2006: ch.1). We use Chappell and Peyraube (2008)’s label to discuss the data in a streamlined manner.

4 Ungrammatical sentences were tested by having a toy character called “Luigi” next to a toy table and asking if these sentences could be used in such a context.
Complex prepositions can be distinguished from simple prepositions also because they can undergo ground NP ellipsis, as (7)–(10) show (cf. Merchant 2001: Ch.2, 2004; Svenonius 2006). This optional form of ellipsis is licensed in deictic or referential contexts, and in discourse or anaphoric contexts. Referential contexts are defined when a sentence is used in isolation: the identity of its referents must be inferred from the extra-linguistic context (Von Fintel 1994; Diessel 1999: Ch.1). In anaphoric contexts, previous sentences act as the discourse background against which a novel sentence is interpreted. These contexts license anaphoric relations as relations between two phrases possibly belonging to the same category (e.g. PPs) or carrying the same semantic features (e.g. spatial senses). The phrases in the context sentences act as antecedents of the phrases in the novel sentence (cf. Kamp et al. 2011: Ch.4; Kibrik 2013). The pronounced part of an elided phrase is known as the remnant, which in these cases corresponds to the complex prefixed preposition: ground NP and head are elided. Anaphoric relations also establish identity relations between the referents that the involved phrases denote.

The list in (11) presents the 4 attested simple prepositions of Aquilan, with their most frequent senses. The lists in (12)–(13) are non-exhaustive, even though they considerably expand over previous lists (e.g. Cavalieri 2001). Most complex prepositions feature a as their main head. Prepositions distributing as suffixes include a (e.g. a-rrete a), pe’ (e.g. pe-
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attraverso a) and ‘n (e.g. ‘n-fronte a). This latter prefix seems a remnant of the preposition in (cf. its Italian and Latin cognates: Rizzi 1988; Vincent 1999), also attested in verbs (e.g. ‘n-colla’ lit. ‘to in-shoulder’, i.e. to shoulder a weight). As a distinct head, it seems to have disappeared from the synchronic lexicon of Aquilan. De and pe- also appear in chorophorics, as we discuss in the next paragraphs.

These lists define the range of prepositions in Aquilan and show the relevance of simple prepositions and spatial nouns for an analysis of complex prepositions and chorophorics. According to Hagège (2010: 108–130, 2013), chorophorics are an understudied category due to their heterogenous grammatical status. These works observe that chorophorics act as a sub-category that can refer to discourse-specific locations or “places”. This interpretation can be licensed in either anaphoric or referential contexts. It is known that chorophorics appear in languages such as Mandarin and Hebrew (Botwinik 2008; Hagège 2010), but their distribution across languages is still vastly understudied. Hence, these works treat chorophorics as a liminal category occupying the categorial space between prepositions and nouns (Libert 2013: Ch.2).

Three key properties of Aquilan chorophorics can thus shed light on the general properties of this category. First, as shown in the introduction, chorophorics and PPs with complex prepositions as heads stand in complementary distribution. Second, only chorophorics distribute with static verbs other than the copula sta. Third, de- and pe- act as prefixes forming two distinct chorophoric classes. De- is used when BLCs cover locative senses; pe-, when BLCs cover directional senses. If (14) shows that ‘nfronte can be the remnant occurring with sta, then (15) shows that de-fronte is obligatory with s’assetta ‘sits’. Instead, (16) shows that pe’nfronte is obligatory with va ‘goes’; (17), that de-fronte cannot combine with this dynamic verb, for the most part:

(14) Luigi sta ‘n-fronte (a-jju divano)
  Luigi is.E N-behind (A-the sofa)
  ‘Luigi is in front (of the sofa)’

(15) Luigi s’assetta de-fronte (#a-jju divano)
  Luigi SELF.sits DE-front (A-the sofa)
  ‘Luigi sits down in front (of the sofa)’

(16) Luigi va pe’n-fronte (#a-jju divano)
  Luigi sits PE.N-front (A-the sofa)
  ‘Luigi sits down outside (of the sofa)’

(17) ??Luigi va de’n-fronte
  Luigi goes DE.N-front
  ‘Luigi goes outside (of the sofa)’

Note that due to the subtle nature of the distinctions at stake, participants’ intuitions were less clear-cut. The symbol “??” thus represents that (17) is nearly unacceptable, although participants did not firmly rule this type of example out. However, the distribution of “simple” chorophorics with NPs was always judged uninterpretable, when sense-matching verbs were used. Complex spatial nouns qua remnants (e.g. ‘nfronte in (14)) can be labelled as “derived” chorophorics: they derive referential properties in ellipsis contexts.

Anaphoric examples offer a more complex picture. When a context sentence introduces a ground NP, the subsequent sentence can include a chorophoric. Hence, PP and chorophoric establish an anaphoric relation, with the PP as the chorophoric’s antecedent. The cline of
acceptability in these contexts seems also related to the verb’s type at stake. The copula sta seems to accept derived chorophorics, but simple chorophorics can also occur with this verb (cf. defronte, ’nfronte in (18)). Other lexical static verbs seem to trigger a clear preference for de- chorophorics (cf. da-rrete in (19)). Directional verbs seem to select the pe- type chorophorics, as perrete in (20) shows. We round up the discussion with non-exhaustive lists of chorophorics in (21):

(18) Paolo sta a-rrete a-jju divano. Luigi sta de-fronte/’n-fronte (a-jju divano)

Paolo is.E A-back A-the sofa. Luigi is.E DE-front/N-front (A-the sofa)

‘Paolo is behind the sofa. Luigi is in front (of the sofa)’

(19) Paolo s’assetta ’nfronte a-jju tavolo. Luigi s’assetta de-rrete/??a-rrete

Paolo SELF.sits N-front A-the table. Luigi SELF.sits DE-back/A-back

‘Paolo sits down in front of the table. Luigi sits down behind (the car)’

(20) Paolo va ’n-fronte a-lla machina. Luigi va pe-rrete/#a-rrete

Paolo goes N-front A-the car. Luigi ‘ goes PE-back/a-back

‘Paolo goes in front of the car. Luigi goes behind (the car)’

(21) a. Simple Chorophorics, pe- series:={pe-rrete, pe-nfronte, pe-ssopre, pe-ssottu,...}

b. Simple Chorophorics, de- series:={de-rrete, de-fronte, de-sopre, de-sottu,...}

c. Derived Chorophorics:={a-rrete, ’n-fronte, Ø-sopre, Ø-sottu,...}

The lists in (21a–c) show that that simple and derived chorophorics can be conceived as items belonging in a paradigm-like distribution. For instance, the spatial noun fronte can combine with prefix pe- to form the directional simple chorophoric perrete, with de- to form the locative chorophoric derrete, or with ‘a- to form the derived chorophoric arrete. Derived chorophorics can thus emerge in the opportune syntactic and discourse-bound contexts. Note, then, that chorophorics seem to always refer to specific, discourse-given places, not unlike place complex prepositions. Overall, chorophorics display a category-specific array of morpho-syntactic and semantic properties, which seem “inherited” from spatial nouns and prepositions, qua their formative categories.

Let us take stock. We have reached the first goal by showing that Aquilan prepositions can include simple and complex prepositions. The latter category involves the combination of spatial nouns and simple prepositions as prefixes, as in the case of chorophorics. Thus, complex prepositions and chorophorics seem to form a paradigm-like macro-category of vocabulary items that can refer to “places” and/or directions defined with respect to a ground. Simple chorophorics (e.g. perrete) must refer to a ground implicitly, blocking the presence of a ground NP. Chorophorics derived via ellipsis of ground NP involve the optional presence of this NP, instead. In sentential contexts, PPs and chorophorics can distribute as complements of VPs; in discourse contexts, they can establish inter-sentential anaphoric relations. The second goal, offering a formal account of these data, is the target of the next section.

3. The Account

3.1. The Proposal: The P-within-P hypothesis and spatial categories
In this section we offer a compact presentation of *Lexical Syntax* (Hale and Keyser 2002). A concise discussion of previous proposals on the structure of adpositions will help us justifying this choice of framework for our account.

Research on prepositions started with early generative and cognitive linguistics proposals (e.g. Jackendoff 1972, 1983, 1990; van Riemsdijk 1978; Langacker 1987). Successive proposals across distinct frameworks converged onto a bipartite structure for adpositions (generative syntax: van Riemsdijk 1990; Wunderlich 1991; Koopman 2000; LFG: Vincent 1999; HPSG: Tseng 2000; functional typology: Croft 2001: ch.4, 2003; Hagège 2010). For instance, Jackendoff (1983, 1990) proposes that English compound prepositions such as *from under the bed* involve a Path head as the projection of *from*, and a Place head projecting from *under*. Other prepositions such as *into* also support this analysis, due to their conflation of a Place head (i.e. *in*), and a Path head (i.e. *to*).

Recent proposals on Italian prepositions have suggested that the classical analysis can be extended to include aspectual phenomena (cf. Folli 2008; Tortora 2008). The recent Garzonio and Rossi (2016) has suggested that prepositions in Sicilian can receive a ‘Cartography’ account. Building on the proposal illustrated in Cinque and Rizzi (2010), they suggest that a preposition such as *in fronti a* ‘in front of’ projects three distinct heads, one per constituting morpheme. Thus, *a* projects a Kase head, *fronti* an Axpart head, and *in* a Place head. A silent Path head can determine whether prepositions carry a locative or directional sense. Furthermore, this work speculates that a similar analysis can be extended to other Italo-Romance dialects.

Our account of the morpho-syntactic properties of Aquilan spatial categories follows a different perspective: the “P-within-P” hypothesis proposed within *Lexical Syntax* (Hale and Keyser 2002: ch.4; Mateu 2002; ____). We conceive our use of this account as a theory-neutral alternative to previous proposals, for other frameworks have offered equivalent analyses (e.g. Tseng 2000; Hagège 2010: 108–109; Jackendoff 2005). To present this hypothesis and show its empirical import, we first present the key assumptions of *Lexical Syntax*.

First, according to *Lexical Syntax* language-specific categories can project at least one of four language-general head types. Depending on the valence of a lexical or functional item in a syntactic context, the corresponding head will instantiate a 0-place, 1-place, or 2-place head type. A 0-place head is projected from an item that can occur as a “bare” argument (i.e. distributionally equivalent to a phrase). A 1-place head is projected from an affix (prefix or suffix) that takes another item as its argument. A 2-place head type is projected from a “relational” head, i.e. a head taking two phrases as its arguments. Although the framework proposes two types of 2-place heads, we can ignore this distinction without losing precision in our analysis (cf. Hale and Keyser 2002: 13–14). Heads can thus combine or merge with 0, 1 or 2 distinct phrasal arguments, forming a corresponding phrase.

Second, prepositions involve a 2-place head that takes a ground NP as its complement and possibly another spatial phrase as its internal argument (a specifier, in generative terms). The three elements form a PP or “spatial phrase” (SP), in the case of spatial prepositions. Consider (22) as an example:

(22) [SP[SP in front ] of [NP the sofa ]]

The phrase *in front of the sofa* involves of projecting a 2-place head. Its arguments are the ground NP *the sofa* and the complex preposition *in front*. As (22) shows, the “P-within-P” label stems from analysing complex prepositions as arguments of simple prepositions as heads. This example also shows that the internal structure of complex prepositions remains unanalysed, as *in front* is treated as a single (lexical) item.
Our third, novel assumption is that complex/internal prepositions can be analysed via this hypothesis. Simple prepositions are mono-morphemic items either acting as heads or as prefixes in complex prepositions. In their “simple” distribution, they correspond to 2-place head types; in their prefix distribution, to 1-place head types. As prefixes, they usually undergo conflation with spatial nouns (cf. Talmy 2000 Ch.3; Hale and Keyser 2002: ch.1). Furthermore, internal prepositions specify which location is involved in a given relation (e.g. ‘nfronte).

For chorophorics, we only need two minimal extensions. First, derived chorophorics earn this status when ellipsis can occur in a sentential context. Ellipsis targets the ground NP and the governing head, thereby leaving the internal “spatial phrase” as the remnant (cf. Merchant 2001: Ch.3). Second, simple chorophorics involve the merge of pe- and de- as prefixes with spatial nouns. The resulting spatial phrases block the merge of a ground NP, for they carry features that signal the presupposition of a ground NP in context. Consequently, the presence of ground NPs with chorophorics renders sentences uninterpretable or incoherent, when discourses are involved (cf. also Kehler 2011; Ward and Birner 2012). We represent this sub-category via superscripts: “SP’” (i.e. SP prime) is the label for simple chorophorics and a simple notational tool to represent their status as pronominal (i.e. presupposition-carrying) items. We show these structures in (23)–(27):

(23) \([SP[SP \emptyset] a [NP -jju tavolo]]\)
(24) a. \([SP \ 'n [NP -fronte ]]\)
    b. \([SP a [NP -jju fianco ]]\)
(25) a. \([SP[SP \ 'n [NP -fronte ]] a [NP -jju divano ]]\)
    b. \([SP[SP a [NP -jju fianco ]] de [NP -jju divano ]]\)
(26) a. \([SP da [NP -rete ]]\)
    b. \([SP pe [NP -rete ]]\)
    c. \([SP n [NP -arrete ]]\)
(27) a. \([SP[SP \ 'n [NP -fronte ]] (aSP [NP -lla machina ])]\)
    b. \([SP[SP a [NP -jju fianco ]] (de [NP -lla machina ])]\)
    c. \([*SP[SP pe [NP -rete ]] a [NP -lla machina ]]\)

As (23) shows, simple prepositions involve a silent internal preposition, a fact that seems connected to their rich polysemy. Without this preposition specifying the location at stake, these prepositions seem to have broader, ‘general’ senses. Instead, (24) shows that complex prepositions involve prefixation and conflation of a 1-place preposition and a spatial noun. Place complex prepositions minimally differ in including the definite article and a as the fixed prefix, with the two elements undergoing conflation.\(^5\) Thus, (25) shows that they also differ from projective prepositions in always having de as the 2-place head, apparently covering a part-of relation (cf. Stassen 2009: Ch.4). Projective prepositions may also include a silent prefix (cf. sopre/sotta), a fact that falls within the assumptions of the P-within-P hypothesis.

\(^5\) Note that we treat definite articles as part of NPs, thereby simplifying the underlying structure of head SPs. This simplification does not reduce the explanatory power of our account. See however Elbourne (2013) for a recent discussion on definite NPs.
The structures in (26) show that chorophorics share the same morphological structure of internal prepositions. Since their different distribution is based on their semantic contribution to sentences, this analysis aptly captures the emergence of these restricted paradigms. The structures in (27) show that by having ellipsis to target head preposition and ground NP, the internal SP becomes a remnant. The category of the remnant preserves the category of the whole phrase, thereby preserving its categorial status as an SP. Note that by assuming that chorophorics correspond to SP’ (type) phrases, we can capture their inability to merge with ground NPs within other heads. As (27c) shows, the simple preposition a, among others, only takes SP specifiers.

We can now offer an account of the sentential data. For standard BLCs, we assume that verbs act as heads of verbal phrases (i.e. VPs), which represent the minimal structures underlying BLCs. PPs/SPs act as the complements of verbs. Thus, the structures in (28) illustrate the possible BLCs emerging from our examples. The structures in (29), instead, illustrate the types of ellipsis structures that result from the data:

(28) a. \[\text{VP[NP Luigi] sta [SP \text{∅} ] a [NP -ju tavolo]]}\\
   b. \[\text{VP[NP Luigi] sta [SP[n \text{-fronte} ] a [NP -ju divano]]}\]

(29) a. \[\text{VP[NP Luigi] va [SP[a [SP -rete ](a [NP -ju divano])]}}\\
   b. \[\text{VP[NP Luigi] va [SP pc [NP -rete]]}\]

As (28a) shows, a simple preposition can head a PP (i.e. aijju tavolo ‘at the table’) which becomes the complement of a static verb (i.e. the copula sta). A similar reasoning applies for projective and place complex prepositions, as ‘nfronte aijju divano in (28b) shows. Ellipsis patterns show that ground NP ellipsis is optional when a derived chorophoric is involved (cf. (29a)), or obligatory when a chorophoric is merged (cf. (29b)). Whether the remnant is thus of type SP or the the sub-type SP’, a BLC includes a reduced form of this category as its complement. We can thus account the syntactic distribution of complex prepositions and chorophorics.

We can now offer an analysis of discourse structures. We borrow some key assumptions from syntactic frameworks also covering discourse structures (e.g. Ginzburg and Sag 2000; Jäger 2005; Sag et al. 2012). We treat distinct sentences as structured sequences of clauses. In Lexical Syntax, this entails that a silent sentential connective acting as a 2-place head merges with two clauses/sentences as its arguments, here represented as VPs. Thus, anaphoric relations between chorophorics and PPs/SPs as antecedents hold when these categories share the same underlying category. We capture this relation via the use of category equations, in (30):

(30) a. \[\text{CP[VP Paolo sta [SP(2) arrete aijju divano ]] ∅ [VP Luigi sta [SP(Y) defronte ]]},\\
   \text{with } SP(2)=SP(Y)\\
   b. \[\text{CP[VP Paolo sta [SP(3) arrete aijju divano ]] ∅ [VP Luigi sta [SP(Z) ‘nfronte (aiju divano) ]},\\
   \text{with } SP(3)=SP(Z)\\

As this analysis shows, a chorophoric requires an antecedent that also belongs to the SP type. Since arrete aijju divano qualifies as such an antecedent, the two phrases enter in an anaphoric relation, represented via the identity relations \(SP(Y)=SP(2), SP(3)=SP(Z)\). By establishing anaphoric relations between their constituents, these sentences form a cohesive...

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\(^6\)We gloss over the complex debate on whether ellipsis is better accounted for via syntactic or pragmatic treatments (Merchant 2001; vs. Stainton 2006), as this discussion would lead us too far afield.
and coherent mini-discourse, a fact that is also consistent with previous accounts (e.g. Ward and Birner 2012). This is another welcome result of adopting Lexical Syntax as our account.

Overall, we now have a formal account showing that prepositions and chorophorics act as distinct members of a general set of spatial categories. Complex prepositions and chorophorics, however, inherit their properties from spatial nouns and simple prepositions. This account is consistent with the “P-within-P” hypothesis, but also with frameworks that assume hierarchical relations between categories (e.g. Sign-Based Construction Grammar: Sag et al. 2012). The next section, then, builds on these results to offer an account of the semantic patterns.

3.2. Semantics

The discussion of the data has highlighted that chorophorics minimally differ from spatial prepositions in carrying an anaphoric component. Prepositions introduce a ground referent; chorophorics seem to presuppose the existence of this discourse-given referent (cf. Libert 2016). Thus, chorophoric carry a discourse-bound interpretation.

Discourse-bound phenomena have been intensely studied within “dynamic semantics” approaches (Nouwen et al. 2016). Frameworks such as the Generative Lexicon (Pustejovsky 1995) and Type-Logical Composition (Asher 2011) have instead addressed polysemy and the effect of context-sensitivity on the representation of senses for lexical entries. Syntheses of these different strands of research have been offered, e.g. the integration of (Segmented) DRT with the Generative Lexicon (Asher and Pustejovsky 2013).

Even if theoretical proposals abound, the framework we adopt to account for the data is Discourse Representation Theory (DRT), in the formulation offered in Kamp et al. (2011). Our choice falls on DRT for three reasons. First, DRT represents the dynamic semantics theory that has perhaps the highest degree of flexibility, since it can recast other formal approaches within its own formalism (cf. Brasoveanu 2006: Ch.1–2). Second, DRT can be used to offer context-sensitive representations for vocabulary items and their senses (e.g. Asher 2011; Asher and Pustejovsky 2013). Third, DRT offers an incremental model of interpretation that is easily implementable with different syntactic approaches (Kamp et al. 2011: ch.2), including Minimalism (cf. Haselbach 2017). Thus, DRT seems the ideal framework to account for our data. Three central assumptions play a role.

First, DRT assumes that sentences and discourse are interpreted in an on-line manner. Previous sentences thus offer the context against which novel sentences are interpreted and checked for their consistency. This process ranges from morphemes as the smallest units in words and phrases, to sentences and discourses (Haselbach 2017: Ch.4). Second, in DRT vocabulary items are represented as contributing lexical content and possibly anaphoric relations. Lexical content comes in the form of conditions, 1-place or 2-place predicates (i.e. relations) that individuate referents and their relations. For instance, the indefinite NP a delegate introduces a condition woman(x) and a referent x. Thus, anaphoric relations are represented as relations between referents and contexts.

Although DRT is well-known for its “box” notation, in linear notation this information is represented as [{x}: delegate(x)]. This type of structure is known as a Discourse Representation Structure or DRS. Square brackets represent pairings of referents and conditions associated to a morpho-syntactic string. Set (i.e. curly) brackets represent its referents, and the colon the relation between the two elements. Thus, the NP a delegate introduces a new referent individuated as a female, singular individual. DRSs represent the active referents in discourse available for anaphoric relations, one can label their
corresponding set as the *universe of discourse* \( U \) (e.g. \( \{x\} \) in the DRS for this NP). The rest of a DRS is the *condition set*, the set of conditions individuating and relating referents.

More complex DRSSs can be built via precise algorithms, which define how the sets of referents and conditions are *merged* in a principled manner. There is an intimate relation between the syntactic operation of merge mentioned in the previous section and the operation that builds more complex DRSSs. Here, we do not spell out the formal details. Instead, we maintain the pre-theoretical intuition that vocabulary items are merged to form phrases, sentences and discourses, and then their meanings/senses are merged to form their corresponding senses. To illustrate this point, consider (31a) (from Kamp et al. 2011: 130, (4)):

(31) a. A delegate arrived. She registered.
   b. \( \{x,y\}:\text{delegate}(x),\text{arrive}(x),\text{woman}(x),\text{registered}(y),\text{woman}(y), y=x \)
The condition $g=?$ Represents the presupposed anaphoric relation. Its presuppositional status is represented by underlining the condition, as per standard DRT notation (van der Sandt 1992; Geurts 1999; Kamp et al. 2011: Ch.4). Crucially, presupposed conditions must be added to the context before the sentence or phrase containing the presupposition can be merged. If this operation is successful, then the chorophoric’s lexical contribution is successively merged with a sentence’s DRS. Thus, the condition that a given location is the ground (i.e. $ground(g)$), must find a suitable referent (i.e. the $g=?$, condition) and must be related to a specific condition (i.e. $R(l,g)$) must be merged first. The conditions describing the lexical content of a chorophoric (i.e. $condition(v)$, $±dir(R)$) are merged once these presuppositions are accommodated.

The de- chorophorics, in (32c), minimally differ by including a $–dir$ condition holding for this relation; the pe- chorophorics include a $+dir$ condition. Simplifying matters somewhat, the $+dir$ condition individuates a relation involving directed motion of the figure; the $–dir$ condition, a lack thereof (cf. Zwarts and Winter 2000; Kracht 2002). These conditions are defined over relations between referents (here, $R$), which can in turn act as “structured” referents (cf. Brasoveanu 2006: ch.2; Kamp et al. 2011: ch.3). Thus, chorophorics have the same distribution of SPs/PPs, but their semantic contribution also includes presupposed material, aside lexical content.

This point can be appreciated once we offer the DRSs corresponding to SPs. We offer examples based on (23)–(27) in (33)–(37), using simplified morpho-syntactic structures:

(33) $[[SP\ ajju\ tavolo]] :=[\{l,g,R\} : at(v), ±dir(R), R(l,g), ground(g), table(g)];$

(34) a. $[[SP \ ‘nfronte ]] :=[\{l\} : front(l)];$
   b. $[[SP\ ajju\ fianco]] :=[\{l\} : side(l)];$

(35) a. $[[SP\ ‘nfronte\ ajju\ divano\ ]] :=[\{l,g,R\} : front(l), ±dir(R), R(l,g), ground(g), sofa(g)];$
   b. $[[SP\ ajju\ fianco\ dejju\ divano]] :=[\{l,g,R\} : side(l), ±dir(R), R(l,g), ground(g), sofa(g)];$

(36) a. $[[SP\ de-[NP\ -rrete]] :=[\{l,g,R\} : back(l), -dir(R), R(l,g), ground(g), g=?];$
   b. $[[SP\ pe-[NP\ rrete]] :=[\{l,g,R\} : back(l), +dir(R), R(l,g), ground(g), g=?];$
   c. $[[SP\ a-[NP\ -rrete]] :=[\{l\} : back(l)];$
   d. $*[[[SP\ perrete\ alla\ machina]] :=[\{l,g,R\} : back(v), +dir(R), R(l,g), ground(g), car(n), ground(n), car(n), g≠n];$

(37) a. $[[SP\ ‘nfronte\ (alla\ machina\ )]] :=$
   $[[l,g,R,C] : front(l), ±dir(R), R(l,g), (ground(g), car(g), (C(g), C(R))];$
   b. $[[SP\ ajju\ fianco\ (della\ machina)] :=$
   $[[l,g,R,C] : side(l), ±dir(R), R(l,n), (ground(g), sofa(g), (C(g), C(R))];$

As (33) shows, the PP/SP $ajju\ tavolo$ ‘at the table’ denotes a relation between a ‘general’ set of locations $l$, and another location identified as a unique table and ground in context (cf. Kamp et al. 2011’s treatment of definite descriptions). For this and other prepositions, we represent their polysemy with respect to the directional/locative alternation via an underspecified DRS. In compressed format, $±dir(R)$ stands for a condition that can have either a directional or non-directional (i.e. locative) sense. Thus, a DRS embedding this condition type can be conceived as the union of two possibly acceptable DRSs (cf. Egg 2010; Asher and Pustejovsky 2013). The DRSs associated to the complex prepositions ‘$nfronte$ in front’ and $ajju\ fianco$ ‘the side’ are in (34). These DRSs can be merged with those of $a$ and corresponding ground NPs in (35) and form the DRSs associated to the PPs ‘$nfronte\ ajju$
divano and aju fianco dejju divano. Both describe spatial relations holding between a sofa and either a front projection or a generic side, respectively.

The DRSs for chorophorics in (36) underline the sense differences among these morphologically similar categories. Thus, perrete in (36b) is associated to a DRS that minimally differs from the arrete one (cf. (36c)) in introducing a presupposition about the ground. The same reasoning holds for derrete in (36a), which however denotes a locative relation between figure and ground. The ungrammaticality/uninterpretability of chorophorics merging with prepositions is shown in (36d). Since perrete introduces a presupposition that the ground is retrieved from the context, the ground NP la machina ‘the car’ can only introduce a new referent. A phrase such as perrete alla machina would thus refer to two distinct grounds (i.e. the $g \neq n$ condition) when only one car is under discussion. In other words, a sentence that combines incompatible senses would render a discourse incoherent.

Ellipsis targets head preposition and ground NP as elements that can be retrieved from the context, as we show in (37). A context C is defined as the set of referents and conditions available to a sentence/phrase’s DRS from previous sentences in discourse (i.e. $C=\{U_n,C_n\}$, cf. Kamp et al. 2011: 134–145). Thus, the ground referent $n$ must belong to the set of previously introduced referents, a fact captured via the condition $C(g)$. The relation that connects this referent to the novel location in discourse (e.g. ‘nfronte in (37a)) can also be retrieved from the extra-linguistic context (cf. van der Sandt 1992). For the sake of clarity, we represent the conditions corresponding to the elided material in square brackets (i.e. $C(g)$, $C(R)$).

Before we continue, we must offer a clarification. Discourse-givenness and presupposition resolution are intertwined but distinct phenomena, tightly connected to information structure (cf. Schwarzschild 1999; von Heusinger 2000; Beaver 2001; Beaver and Clark 2008). Presuppositions ultimately operate at a propositional level: they establish how sentential meanings can be merged together. Discourse-givenness establishes, among other patterns, which constituents do not contribute novel information and can therefore be elided. We believe that our data offer evidence on the two phenomena operating in a cyclical manner in chorophorics and prepositions. Chorophorics include presuppositions that are resolved at a sentential level. Presupposition resolution subsequently licenses the elision of discourse-given SPs. It also triggers the necessary omission of ground NPs when chorophorics are involved. Once it is established that two sentences introduce the same ground referent but distinct locations (and figures) defined with respect to it, the second ground NP and head are elided.

We can show how this treatment captures the sentential data to confirm its empirical import. Note that the presence of a chorophoric with a sense not matching a verb’s sense renders the sentence uninterpretable, rather than triggering a presupposition failure. Verb and preposition simply denote contradictory conditions on the type of sense associated to a location. Consider thus the DRSs in (38)–(40):

(38) a. $[[\text{VP Luigi sta aju tavolo}]]=$
\[
[\{u,l,g,R\}:\text{Luigi}(u),-\text{dir}(R),\text{at}(l),R(l,g),\text{ground}(g),\text{table}(g)];
\]

b. $[[\text{VP Luigi sta ‘n-fronte aju divano}]]=$
\[
[\{u,f,g,R\}:\text{Luigi}(u),-\text{dir}(u,R),\text{front}(f),R(f,g),\text{ground}(g),\text{sofa}(g)];
\]

(39) a. $[[\text{VP Luigi va arrete (aju divano)}]]=$
b. [[VP Luigi va perrete]] :=
\[
\{u, b, g, R, C\}: Luigi(u), +dir(R), go(u, R), back(b), R(b, g), ground(g), so\_g, C(g) \rightarrow \\
\{u, b, g, R, C\}: Luigi(u), +dir(R), go(u, R), back(b), R(b, g), ground(g), so\_g, C(g)
\]

(40) \([CP[VP Paolo sta arrete ajju divano]] \emptyset \[VP Luigi sta defronte]] :=
\[
\{p, i, b, f, g, u, R\}:
\text{Pa}(p), -dir(p, R), back(b), R(b, g), gr(g), s(g), Lu(i), dir(i, R), front(f), R(l', g), gr(u), so\_g, u=? \rightarrow \\
\{p, i, b, f, g, u, R\}:
\text{Pa}(p), dir(p, R), back(b), R(b, g), sf(g), Lu(i), dir(i, R), front(f), R(l', g), gr(g), so\_g, u=g\]

As the DRSs in (38) show, a sentence including simple preposition \(a\) and its corresponding PP denotes a relation between figure and ground. Due to the polysemous nature of \(a\), this relation can include any location defined with respect to the ground, represented via the condition \(att\). To simplify matters, we reduce the semantics of \(sta\) to its ‘locative’ sense, leaving aside its other contributions related to its status as a copula. Once this copula merges with the underspecified condition \(\neg dir(R)\) that \(a\) in (38a) and ‘nfronte’ in (38b) carry, only the \(\neg dir(R)\) is maintained in the sentential DRS. Only matching conditions can be merged in sentential DRSs.

The DRSs in (39), instead, shows that sentences involving the optional ellipsis of ground NP and the formation of a remnant SP involve a different interpretation procedure. For derived chorophorics, i.e. complex prepositions as remnants, the underlying relation holding between ground and specific location is part of a DRS. However, if the ground’s identity can be retrieved in context (i.e. its identity is “given”), then the NP and head can be left unpronounced, as we mark via round brackets in the resulting DRS. This is in line with standard treatments of ellipsis as a coherence phenomenon (cf. Schwarzschild 1999; Merchant 2001). The symbol “\(\rightarrow\)” is used to show that both ellipsis and presupposition resolution subsequently license the successful merge of their embedding DRSs with the rest of the sentence DRSs.

The DRS in (40) illustrates how these patterns emerge at the discourse level. The chorophoric defronte first finds a suitable antecedent in the previous sentence for its presupposed ground. When this anaphoric relation is successfully resolved, it matches with the verb \(sta\) in its locative sense. A DRS for the mini-discourse is obtained, defining all the locations and figures with respect to a given ground. For mere reasons of space, we have the universe set and the condition set of this DRS on different lines.

Overall, the account can aptly capture the differences between chorophorics, complex prepositions and their status as derived chorophorics/remnants. Chorophorics have a richer anaphoric potential and more specific lexical content than prepositions. This potential also determines ellipsis/blocking patterns, thereby justifying their label as spatial pronouns. Before we conclude, we would like to offer a concise summary of our four key results.

First, our account offers an account of Aquilan prepositions and chorophorics that presents novel fieldwork data and a concise analysis of their properties. Aquilan prepositions can act as heads or prefixes and can combine with spatial nouns to form chorophorics as a distinct
category. Chorophorics thus display the lexical content of preposition (i.e. they denote spatial relations), combined with that of nouns (i.e. their anaphoric potential). This analysis is consistent with previous analyses of chorophorics (e.g. Hagège 2010: ch.6; Libert 2013: ch.5). At the same time, it makes precise how these properties emerge from those of their constituting categories: spatial prepositions and nouns.

Second, our account explicitly represents how the morphological structure of chorophorics is related to lexical or “static” content, and anaphoric or “dynamic” relations. Thus, spatial nouns prefixed via a-form complex prepositions that lack the anaphoric potential of their pe- and de-counterparts. This account can also capture principles of argument selection, i.e. how chorophorics must merge with verbs of matching sense. This fact suggests that there may be formal relation underpinning anaphora and agreement patterns, as also observed in the minimalist literature (cf. Diercks et al. 2016; Haselbach 2017: Ch.4). Our account is consistent with these observations; a fuller proposal must wait for the future, however.

Third, this account extends basic assumptions found in Vector Space Semantics (e.g. vectors and locations as spatial referents) to discourse contexts. We leave open, however, the possibility to integrate this treatment with previous other works on spatial prepositions (e.g. Nam 1995; Kracht 2002). The treatment also shows that the P-within-P hypothesis (Hale and Keyser 2002) lends itself to an analysis of chorophorics that can cover inter-sentential phenomena related to chorophorics (Hagège 2013). The literature on these topics is immense, so we must consider our account as merely a starting point for future work. Nevertheless, the account can be thought as a natural extension of several strands of research on spatial categories and their lexical and anaphoric content.

A fourth result pertains to the debate on the relevance of dialectal data for typological research. As our discussion shows, the Aquilan data on chorophorics shed light on a still understudied category (cf. Hagège 2013). By analysing the Aquilan data, we also offer further evidence that the micro-variation data of dialects can inform typological research (cf. Siemund 2009). Dialects may offer crucial evidence on the properties of typologically rare categories, thus improving our understanding of these categories. Since we have reached our two initial goals, we can turn to the conclusions.

4. Conclusions

The goal of this article has been to offer an overview of spatial prepositions and chorophorics (i.e. spatial pronouns) in the Italian dialect of Aquilan. The article has shown that Aquilan chorophorics include lexical content and anaphoric relations that link them to prepositions and verbs. A formal account combining Lexical Syntax and Discourse Representation has reached the second goal: offering a formalization of the data. The article thus sheds light on chorophorics, a still understudied category within the domain of spatial categories. Given the restricted nature of the data, this analysis can be conceived as an overall preliminary step towards a more rigorous study of this category, and its relation to adpositions and other spatial categories. We leave such endeavours, however, for future research.

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