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Metaphors below the sentence level: The case of appositives

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Abstract

This squib sketches an analysis of the contribution of appositive constructions to metaphoric readings (*Australia, the country with a passion for rugby*). It is suggested that optional constructions can contribute the emergence of underlying metaphoric readings of sentences, depending on how they interact with other phrases and constituents. This analysis is based on a simple variant of the *Type-Logical Syntax* framework, enriched with a simple semantic algorithm that computes "local" source and target domains. As a test case, a discussion of a sub-set of appositives labelled as "spatial" appositives (*Australia, the land where dreams come true*) is discussed and accounted for.

Keywords: appositives, compositional metaphors, spatial prepositions, generative lexicon

1   Introduction

In recent work based on the Metaphor Identification Procedure (Steen et al. 2010) the role of lexical items in the emergence of metaphors has been discussed in detail. A general observation is that a single lexical item, in virtue of having a non-literal interpretation within the context of a sentence, can license a metaphoric reading for a sentence (e.g. the noun *sun* in the classic *Juliet is the sun*).[1] However, little is known about whether such contribution can emerge from constituents and constructions larger than single lexical items. Although some works suggest that noun *phrases* can

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[1] We use the term *metaphoric reading* to capture the fact that phrasal and/or sentential meanings can express underlying metaphors, or can contribute to such readings by introducing opportune source domains.

license metaphoric readings (e.g. Asher & Lascarides 2001; Asher 2011: 61–87), a fuller assessment of the role of syntactic structure in metaphors is still outstanding.

The goal of this squib is to sketch an analysis of how complex nominal-like constructions known as *appositive phrases* or simply *appositives* can contribute to the emergence of metaphoric readings. Our reason for focusing on this category is that, given their distribution as optional constructions, they allow us to easily test how syntactic structure and constructions constrain the emergence of metaphoric readings. For space reasons, we concentrate on appositives in subject position, although we believe that our analysis can be extended to other positions. Our plan is as follows. We first identify a sub-set of appositives for our analysis, and explain how we have collected the data (Section 2). We then explain why previous accounts seem to stumble on these data (Section 3), and sketch our preliminary account (Section 4). We offer a concise discussion of the results (Section 5), before concluding.

2   Method and results

Before we discuss the data, some methodological clarifications are necessary. The type of constructions we discuss are seldom if ever attested in corpora (e.g. *The Corpus of Contemporary American English*: Davies 2008–). Therefore, the examples were designed with the feedback of a native speaker, and then tested with a small group of participants, also native speakers (N = 10). The test involved a simple written questionnaire, in which participants had to read a set of sentences and offer their judgment about their content (i.e. examples (1)–(14)). Participants were all native speakers of British English, and were contacted via e-mail and/or social media. Given the nature of the test, participants received the test via e-mail, as an attachment to be filled in. Participants' data were strictly confidential, although age, gender and level of education were required. The data we analyse in this section, then, double as results of this small-scale preliminary study.

The instructions were as follows. Participants were asked to evaluate a set of sentences offering descriptions of Australia. The choice of a proper name was based on the fact that proper names may be polysemous, in the sense that they can refer to entities conceived as having different types of properties (cf. Evans 2009: 88–96). The dictionary entries for *Australia* report its meaning as a name for a physical location and a continent (i.e. a

'place') as its first and central meaning. The sense used to refer to the institutions that govern this continent and its inhabitants and institutions ("Australia", Oxford Dictionary 2016) is reported as less central and marked as 'abstract', since it is offered as its third possible sense. We thus consider its central, concrete sense as triggering a literal reading (i.e. a phrasal sense), and its (more) abstract sense as triggering a metaphoric reading.

For each sentence, the participants were asked to evaluate whether the sentence was about Australia 'as a place' (literal reading), or 'as an abstract entity' (metaphoric reading), or 'as both' (co-existing readings). Participants were asked to type their evaluation below each sentence, filling either comment in a gap (e.g. either 'place' or 'abstract entity' for the example in (1)). Participants would then send the completed questionnaire to the researcher, who analysed the answers. The answers were overall homogenous: for examples (1)–(2) and (4), all participants offered 'place' as an answer (i.e. a literal reading was accessed). For examples (3) and (5), 9 out of 10 participants offered 'abstract entity' as an answer, with different single answering 'place' for each example. All the other examples we analyse followed this pattern, as we will discuss in the remainder of the section. The appendix contains a sample of the questionnaire used in the study.

Let us now briefly discuss our data and their properties. Appositives usually include two juxtaposed *Noun Phrases* (henceforth NPs), possibly a proper name and an NP or other phrase as constituents (Huddleston & Pullum 2002: 445–446). Appositives also tend to involve a certain type of semantic relation. The sense of the first NP/name, the *specifier*, refers to a specific entity. The sense of the second phrase, the *modifier*, refers to a property of this entity (Huddleston & Pullum 2002: 447–448). Modifiers can be in turn complex phrases. Often, appositives have a *non-restrictive* semantics, since they are optional phrases that usually occur within parenthetical markers (Bianchi 2000b; 2002a). They add more information about the entity that the specifier NP refers to. Some examples are (1)–(5):

(1)   *Australia, the country with ten deserts, is scarcely populated*
(2)   *Australia, a country with a passion for rugby, is scarcely populated*
(3)   *Australia, a country with a passion for rugby, is getting ready for the world cup*
(4)   *Australia is scarcely populated*
(5)   *Australia is getting ready for the world cup*

The appositives in (1)–(3) are formed via the juxtaposition of the name *Australia* with the complex NPs *the country with ten deserts* and *a country with a passion for rugby*. *Australia* denotes an entity, in its literal interpretation: a specific geographic location governed via a certain set of institutions. A literal reading emerges in (1), since this sentence describes a property of Australia as a geographic location and country.

In (2), the appositive *a country with a passion for rugby* describes Australia as an agent-like entity with emotions, licensing a metaphoric reading. However, when the copula combines this complex subject with a VP, the VP adds a primary literal reading.[2] According to speakers' intuitions, *is scarcely populated* and *a country with a passion for rugby* describe concrete and abstract properties of Australia, co-existing in the same sentence.

Instead, *getting ready for the world cup* in (3) describes a property of Australia as a human-like rugby fan. The appositive-less versions of (1)–(3) are offered in (4)–(5), and show that metaphoric readings can also emerge via the contribution of a VP (i.e. *getting ready for the world cup* in (5)). Appositives may thus add information that Australia, as the (unique) entity defining the target domain, is connected to a *secondary* source domain (Kövecses 2002: 17–32), distinct from the *primary* source domain that VP can introduce. Overall, it seems that literal and metaphoric readings can co-exist, when appositives are involved.

Although the syntax of appositives is well-known, their semantic properties are still understudied. Most works focus on their literal readings (Bianchi 2002a; 2002b; Nouwen 2007; 2014; see Goatly 1997 for a partial exception). Thus, an account that captures the patterns underpinning (1)–(3), as well as other types of appositives we discuss below, is outstanding. We label this group of appositives *spatial* appositives, since in their literal interpretation they usually denote a spatial property that can be ascribed to a specific referent. Interestingly, these constructions have apparently never been discussed jointly, especially with respect to their semantics. Hence, our discussion also acts as a basic typological survey of these constructions, at least for English.

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[2] Copular constructions come in four types: specificational, equative, identificational, predicative (Pustet 2003; Mikkelsen 2005). However, Classical Metaphor Theory (e.g. Lakoff 1980; 1987) implicitly focuses on the predicative type, as we do in our examples.

A first sub-set consists of spatial partitive constructions as modifier phrases (Hoeksema 1996; LeBruyn 2010). Partitives usually include their respective specifier NPs, whose senses individuate types of locations, examples being *place*, *land*, and *country* (Jackendoff 1983: 57–76; 1990: 43–55; Emonds 1985: 159–165). A second sub-set consists of relative NPs, which may be free or bound[3] (Caponigro & Pearl 2008; 2009). A third sub-set consists of *Prepositional Phrases* (PPs), which may act as non-restrictive phrases, possibly with a spatial sense (Svenonius 2010: 134–136). Examples (6)–(14) illustrate how these readings emerge in the first (viz. 6–8), second sub-set (viz. 9–11), and third sub-set (viz. 12–14):

(6)   *Australia, the land of many deserts, is scarcely populated*
(7)   *Australia, the land of broken hopes, is scarcely populated*
(8)   *Australia, the land of broken hopes, is waiting for the world cup*
(9)   *Australia, the land that hosts Ulurlu, is scarcely populated*
(10)   *Australia, the land that dreams of victory, is scarcely populated*
(11)   *Australia, the land that dreams of victory, is waiting for the world cup*
(12)   *Australia, West of New Zealand, is scarcely populated*
(13)   *Australia, across cultures, represents a distant land*
(14)   *Australia, through the decades, has been passionate about rugby*

Examples (6)–(8) include the partitives *the land of many deserts* and *the land of broken hopes*. *Australia* is the specifier of the corresponding subject appositive in each sentence. In turn, the definite NP *the land* is the specifier of each partitive construction, and the NPs *many deserts* and *broken hopes* are the modifiers of their respective partitives. In both cases, the preposition *of* acts as the head of each partitive construction. The juxtaposition of this partitive construction with the NP *Australia* determines the reading for the appositive subject NP. If Australia is the land of broken hopes, then it is identified via one emotional "state" that can be ascribed to its inhabitants, rather than the location or body of institutions. The combination of this subject NP with a verb may add a literal or secondary metaphoric reading. Australia as a location having many deserts and as an agent-like entity "feeling" broken hopes can be scarcely populated (viz. (6)–(7)). As an agent, it can also be waiting for the world cup (viz. (8)).

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[3] Free relative NPs involve relative pronouns that can occur without an antecedent, while bound relative NPs involve antecedents. For simplicity, we only use bound antecedents in (9)–(11).

The examples in (9)–(11) display equivalent structures and interpretive patterns, although *that* becomes the head of each free relative acting as a modifier. The patterns in (12)–(14) involve the prepositions *West of*, *across* and *through*, which introduce a spatial/literal property of Australia in (12) (viz. *West of New Zealand*), and non-literal ones in (13)–(14) (viz. *across cultures* and *through the decades*). These prepositional phrases lack a specifier, but nevertheless act as modifiers within their respective appositives. Crucially, these examples also show that the optional nature of appositive has a precise semantic effect. Appositives may add a property of an entity (here, Australia) not standardly associated to this entity. The VP in a sentence containing this appositive may either contribute a distinct metaphoric reading, or a literal reading (cf. the contribution of *scarcely populated* vs. *passionate about rugby*).

Two observations are necessary, before we continue. First, all informants considered (6)–(7), (9)–(10) and (12) as having literal readings, since they describe properties of Australia as a place. Second, most participants considered the other examples as describing properties of Australia as an abstract entity (N=9), but with some nuances. Some participants observed that (7)–(14) could also entail that Australia was conceived as a collective entity, a 'population', having broken hopes or other emotional states. In other words, these readings were seen as possibly involving metonymy. The analysis we pursue in this paper is consistent with the emerging consensus on the strong connection between metaphors and metonymies (Barcelona 2003; Evans 2010; Bergler 2013). However, we assume that our examples pin-point (at least) metaphoric readings, since the properties ascribed to Australia are seen as abstract, whether they involve a more concrete population or a more abstract institution. Since teasing apart these sense layers would bring us too far afield, we leave a more thorough discussion aside.

Overall, the data suggest that spatial appositives *qua* appositives can contribute a secondary source domain for a metaphoric reading. This reading can co-exist with other literal or metaphoric readings that other parts of speech (e.g. VPs) can contribute. In other words, appositives can contribute a secondary source domain for metaphoric readings, intended as domain co-existing with the primary source domain. Target domains, then, can be connected with the appositives' source domain *and* the sentential domain (i.e. a full VP). Our goal is to sketch an account of these differences, thereby shedding light on how metaphoric readings may or may not emerge via the contribution of certain phrases and constructions.

3   Previous studies

Classical and contemporary accounts of metaphors have mostly focused on specific constructions, such as copular constructions and similes (e.g. Lakoff & Johnson 1980; Lakoff 1987; 1993; Goatly 1997; Langacker 1999; Talmy 2000). However, the role of lexical items and constructions has been intensely investigated in many recent works (Steen 2007; Panther, Thornburg & Barcelona 2009; Steen et al. 2010). Two facts have emerged as crucial. First, most words belonging to lexical categories (nouns, verbs, adjectives, prepositions) can be richly polysemous. Second, their literal/metaphoric readings depend on the syntactic and discourse context they occur in. Nevertheless, these works do not investigate constructions defined at a phrasal level.

One recent account that has analysed appositives is the *Lexical Cognitive Conceptual Model* (henceforth: LCCM, Evans 2006; 2009; 2010). In LCCM, words can convey conceptual information by tapping onto possibly complex conceptual domains or *models*. For instance, our model of Australia involves an entity that can be conceived as a land mass but also as a political institution, and that can have a rugby team. However, possibly only one specific concept is selected and expressed in a minimal linguistic (syntactic and semantic) context, viz. (15)–(16):

(15)   *Australia, the country*
(16)   *Australia, the rugby team*

As in (1)–(14), while *the country* triggers a literal reading, *the rugby team* triggers a metaphoric reading: a continent cannot be a rugby team, since a rugby team is composed of fifteen rugby players. In LCCM, this fact is explained by assuming that the senses of the two NPs are integrated via a sequence of processes. A first process is *lexical concept selection*. A second process is *fusion*, which is further segmented into *lexical concept integration* and *interpretation* processes. For instance, the models for *Australia*, *country,* and *rugby team* are selected for each sentence. Two concepts from each model are first integrated into one model; then, the shared concept is selected. For instance, *Australia* gives access to a model that includes the sense 'physical location' amongst its many senses, and so does *country*. Once the two models are integrated, the shared concept *physical location* is selected, the appositive *Australia, the rugby team* in (16).

A similar analysis is offered in *Generative Lexicon* (henceforth GL: Pustejovsky 1995; 2013; Asher & Pustejovsky 2013). In GL, the senses of NPs and other parts of speech are associated to *types*, formal conceptual domains that partition the ontological space of a model of discourse. For instance, NPs are usually associated to the universal type of *entities*, logical *referents* that represent our conceptual representations of "things" in the world. Differently from classical formal theories, GL assumes that types can have a rich internal structure known as *qualia structure*; they can thus have *sub-types*. The type *e* of entities includes the type *phys* of physical objects, the type *hum* of human entities, and similar others (Pustejovsky 2013: 14–18). NPs can have combinations of types, known as "dot types". The NP *Australia* denotes a referent belonging to a sub-type of the type *e*. This sub-type is *phys•org*, the dot connective "•" representing that a referent can be conceived as both a physical entity and an organization. When two constituents are combined, the operation of *co-composition* combines their senses and types. If the composed types do not perfectly match, then *type coercion* occurs: the "shared" sub-type(s) between two constituents is selected.

Our compact review of previous analyses already hints at one key problem with these works, with respect to our data. Although these accounts offer rich semantic analyses of metaphors and metaphoric readings, they invariably leave aside a thorough discussion of which constructions and sentences can carry these readings. A partial exception is found in LCCM, although this framework does not explore the contribution of appositives to sentential readings. Thus, a fuller account of the contribution of appositives to sentential readings is still outstanding. We sketch our account of this contribution in the next section.

4   Analysis: Syntax and semantics

The goal of this section is to present the tools that we employ in our analysis. For the syntax, we use a very simplified version of *Type Logical Syntax*, a formal framework used for the analysis of syntactic structures (TLS, e.g. Moortgat 2010; Ursini & Akagi 2013; Ursini 2015a; 2015b; 2016). For the semantics, we implement an analysis based on GL and LCCM insights (Evans 2010; Asher & Pustejovsky 2013: 50–60; Bergler 2013). From TLS, we import the use of the *forward application* operation to represent how lexical items and phrases are combined into larger

constructions. From GL and LCCM, we import the insight that the types of senses/readings associated to lexical items are determined in context, when an item combines with other items.

One further preliminary assumption concerns the notions of source and target, which we connect to the structures involving appositives. Since we use the syntactic notions of "specifier" and modifier" phrase, we need to establish a relation between these pairs of notions. For this purpose, we assume that a specifier phrase can denote the target domain of the syntactic structure that contains this phrase. A modifier phrase, instead, can denote the source domain of its respective syntactic structure. Thus, in an appositive construction such as *Australia*, *the land of broken dreams*, the specifier *Australia* provides the target domain. The modifier *the land of broken dreams* provides the source domain, the secondary one if a VP also offers a source domain.

Let us make these assumptions precise. First, we implement a simple type language that involves four types: the type *s* for "source", the type *t* for "target", the type *m* for "metaphor", and the type *l* for "literal". With the first type, we represent a lexical item that provides the source domain within the syntactic domain of a phrase. With the second type, we represent the lexical item that provides the target domain. With the third and fourth types, we represent the reading that a phrase/sentence can receive, when a source and target domains are connected via some functional element (e.g. the copula, relative heads), or simply via juxtaposition (in appositives). Second, we define an algorithm that assigns these semantic types to syntactic phrases, based on the following steps. First, each specifier is assigned the type *t*, and each modifier is assigned the type *s*. Second, either the type *m* (metaphoric reading) or *l* (literal reading) is assigned to each phrase/construction that includes a source and a target domain. When source and target domains coincide (e.g. *Australia* and *the land of many deserts* referring to physical locations), a literal reading arises. When not, a metaphoric reading does.

We now make precise our syntactic assumptions. According to analyses such as Bianchi (2002a; 2002b), appositives involve a phonologically null head belonging to the so-called *Complementizer* category of heads ("C"). This head, then, takes a specifier and a modifier as its argument phrases. We take a similar stance to free relative clauses, as we assume that *that* is a lexically more specific instance of a C head (cf. also *where*, Caponigro & Pearl 2008; 2009). Note that we treat all NPs as lacking internal structure. The proper name *Australia* and the definite NPs

the land, *the place*, the modified NP *broken dreams* are all "simple" NPs. We then follow standard analyses of partitives and treat *of* as a prepositional head that takes two phrases as its arguments (Hoeksema 1996; Zamparelli 1998). We also treat SPs, here *in front of*, as including a head P, *of*, and a second SP in its specifier position (the "P-within-P" hypothesis, Hale & Keyser 2002). In doing so, we take a much simplified but still accurate stance on the syntactic structure of this category (cf. Emonds 1985; Svenonius 2010).

        We can thus implement our assumptions. First, we represent forward application via the symbol "•"[4], and each consecutive step in a syntactic derivation via an *index set* (i.e. *t*, *t*+1, *t*+2, etc.). We also assume that merge combines lexical items in a top-down ("left-to-right") manner (Phillips 2006; Ursini 2015b). We label *lexical selection* (LS) the operation that selects a lexical item and adds it to a derivation, and *Forward Application* as FA.

        In order to make our derivations easier to read, we first derive the modifier phrases, and then we merge them with a specifier NP (*Australia* in our examples). Furthermore, phonologically null elements are marked within round brackets, while longer lexical items are abbreviated when necessary. We write these types as sub-scripts on the right (external) side of phrases, while syntactic categories' sub-scripts are written on the left (internal) side. We start by first deriving the structure for our example (6) in (17):

(17) *t*. $[_{NP}$ Australia $]_t$ (LS)
        t+1. $[_{NP}$ the land $]_t$ (LS)
        t+2. $[_P$ of $]$ (LS)
        t+3. $[_{NP}$ the land $]_t \bullet [_P$ (of) $] = [_{P'}[_{NP}$ the land $]_t$ of $]$ (FA)
        t+4. $[_{NP}$ many deserts $]_s$ (LS)
        t+5. $[_{P'}[_{NP}$ the land $]_t$ of $] \bullet [_{NP}$ many deserts $]_s =$
                 $[_{PP}[_{NP}$ the land $]_t$ of $[_{NP}$ many deserts $]_s]_l$ (FA)
        t+6. $[_C$ (C) $]$ (LS)
        t+7. $[_{NP}$ Australia $]_t \bullet [$ (C) $] = [_{C'}$ $[_{NP}$ Australia $]_t$ (C) $]$ (FA)
        t+8. $[_{C'}[_{NP}$ Australia $]_t$(C)$] \bullet [_{PP}[_{NP}$ the land $]_t$ of $[_{NP}$ many deserts $]_s]_l =$
                 $[_{CP}[_{NP}$ Australia $]_t$ (C)$[_{PP}[_{NP}$ the land $]_t$ of $[_{NP}$ many deserts $]_s]_l]_l$ (FA)
        t+9. $[_V$ is $]$ (LS)

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[4] We opt to use this symbol as it is commonly used to represent application as a syntactic schema in the literature (Ursini 2015a; 2015b). No confusion should arise with the "dot" type connective of GL.

t+10. [$_{CP}$[$_{NP}$ Australia]$_t$ (C) [$_{PP}$[$_{NP}$ the land]$_t$ of [$_{NP}$ many deserts]$_s$]$_l$]$_t$•[$_V$ is] =
[$_{V'}$[$_{CP}$[$_{NP}$ Australia] (C) [$_{PP}$[$_{NP}$ the land]$_t$ of [$_{NP}$ many deserts]$_s$]$_l$]$_l$ is]

t+11. [$_{VP}$ scarcely populated]$_s$ (LS)

t+12. [$_{V'}$[$_{CP}$[$_{NP}$ Australia] (C) [$_{PP}$[$_{NP}$ the land] of [$_{NP}$ many deserts]]] is]•
[$_{VP}$ scarcely…] =
[$_{VP}$[$_{CP}$[$_{NP}$ Australia]$_t$ (C) [$_{PP}$[$_{NP}$ the land]$_t$ of [$_{NP}$ many deserts]$_s$]$_l$]$_l$ is [$_{VP}$…]$_s$]$_l$
(FA)

First, a specifier NP, *Australia*, is first selected and typed as a target *t* domain (step *t*). The modifier phrase *the land of broken dreams* is then derived as a distinct unit (steps *t*+1 to *t*+5). The NP *the land* is the specifier of a prepositional phrase (PP) headed by *of*, while the NP *broken dreams* is its modifier. They are respectively assigned the type *t* and *s*, as target and source domain of the appositive. The PP *the land of broken dreams* receives the type *m* given its inherent metaphoric reading, which is also assigned to the whole appositive phrase (steps *t*+6 to *t*+8). Thus, the whole appositive "inherits" the type *l*. Once the appositive is merged as the subject of the copular construction, it is "re-interpreted" as contributing the target domain of this construction (steps *t*+9 to *t*+12). The net result is that the sentence *Australia, the land of many deserts, is scarcely populated* has a literal reading.

The minimal difference in interpretation with (8), which has a sentential metaphoric reading, can be captured via the partial derivation in (18). We omit the *LS* and *FA* labels in the subsequent derivations, as it should be clear which operations occur at each step:

(18) t+11. [$_{AP}$ getting ready for the world cup]$_s$
t+12. [$_{V'}$[$_{CP}$[$_{NP}$ Australia] (C) [$_{PP}$[$_{NP}$ the land] of [$_{NP}$ many deserts]]] is]•
[$_{VP}$ getting…] =
[$_{VP}$[$_{CP}$[$_{NP}$ Australia]$_t$ (C) [$_{PP}$[$_{NP}$ the land]$_t$ of [$_{NP}$ many deserts]$_s$]$_l$]$_t$ is
[$_{VP}$…]$_s$]$_m$

Furthermore, the minimal difference between (17) and (18) is the contribution of the VP to a sentential reading. Since the VP *getting ready for the world cup* describes a property that can be ascribed to an agent-like entity, it introduces a source domain licensing a metaphoric reading. Australia is conceived as an agent. In both examples, also, we can see that the scope of the metaphoric reading for the appositive phrase is the CP that forms the complex subject. Thus, we can mark the two source domains

licensing the two co-existing metaphoric readings in an explicit manner, and connect them to the syntactic structure of appositives and sentences.

We now turn our attention to the second and third sub-set of appositives. The derivations in (19)–(20) show how these sub-types of appositives are derived:

(19) t. $[_{NP}$ Australia $]_t$
      $t+1$. $[_{NP}$ the land $]_t$
      $t+2$. $[_P$ that $]$
      $t+3$. $[_{NP}$ the land $]_t \bullet [_P$ that $] = [_{P'}[_{NP}$ the land $]_t$ that $]$
      $t+4$. $[_{VP}$ hosts Ulurlu $]_s$
      $t+5$. $[_{P'}[_{NP}$ the land $]_t$ that $] \bullet [_{VP}$ hosts Ulurlu $]_s =$
               $[_{PP}[_{NP}$ the land $]_t$ that $[_{VP}$ hosts Ulurlu $]_s]_l$
      $t+6$. $[_C$ (C) $]$
      $t+7$. $[_{NP}$ Australia $]_t \bullet [$ (C) $] = [_{C'}$ $[_{NP}$ Australia $]_t$ (C) $]$
      $t+8$. $[_{C'}[_{NP}$ Australia$]_t$ (C) $] \bullet [_{PP}[_{NP}$ the land $]_t$ that $[_{VP}$ hosts Ulurlu $]_s]_s =$
               $[_{CP}[_{NP}$ Australia $]_t$ (C) $[_{PP}[_{NP}$ the land $]_t$ that $[_{VP}$ hosts Ulurlu $]_s]_l]_l$

(20) t. $[_{NP}$ Australia $]_t$
      $t+1$. $[_{SP}$ West $]_t$
      $t+2$. $[_P$ of $]$
      $t+3$. $[_{SP}$ West $] \bullet [_P$ of $] = [_{P'}[_{SP}$ West $]_t$ of $]$
      $t+4$. $[_{NP}$ New Zealand $]_s$
      $t+5$. $[_{P'}[_{SP}$ West $]_t$ of $] \bullet [_{NP}$ Zealand $]_s = [_{PP}[_{NP}$ West $]_t$ of $[_{NP}$ New Zealand $]_s]_l$
      $t+6$. $[_C$ (C) $]$
      $t+7$. $[_{NP}$ Australia $]_t \bullet [$ (C) $] = [_{C'}$ $[_{NP}$ Australia $]_t$ (C) $]$
      $t+8$. $[_{C'}[_{NP}$ Australia $]_t$ (C) $] \bullet [_{PP}[_{SP}$ West $]_t$ of $[_{NP}$ New Zealand $]_s]_s =$
               $[_{CP}[_{NP}$ Australia $]_t$ (C), $[_{PP}[_{SP}$ West $]_t$ of $[_{NP}$ New Zealand $]_s]_l]_l$

These derivations are based on the appositives in (9) and (12), respectively. In them, the NP *Australia* is selected as the specifier, hence the target domain of the full appositive (step *t*). The modifiers *the land that hosts Ulurlu* and *West of New Zealand*, a CP and a PP respectively, are successively derived (*t*+2 to *t*+5). The full appositives are derived next, respectively forming *Australia, the land that hosts Ulurlu* and *Australia, West of New Zealand* (steps *t*+6 to *t*+8). These appositives describe physical properties of Australia as a landmass, hence they can certainly be assigned a literal type of interpretation. A metaphoric reading would arise when the modifier contributes a distinct type of property (e.g. *the land that dreams of victory* in (10)), and the contribution of the VP can contribute a sentential-level reading, as in (18).

If no appositive construction is added, then our algorithm can also compute the reading arising at a sentential level, as shown in (21), a partial derivation of (5):

(21) t+12. [$_{V'}$[$_{NP}$ Australia]$_t$ is]•[$_{VP}$ getting ready for the world cup] =
         [$_{VP}$[$_{NP}$ Australia]$_t$ is [getting ready for the world cup]]$_m$

This derivation shows that our system can correctly capture the scope and emergence of metaphoric readings, and how primary and secondary source domains are computed.

5   Discussion

Let us briefly discuss the results of our analysis. Overall, this formal analysis captures the contribution of appositives to the reading of a whole sentence by pin-pointing how modifiers in appositives (e.g. *West of New Zealand* in (12)/(20)) select a given reading for the specifier they merge with (i.e. the proper name *Australia*). Since the analysis assumes that the emergence of a metaphoric reading for a phrase can affect the reading assigned to the sentence it belongs to, it correctly captures the relation between phrasal and sentential readings. Thus, the principles and mechanisms that our analysis proposes seem to be on the right track.

It is worth noting that the analysis may not be as nuanced as needed, since it does not directly account inter-speaker variation. Recall from our discussion in Section 2 that, for examples such as (2) and (6), at least one speaker assigned a literal rather than metaphoric reading to these sentences. We believe that the difference, in these cases, lies in the reading type that speakers unconsciously assign to each lexical item. For at least one speaker, a phrase such as *the land of broken dreams* has a literal sense, perhaps assigned via metonymy. We also believe that offering a more fine-grained account of inter-speaker variation would be possible, but beyond the scope of this squib. A similar reasoning applies for a more thorough account of the role of metonymy which we also believe to warrant a more thorough investigation.

Nevertheless, thanks to our analysis, we can capture the fact that the presence of a spatial appositive with a metaphoric reading triggers a metaphoric reading for the whole sentence it occurs in. A similar analysis can be applied to the appositives in (7)–(12), too, with the *proviso* that different lexical items are merged in their respective derivations. Although

we do not offer a thorough derivation, we can also account the literal readings of (1) and (5)–(6), because of *Australia* and *scarcely populated, mostly desert* denoting related conceptual domains. Thus, our analysis seems to offer a principled account on how "local" phrasal metaphoric readings can percolate at a sentential level. This result is obtained by defining the percolating effect of merge, and a precise mapping between syntactic structures and their literal or metaphoric (semantic) readings.

6   Conclusions

In this squib, we have sketched a compositional account of the emergence of metaphoric readings in spatial appositives (*Australia*, *the land of broken dreams*). We have shown that metaphoric readings can be recursively defined via a simple algorithm that maps syntactic structures (specifiers, modifiers) to semantic domains (targets, sources). This analysis is consistent with the discussions on the roles of lexical items and other parts of speech (e.g. Panther et al. 2009; Steen et al. 2010) in the licensing of metaphors. We acknowledge that our analysis is rather limited in scope. After all, we only sketch a unified but still preliminary account of a small sub-set of appositives, based on a rather novel proposal. We think, however, that our analysis may be successfully extended to other constructions.

Acknowledgements

Abbreviations

C	Complementizer
CP	Complementizer Phrase
FA	Forward Application
GL	Generative Lexicon

LCCM   Lexical Conceptual Cognitive Model
LS   Lexical Selection
NP   Noun Phrase
P   Preposition
PP   Prepositional Phrase
SP   Subordinator Phrase
TLS   Type Logical Syntax
VP   Verb Phrase

Appendix A

Sample questionnaire

"Thank you for participating in this study. Below you will find a set of sentences that offer descriptions about Australia. We would like to ask your opinion about the type of information they convey. Please read each sentence, and then write either "place" or "abstract entity" in the gap at the end of the comment below each sentence.

(1)   *Australia, the country with ten deserts, is scarcely populated*

C: The sentence is about Australia as a___

(2)   *Australia, a country with a passion for rugby, is scarcely populated*

C: The sentence is about Australia as a___

…"

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