

ON CONTINUATIVE *ON**

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Abstract

This paper examines the verbal particle *on* in its use as a marker of continuation. Continuative *on* is only compatible with verbs of the situation type activity, and *on* also places restrictions on the overt realizations of verbal arguments. These characteristics follow from an analysis of *on* as a secondary predicate whose aspect features must unify with the aspect features of the verb.

1 Introduction

The verbal particle *on* has several distinct uses. This paper is concerned with the use of *on* that denotes continuation or onward movement through space or time, as in *strut on* and *chatter on*. A more common use is the one referring to a place, such as *put the hat on*, meaning *on the head*, and *the lid is on*, e.g., *on the jar*. Although the literature on verbal particles is extensive (see, e.g., Svenonius 1994, den Dikken 1995, Zeller 2001, Müller 2002, Dehé et al. 2002, Lüdeling 2001, Toivonen 2003, and others), aspectual particles such as continuative *on* and completive *up* (as in *drink up*) have not received much attention.¹

Continuative *on* places strong restrictions on the verb and the arguments of the verb it modifies: it is possible to *laugh on* and *sing on*, but not to **win on* and **sing songs on*. A detailed investigation of *on* and its restrictions reveals that *on* has properties of both a secondary predicate and aspect morphology.² The coexistence of these seemingly incompatible traits is explained by analyzing *on* as a predicate adjunct whose aspect features must unify with the aspect features of the verb.

This paper presents a Lexical Functional Grammar (LFG) analysis where the characteristics of *on* are argued to follow from the feature specification of the lexical entry of *on*. The lexical features straightforwardly account for the aspectual restrictions as well as the valency restrictions *on* places on the verb. The analysis is easily extended to capture the Swedish particle *på*, which is comparable to *on* in meaning and function, though different in phrase structural realization. The analysis also captures the similarities and differences between ‘keep on V-ing’ expressions and ‘V on’ expressions.

2 Aspect

This section has two goals. The first goal is to explore what continuative *on* contributes to the meaning of a clause (section 2.1). The second goal is to lay out the aspectual features that will be used to characterize *on* (section 2.2). There are two types of aspect: the perfective/imperfective contrast and situation-type aspect (also called *Aktionsart* or actionality). It is the latter type that is of interest here, as the particle *on* is a marker of the situation type *activity*. Throughout this paper, ‘aspect’ specifically refers to situation type and not the perfective/imperfective contrast.

2.1 *The meaning and distribution of continuative on*

The basic meaning of continuative *on* is continuing activity or, as the *Oxford English Dictionary* puts it, “onward movement in space or time”. This use of *on* is exemplified in (1–3):³

- (1) They *walked on* in silence. (BNC)
- (2) He was a gifted public speaker and as far as we were concerned he could have *talked on* forever.
(<http://www.rootsweb.com/ohhuron/memgift.html>)
- (3) I paired with his mother, and he with my father, and we *waltzed on*.
(<http://www.jenipurr.com>)

I take ‘onward movement in space or time’ to mean roughly the same thing as ‘continuation’. Consider the examples (4) and (5):

(4) The people talked.

(5) The people talked on.

In many cases, the addition of *on* makes a difference in situation-type aspect (as will be discussed directly below), but (4-5) is not such a case as both examples are of the situation type activity. Yet the two examples are not synonymous: (5) but not (4) specifies that the talking is *continuing* activity. I will not attempt a more precise characterization of the meaning of the word *on* here, but it is clear from examples such as (4–5) that ‘continuation’ or ‘continue’ is a reasonable paraphrase.

The expression ‘V on’ is often synonymous with ‘keep (on) V-ing’ (Fraser 1976, Jackendoff 2002), as expected given *on*’s sense of ‘continuation’. The two expressions are not, however, completely interchangeable, as ‘V on’ is more restricted. Continuative *on* can only cooccur with non-stative verbs which imply continuous action (Fraser 1976), such as the verbs in (1–3). Stative verbs and verbs which are inherently telic cannot combine with *on*:⁴

(6) *Mark was on silly.

(7) *The situation existed on.

(8) *They won on.

The expressions in (6) and (8) can be compared to the grammatical (9) and (10):

(9) Mark kept on being silly.

(10) They kept on winning.

Examples (6) and (7) show that ‘V on’ cannot be used with stative verbs, while (9) shows that ‘keep (on) V-ing’ can sometimes be used with stative verbs. Examples (8) and (10) show that *keep (on)* can combine with the telic verb *win*, but *on* cannot.

Compare example (8) to examples (11–12), which do imply continuing activity:

(11) The cart bounced on over the rutted road. (BNC)

(12) The children skipped on.

The verbs in (11–12) are interpreted iteratively. Iterative interpretation of verbs in the ‘V on’ frame is possible only with punctiliar verbs, and not with inherently telic verbs, such as *win* in (8) above. Speakers vary as to how acceptable they find examples like (11–12), but those who do find them acceptable assign them an iterative interpretation. This indicates that *on* imposes its sense of *duration* on punctiliar verbs. In other words, *on* forces an activity interpretation when it is used with a potential semelfactive.

The examples above show that *on* can only cooccur with verbs with certain aspectual characteristics. This can be captured with feature unification: *on* is specified for certain aspectual features that combine with the features of the verb. If the verb’s features are incompatible with the features that *on* provides, the two cannot combine. This analysis is further developed and made precise in section 4. Furthermore, when a verb can belong to more than one aspectual class, the addition of *on* will specify the class as an activity.

2.2 A featural characterization of situation types

Following Brinton (1988), Smith (1997), Olsen (1994) and others, I adopt the features *telic*, *dynamic* and *durative* as the basis for an analysis of aspect. I have chosen this system because it has some currency and provides a reasonably simple set of features that facilitates a statement of the generalizations I wish to capture. The feature [+ telic] denotes situations with an inherent end, and [– telic] denotes situations without an inherent end; [+ dynamic] denotes events and [– dynamic] denotes states; [+ durative] denotes situations that hold over a length of time, and [– durative] denotes punctiliar situations. Situations can be divided into classes based on these features. The classification in Table 1 is based on Vendler (1957), Olsen (1994) and Smith (1997); the example verbs are Olsen’s.

[Insert Table 1 here.]

Table 1 is slightly misleading in that it makes it seem as if individual verbs exemplify fully specified aspectual classes. Verkuyl (1972) and many others have noted that aspectual meanings hold for sentences rather than individual verbs or verb phrases. This is evidenced by examples like those in (13–14), taken from Smith (1997:4). The sentences in (13–14) differ in telicity, although they are both headed by *walk*:

(13) Mary walked in the park. (atelic)

(14) Mary walked to school. (telic)

Example (13) is followed by a locational PP and is atelic. Example (14) is followed by a directional PP which denotes the endpoint of the activity and is telic. Let us consider a further example. The verb *cough* used by itself may be a semelfactive, but it can also be an activity if it is used iteratively (Smith 1997:18):

(15) Mary coughed. (semelfactive)

(16) Mary coughed for an hour. (activity)

The modifying PP *for an hour* forces an iterative reading of the verb, and (16) must be an activity, although (15) is a semelfactive on its most natural reading.

Examples (13-16) show that the same verb can head clauses of different classes. Following Olsen (1994), I assume that verbs are lexically specified for some features but not others. The unspecified features can be filled in by other constituents. The system developed here differs from Olsen's system in that it allows both positive and negative feature values, whereas Olsen's system only includes positive specification. The verbs in (13-16) are lexically specified for situation type as in (17) and (18):

(17) *walk* + DYNAMIC
+ DURATIVE

- (18) *cough* + DYNAMIC
– TELIC

The verbs *walk* and *cough* are inherently specified for some, but not all, aspectual features. The verb *walk* is unspecified for [TELIC], and the verb *cough* is unspecified for [DURATIVE]. The unspecified features can be filled in by some other lexical material, for example a modifier, as in (13-16). Examples (19–20) show that objects can also influence the aspectual interpretation (Smith 1997:4):

- (19) Edward smoked cigarettes. (atelic)
(20) Edward smoked a cigarette. (telic)

Smoking cigarettes is an event without a clear endpoint, so (19) is atelic. Smoking a cigarette does have an endpoint, so (20) is telic.

If neither the verb itself nor some other part of the sentence specifies a given situation-type feature, the value of that feature is filled in according to the principle in (21):⁵

- (21) Unspecified features receive negative values by default.

As a consequence of (21), the verb *walk* will be [– TELIC] by default, unless telicity is positively specified by some other lexical material. Similarly, *cough* will be [– DURATIVE] by default.

Olsen (1994) shows that situation-type features can also be filled in by the pragmatic context. Situation-type features are thus filled in by lexical material (the verb or other words and phrases), by the pragmatic context, or by default. Importantly, the same attribute cannot simultaneously have two different values. If a verb is marked positively for a given feature, lexical material which is marked negatively for that feature cannot combine with that verb. For example, a [+ TELIC] modifier cannot combine with the verb *cough*:

- (22) *He coughed in an hour.

The verb *cough* is specified [– TELIC] and *in an hour* is specified [+ TELIC], so the two cannot be combined.

Let us now return to *on*. We saw in section 2.1 that *on* together with its verb uniformly denotes an atelic, durative, dynamic event. In other words, *on* has the following feature specifications:

- (23) *on* – TELIC
 + DYNAMIC
 + DURATIVE

Exactly how the aspectual features of *on* interact with the features of the verb will be discussed in section 4.3 below. The feature specification of *on* is that of the aspectual class of activities, and *on* can therefore be used as a linguistic diagnostic for activity.⁶ However, this diagnostic can only be applied when certain restrictions on the argument realization of the verb hold. These restrictions are the topic of the next section.

3 Argument restrictions

Various authors have pointed out that continuative *on* appears to be restricted to intransitive verbs (Fraser 1976, McIntyre 2001, 2004, Jackendoff 2002). Consider for instance the verbs *eat* and *play*. Both verbs are optionally transitive, but they can nevertheless only combine with *on* when they are used intransitively:

- (24) a. Susan ate on.
 b. *Susan ate on bread.
 c. *Susan ate bread on.
- (25) a. Susan played on.
 b. *Susan played on her guitar.
 c. *Susan played her guitar on.

Example (25b) is grammatical if *on* is interpreted as a preposition which takes *her guitar* as a complement, but that is of course not the intended interpretation here. McIntyre (2001) shows that the restriction on valency illustrated in (24–25) is not connected to telicity, as transitive verbs are not necessarily telic. Note that the sentences ‘Susan ate bread’ and ‘Susan played her guitar’ are not telic.

The only attempt to account for the transitivity restriction that I am aware of is the analysis by McIntyre (2004), who assumes that *on* never cooccurs with direct objects.⁷ Under his analysis, this is explained by the argument-taking capabilities of the preposition *on*. Specifically, he assumes that *on* is a secondary predicate which does not license an overt external argument; instead, its external argument is an empty anaphor which is coindexed with the event itself. He furthermore assumes that argument inheritance from the verb is impossible (an assumption that I do not share). There are, however, instances where continuative *on* can be used with transitive verbs. Some examples include the following:

- (26) The women hesitated for the SUV, but the SUV driver *waved* them *on*.
(<http://opalcat.livejournal.com/1406652.html>)
- (27) They *spurred* the horses *on* and charged at each other with all their strength.
(<http://elfwood.lysator.liu.se/libr/c/a/carolin54322/>)
- (28) The young attorney’s icy, professional wife *pushes* him *on* with an ultimatum to maintain their luxurious life.
(<http://www.skymovies.com/skymovies/>)

Examples (26–28) show that *on* can in fact cooccur with objects and an alternative to McIntyre’s analysis is called for.

There are several reasons to analyze *on* in (26–28) as an instance of continuative *on*. First, transitive *on* and intransitive *on* are identical in form. Second, they have the same meaning (namely, continuing activity). There is also a third piece of evidence that we are dealing with a single lexical entry: *on* places the same restrictions on the verb when it is

used with a transitive verb as it does when it is used with an intransitive verb. Continuative *on* is used above with the verbs *wave*, *spur* and *push*, which are compatible with the specifications [– TELIC, + DYNAMIC, + DURATIVE]. However, consider (29–30):

(29) *They loved me on. (intended meaning: their loving me made me continue)

(30) *They convinced me on. (intended meaning: they convinced me to continue)

The verb *love* is stative and *convince* is telic, and so both verbs are incompatible with *on*. In other words, the aspectual restrictions of *on* are the same regardless of the valency of the verb.

The ungrammaticality of (29–30) can be explained with reference to verbal aspect, but (24b–c) and (25b–c) are ungrammatical even though the verbs are aspectually compatible with *on*. It thus appears that the cooccurrence of *on* and transitive verbs is restricted beyond situation-type aspect. I propose that *on* is restricted according to the following generalization:

(31) Continuative *on* is used with an object NP only if the entity denoted by that NP is what continues movement through space or time. If there is no direct object, the entity denoted by the subject NP continues movement through space or time.

The generalization in (31) means that if *on* is used with a direct object then *on* is predicated of the direct object. If such an interpretation is impossible, *on* cannot be used with a direct object.⁸

Generalization (31) treats *on* as a predicate which takes a subject. In order to see how the generalization accounts for the relevant data, let us consider an intransitive example and a transitive example:

(32) Jenny talked on.

(33) Jordan encouraged Lisa on.

In (32), Jenny is predicated of both ‘talk’ and ‘on’ and so the example can be roughly paraphrased as ‘Jenny talked and Jenny continued’.⁹ As Jenny is the subject of both *talk* and *on* the resulting interpretation is that she continued talking. Compare this to (33), where *encourage* is predicated of *Jordan* (the subject), but *on* is not, according to (31). Instead, *on* is predicated of *Lisa*, the object. Example (33) can thus be roughly paraphrased as ‘Jordan encouraged Lisa and Lisa continued’. Importantly, Lisa does not continue encouraging, as Lisa is not the subject of *encourage*. Lisa continues doing whatever it is that Jordan is encouraging her to do (something specified by the context). In other words, the activity that continues is whatever activity the subject of *on* is engaged in.

I will introduce a few further examples to illustrate the validity of the generalization in (31). Consider first (34–35):

(34) Mandy took the train to Boston.

(35) *Mandy took the train on.

In (34), both *Mandy* and *the train* move, yet (35) is unacceptable.¹⁰ This at first seems to go against the generalization in (31), but I think it in fact supports the generalization. The intended meaning of (35) is that *Mandy* continues her travel. The train, although the direct object, is an irrelevant means of transportation; it does not matter if it is continuing its journey or not. In fact, it can be the train’s maiden voyage. However, (35) is not grammatical and the intended reading does not come across. The reading is instead that Mandy’s taking the train causes the train to continue, which is non-sensical. Compare (35) to (36):

(36) ?Mandy drove the train on (to Kentucky).

Native speakers find (36) significantly better than (35). This is because with the verb *drive* it is possible to construe a meaning where the crucial movement is that of the train: the train needs to get moved and Mandy’s driving causes it to move. Example (36) still sounds a bit odd, as *train* is primarily a means of transportation, and the interpretation that the train (rather than Mandy) needs to go on is far-fetched though possible.

Consider also the contrast between (37) and (38):

(37) *Mandy rode the train on.

(38) ?Mandy rode the horse on.

You can make a horse continue moving by riding it, but you cannot make a train continue moving by riding it. This is why, I suggest, (38) is better than (37). It thus seems to be the case that even the tricky transportation examples follow from (31).¹¹

This section has shown that continuative *on* places certain restrictions on the valency of the verb. It has previously been suggested that continuative *on* can only be used with intransitive verbs. Examples presented above show that although *on* restricts the arguments of the verb it modifies, it is not the true that *on* can never cooccur with transitive verbs. Instead, the co-occurrence of *on* and transitive verbs is restricted by the generalization in (31), which states that an object can be present only if *on* is predicated of that object.

4 A lexicalist analysis of *on*

The previous sections presented several independent characteristics of continuative *on*. First, the basic meaning of *on* is ‘continue’, as shown by the difference in meaning between ‘they walked’ and ‘they walked on’. Second, *on* specifies certain aspectual features which must match those of the verb. Third, *on* marks continuation in time or space of the object, if there is one, or else the subject; in other words, *on* functions as a secondary predicate which takes the main verb subject or object as its external argument. That verbal particles can be secondary predicates has been previously proposed in some form or other by various authors, e.g., Kayne (1985), den Dikken (1995), Toivonen (2003); see also references cited in those works and in Dehé et al. (2002). McIntyre (2004) specifically argues that *aspectual* particles are secondary predicates. In support of this claim, he offers examples such as (39), where objects are present although they are not selected by the verb:

(39) think the matter over vs. *think the matter

In (40), we find an example with *on*:

(40) spur someone on vs. *spur someone

Following McIntyre and the discussion in section 3 above, I adopt the assumption that *on* is a secondary predicate. The question now arises of what type of secondary predicate it is. In Lexical-Functional Grammar (LFG) there are two options: *on* is either an XCOMP(LEMENT) or an XADJ(UNCT). XCOMPS and XADJS are similar in that they are both open secondary predicates; i.e., secondary predicates that share their subject with an argument of a higher predicate. They differ in that XCOMPS are selected for by the verb whereas XADJS are not; the distinction can thus be compared to the distinction between predicate *arguments* and predicate *adjuncts*. Consider (41–42):

(41) Averell walked/laughed/ate/partied.

(42) Averell walked/laughed/ate/partied on.

The verbs in (41) do not select *on*, syntactically or semantically. Continuative *on* is therefore an XADJ, not an XCOMP.¹² Note that the distinction between XCOMPS and XADJS is not a phrase structural distinction.

In sum, an analysis of continuative *on* must thus account for the following characteristics:

- (43)
- a. *On* is specified as [– TELIC, + DYNAMIC, + DURATIVE].
 - b. *On* can only combine with verbs specified for compatible aspectual features.
 - c. *On* is predicated of the object of transitive verbs and the subject of intransitive verbs.
 - d. *On* is a predicate adjunct.

In the remainder of this paper, I develop an analysis that captures the generalizations in (43). The analysis is cast within LFG, as the account provided here will rely heavily on

lexical features and LFG has a well-developed theory of the lexicon. Another advantage of LFG is that it posits two separate levels of syntactic structure: constituent structure (i.e., phrase structure) and functional structure. This separation of different types of syntactic information turns out to be very useful for an analysis of *on*, as particles can be realized in two different ways in the phrase structure in English, even though the function remains the same. Furthermore, as we will see in section 5.2, Swedish has a particle which parallels *on* with respect to function, but the phrase structural representation of the Swedish counterpart is different from that of English *on*.

The present section is organized as follows: Section 4.1 provides a brief outline of the relevant aspects of LFG. Section 4.2 concerns the phrase-structural representation of *on*. Section 4.3 contains the core of the analysis of *on*, as it develops its lexical entry. Finally, section 4.4 summarizes and discusses the lexical account of *on*.

4.1 *Lexical-Functional Grammar*

I will here very briefly describe some of the notational and theoretical characteristics of LFG; for more details, motivation and fuller discussions of the framework, see Kaplan & Bresnan (1982), Bresnan (1982a), Dalrymple et al. (1995), Bresnan (2001), Dalrymple (2001), and Falk (2001).

The lexicon is of central importance in LFG. Each lexical entry includes a specification of the form (e.g., *cats*), the syntactic category (e.g., N^0), and the necessary feature specifications (e.g., NUM PL). The lexical entries are presented as in (44):

$$(44) \quad \textit{cats}: N^0 \quad (\uparrow \text{PRED}) = \textit{'cat'}$$

$$\quad \quad \quad (\uparrow \text{NUM}) = \text{PL}$$

The up-arrow (\uparrow) refers to the functional structure (to be discussed directly below) of the mother node in the tree. In a lexical entry, up-arrow refers to the X^0 node directly dominating the lexical item when included in a phrase structure tree. There is also a down-arrow (\downarrow) which refers to the functional structure of the node the down-arrow is associated with. The PRED feature is an identifier and a pointer to the semantics of a

given word. The value of the PRED feature also contains the subcategorization frame of the predicate.

Words are syntactically combined in c(onstituent)-structure, which is modelled with phrase structure trees. The lexical information of the words in the tree is then mapped into another level of syntactic information: f(unctional)-structure. F-structure is formally modelled with feature structures. The f-structure representation for the sentence in (45) is given in (46):

(45) Cats purr.

(46)
$$\left[\begin{array}{ll} \text{PRED} & \text{'purr } \langle(\text{SUBJ})\rangle \text{' } \\ \text{TENSE} & \text{PRES} \\ \text{SUBJ} & \left[\begin{array}{ll} \text{PRED} & \text{'cat'} \\ \text{NUM} & \text{PL} \end{array} \right] \end{array} \right]$$

As illustrated in (46), an f-structure can contain other f-structures; for example, the feature structures of syntactic functions such as SUBJ(ECT), OBJ(ECT) AND OBL(IQUE). Features may also have *sets* as values. For example, the ADJ(UNCT) and XADJ(UNCT) functions take sets as values. The f-structure is the level of grammar where it is possible to make direct reference to syntactic functions in order to account for phenomena such as binding, control, and agreement. These sorts of phenomena are crucially *not* modelled at c-structure, which is only concerned with purely phrase-structural information such as X'-theoretic organization, word order, and constituency.

The features of lexical entries can *unify* in a single functional structure. For example, a verb may contribute information about its subject, which maps onto the SUBJ f-structure. The information that the verb provides must be compatible with the information contributed by the subject itself. Conflicting information leads to an ill-formed functional structure by the principle of Uniqueness:

(47) **Uniqueness**

Every attribute has a unique value.

All identical features can unify. Every PRED feature has a unique value, and so PRED features can never unify.

4.2 *The c-structure representation of on*

When particles are used together with transitive verbs, they can generally precede or follow the direct object:¹³

(48) Perry threw the garbage out.

(49) Perry threw out the garbage.

There are some oft-noted differences between the pre-object and the post-object particle. First, post-object particles can be modified, but pre-object particles cannot:

(50) Perry threw the garbage right out.

(51) *Perry threw right out the garbage.

Second, the verb and the pre-object particle are more closely connected than the verb and the post-object particle, as illustrated in examples (52–55), which are taken from McCawley (1988:64–65):

(52) John picked up the money and picked out a coin.

(53) *John picked up the money and out a coin.

(54) John picked, and Mary hoisted, some heavy weights up.

(55) *John picked, and Mary hoisted, up some heavy weights.

Examples such as (48–55) and other examples as well illustrate the following broader generalization: *nothing can intervene between the verb and the pre-object particle in English.*

These data points have lead previous researchers to conclude that the pre-object particle is lexically combined with the verb in English (Johnson 1991, Nicol 2002, Toivonen

2001, 2003). Further evidence for this hypothesis comes from quotative inversion (Toivonen 2003:175–176). In quotative inversion, the verb precedes the subject, as in (56):

(56) “This is fun,” said Sally.

The particle may precede the subject together with its verb:

(57) “This won’t work,” shouted out John angrily.

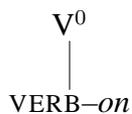
(58) “Civilization is going to pieces,” broke out Tom violently.

(*The Great Gatsby*, F.Scott Fitzgerald)

The fact that the particle may precede the subject in quotative inversion examples indicates that it can be lexically combined with the verb. Whether or not we adopt this particular view, it is clear that pre-object particles differ from post-object particles. Post-object particles are generally assumed to be ‘normal’ prepositions, heading intransitive PPs (Klima 1965, Emonds 1972, Jackendoff 1973).

There is no reason to assume that continuative *on* differs in its phrase structural realization from other verbal particles. The particle *on* can appear in two positions: lexically attached to the verb under the V^0 -node or as a fully projecting preposition:

(59)



(60)



It is relatively uncontroversial that particles have two different phrase structural realizations (see, e.g., Zeller 2002), but the representations given in (59–60) are not universally accepted.¹⁴ I will assume these structures for concreteness, but it is important to note that

none of the main points argued for in this paper depend on the exact structures given in (59–60).

Evidence that *on* can pattern with pre-object particles, represented as (59), comes from examples such as (61–63):

(61) The loss of face that would result from getting sacked served to *spur on* the AE.
(BNC)

(62) Suffused with enthusiasm, he *spurred on* the horses, setting them to gallop across the celestial way.
(<http://www.archaeonia.com/religion/deities/phaethon.htm>)

(63) The stage manager cued the music and *waved on* the next act, like he would have done anyway.
(<http://www.doktorfrank.com/archives/001489.html>)

In the examples above, the particle *on* precedes the object.

Evidence that *on* can pattern with post-object particles, represented as (60), comes from examples such as (26–28), where the particle follows the direct object. Additional support is added by the fact that continuative *on* can be modified. This is shown below for both transitive and intransitive verbs:

(64) Dave danced right on. (Jackendoff 2002:77)

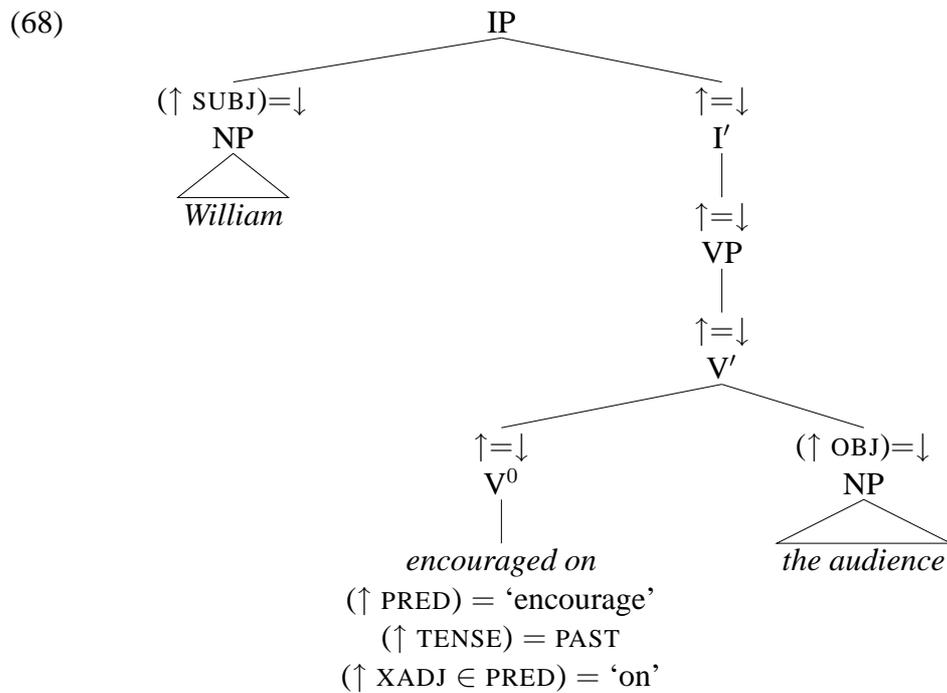
(65) Incredibly, Paul's father Ruben, Mr. Model Citizen, opened the door to the conference room and walked right on in.
(<http://www.sonofsusan.com/eChapter1RubenLaughsatDenise.html>)

(66) I swam doggedly on, hoping that that was the last unattached shark.
(<http://storyzz.nm.ru>)

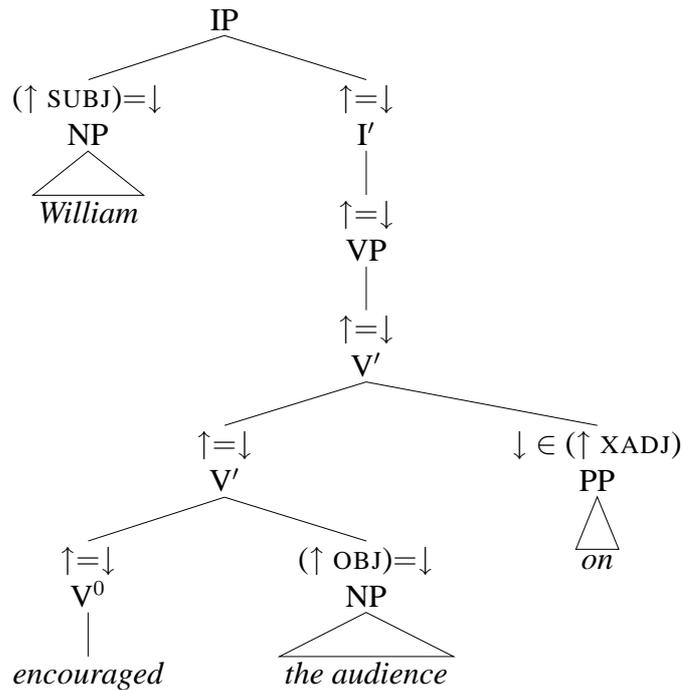
(67) But, when we got to the door, the doorman waved us right on with a smile.
(<http://www.tgender.net/taw/ictlep-nonts.txt>)

In sum, continuative *on* patterns with other verbal particles in English in that it has two phrase structural representations.

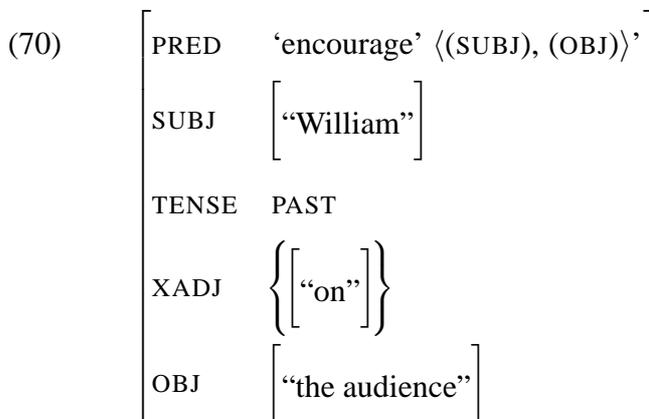
The c-structures in (68–69) correspond to *William encouraged on the audience* and *William encouraged the audience on*, respectively. In (68), I have included some of the lexical information of ‘encouraged on’ in order to show how the mapping to f-structure works. Recall that ADJ and XADJ are represented as sets. The equation $(\uparrow \text{XADJ} \in \text{PRED}) = \text{‘on’}$ in (68) states that the XADJ set of the mother’s f-structure contains a member whose PRED feature is ‘on’. The annotation $\downarrow \in (\uparrow \text{XADJ})$ in (69) means that the XADJ is a member of the XADJ set of the mother node’s f-structure (an alternative annotation is $(\uparrow \text{XADJ} \in) = \downarrow$).



(69)



The c-structures in (68–69) both map onto the following simplified f-structure (the next section will provide more detailed f-structure information):¹⁵



The analysis proposed mainly makes use of lexical features and f-structure syntax. The role of the c-structure is to ensure the appropriate mapping of lexical information onto f-structure. This account of *on* crucially relies on the possibility of mapping substantively different c-structures onto the same f-structure: the information of *on* is mapped onto an XADJ function, whether *on* is realized as a PP or attached to the verb under V^0 .

4.3 The lexical specification of continuative *on*

This section concerns the lexical representation of continuative *on*. Section 4.3.1 develops the feature specification needed to capture the generalization that *on* marks an activity and can only cooccur with a verb with compatible aspectual features. Section 4.3.2 formulates the analysis of *on* as a secondary predicate which shares its subject with the object or the subject of the main verb.

4.3.1 Continuative *on* as an aspect marker It was argued above that *on* is specified for the temporal features of activities: $[- \text{ TELIC}]$, $[+ \text{ DURATIVE}]$, and $[+ \text{ DYNAMIC}]$. Tenny (1987) has shown that situation-type information is visible to syntactic processes, and I will model this information in the syntactic level of f(unctional)-structure (as does Glasbey 2001).¹⁶

As shown in section 2, the aspectual features of *on* must be compatible with the aspectual features of the verb. This is easily accounted for if the aspectual features of *on* map into the same f-structure as the features of the verb, as features in the same f-structure must unify. I therefore propose that the aspectual features of *on* map directly onto the f-structure of which *on* is an XADJ. This can be accomplished with the following equations in the lexical entry for continuative *on*:

$$\begin{aligned} (71) \quad (\uparrow \text{ PRED}) &= \text{'on } \langle (\uparrow \text{ SUBJ}) \rangle \text{' } \\ ((\text{XADJ} \in \uparrow) \text{ ASPECT TELIC}) &= - \\ ((\text{XADJ} \in \uparrow) \text{ ASPECT DYNAMIC}) &= + \\ ((\text{XADJ} \in \uparrow) \text{ ASPECT DURATIVE}) &= + \end{aligned}$$

The specification $(\text{XADJ} \in \uparrow)$ refers to the f-structure in whose XADJ set the f-structure of *on* occurs. The aspect features of *on* are thus directly mapped into the f-structure of the verb. The specifications in (71) creates the following partial f-structure:¹⁷

$$(72) \left[\begin{array}{l} \text{ASPECT} \left[\begin{array}{l} \text{TELIC} \quad - \\ \text{DYNAMIC} \quad + \\ \text{DURATIVE} \quad + \end{array} \right] \\ \text{XADJ} \left\{ \left[\begin{array}{l} \text{PRED} \quad \text{'on } \langle \langle \text{SUBJ} \rangle \rangle \text{' } \\ \text{SUBJ} \quad \left[\quad \right] \end{array} \right] \right\} \end{array} \right]$$

Since the information of the verb maps onto the outer f-structure, only verbs with compatible ASPECT features can combine with *on*. For example, the ungrammatical **Pete won on* would map the feature [TELIC +] (from *win*) and the feature [TELIC -] (from *on*) into the same f-structure; this would give [TELIC] two different values, which results in a uniqueness violation. On the other hand, no uniqueness violation occurs in an example like *Pete walked on*, which corresponds to the following f-structure:

$$(73) \left[\begin{array}{l} \text{SUBJ} \left[\begin{array}{l} \text{PRED} \quad \text{'Pete'} \end{array} \right] \\ \text{PRED} \quad \text{'walk } \langle \langle \text{SUBJ} \rangle \rangle \text{' } \\ \text{TENSE} \quad \text{PAST} \\ \text{ASPECT} \left[\begin{array}{l} \text{TELIC} \quad - \\ \text{DYNAMIC} \quad + \\ \text{DURATIVE} \quad + \end{array} \right] \\ \text{XADJ} \left\{ \left[\begin{array}{l} \text{PRED} \quad \text{'on } \langle \langle \text{SUBJ} \rangle \rangle \text{' } \\ \text{SUBJ} \quad \left[\quad \right] \end{array} \right] \right\} \end{array} \right]$$

The fact that *on* is only compatible with verbs of the situation type *activity* is here accounted for with a lexical mechanism available in LFG: the ability of a lexical item to pass up lexical features to a higher f-structure. This formal device allows a straightforward analysis of the intuition that the aspect specifications of *on* must match the specifications of the verb.

4.3.2 The particle *on* as a secondary predicate Section 3 concluded that continuative *on* is a secondary predicate which shares an argument with the verb according to generalization (31), repeated here as (74):

- (74) Continuative *on* is used with a direct object NP only if the entity denoted by that NP is what continues movement through space or time. If there is no direct object, the entity denoted by the subject NP continues movement through space or time.

This generalization echoes the insight expressed in the Direct Object Restriction (DOR), posited for resultatives (Simpson 1983, Levin & Rappaport Hovav 1995). The DOR states that the resultative of a transitive clause must be predicated of the object. In other words, if the clause contains an object, the resultative must be predicated of that object. Toivonen (2002, 2003:p. 130) captures this generalization with a functional equation that identifies the subject of a resultative particle with the *lowest core grammatical function* (LCGF) of the verb. The core grammatical functions are SUBJECT, OBJECT and OBJECT_θ, and they are ranked in that order in the grammatical functions hierarchy (Bresnan 1982a, Bresnan & Kanerva 1989, Bresnan & Moshi 1990, Perlmutter & Postal 1983, Sag 1987, Keenan & Comrie 1977).¹⁸

The generalization in (74) is captured with reference to the LCGF in the following equation:

$$(75) \quad (\downarrow \text{SUBJ}) = ((\text{XADJ} \in \downarrow) \text{LCGF})$$

The equation in (75) ensures that the subject of the XADJ is identified with the lowest core grammatical function of the verb that the XADJ modifies. I will now lay out two slightly different ways in which (75) can be incorporated into an analysis of *on*. The first option relies on the assumption that all secondary predicates (including *on* and resultatives) conform to the generalization in (74), which captures the DOR. The generalization can be incorporated into the grammar by adding (75) to each phrase annotated with $\downarrow \in (\uparrow \text{XADJ})$.

The addition of (75) can be accomplished by means of a constructional rule, as proposed by Bresnan (1982a:378), or by the following phrase structure rule:

$$(76) \quad V' \rightarrow V' \quad XP$$

$$\quad \quad \quad \uparrow = \downarrow \quad \quad \downarrow \in (\uparrow \text{ XADJ})$$

$$\quad \quad \quad (\downarrow \text{ SUBJ}) = ((\text{XADJ} \in \downarrow) \text{ LCGF})$$

The equation $(\downarrow \text{ SUBJ}) = ((\text{XADJ} \in \downarrow) \text{ LCGF})$ is in this instance equivalent to the equation $(\downarrow \text{ SUBJ}) = (\uparrow \text{ LCGF})$. The rule in (76) corresponds to the skeletal f-structure in (77):

$$(77) \quad \left[\begin{array}{l} \text{LCGF} \\ \text{XADJ} \end{array} \left[\begin{array}{l} \left[\right] \\ \left\{ \left[\text{SUBJ} \left[\left[\right] \right] \right\} \right] \end{array} \right] \right]$$

The grammar rule in (76) does not cover lexically attached particles. As verbs and particles combine productively, their combination can be captured with a lexical redundancy rule. This rule would include the equation $(\uparrow \text{ XADJ} \in \text{SUBJ}) = (\uparrow \text{ LCGF})$ which identifies the subject of the XADJ with the LCGF of the verb.

The rule in (76) generalizes over all secondary predicates. As the DOR has been stated as quite a general constraint of secondary predicates, this may be a welcome result. However, the DOR has been challenged by Verspoor (1997), Wechsler (1997), and Rappaport Hovav & Levin (2001). These authors present examples where resultatives are predicated of subjects of transitive verbs. The DOR thus appears not to be universally valid, and the rule in (76) is perhaps stated too generally. Generalization (74) does, however, appear to be true for continuative *on*. An alternative formulation of (74) concerns continuative *on* only:

$$(78) \quad \textit{on}: P^0 \quad (\uparrow \text{ PRED}) = \textit{'on} <(\uparrow \text{ SUBJ})>$$

$$\quad \quad \quad (\uparrow \text{ SUBJ}) = ((\text{XADJ} \in \uparrow) \text{ LCGF})$$

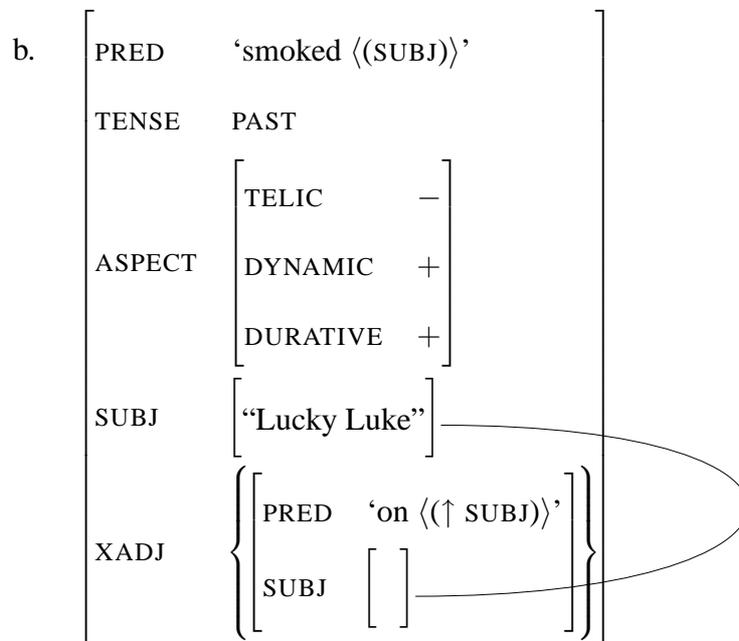
The specification $(\uparrow \text{ SUBJ}) = ((\text{XADJ} \in \uparrow) \text{ LCGF})$ ensures that the subject of *on* is identified with the lowest available core grammatical function of the verb of which *on* is an adjunct.

Each of the examples above contain three CGFS. The LCGF (the OBJ_θ) in (80) is *the letter*. As predicted, it is *the letter* that continues on (here, it is being sent on). Likewise, *on* is predicated of the LCGF in (81–82).

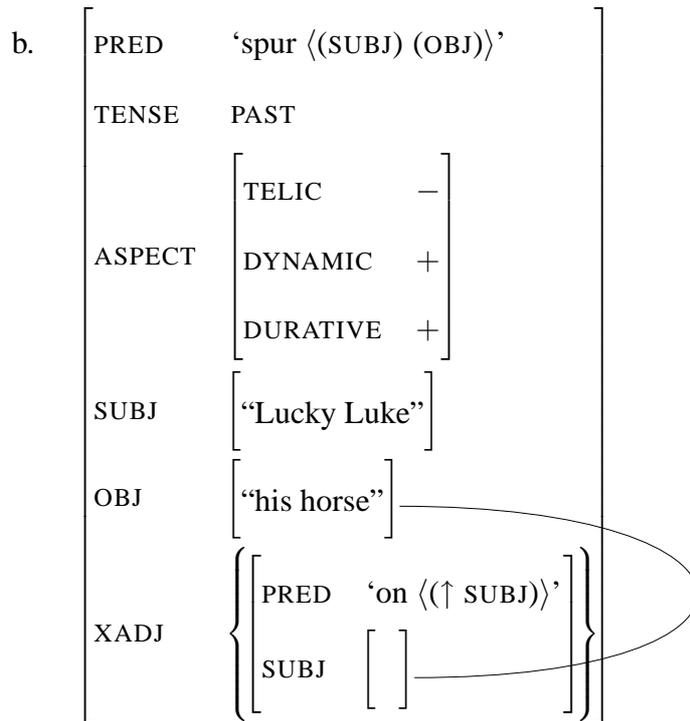
4.4 Summary

The f-structures in (83–84) provide an illustration of how the analysis developed in this section plays out. The example in (83) is intransitive and the example in (84) is transitive.

(83) a. Lucky Luke smoked on.



(84) a. Lucky Luke spurred his horse on.



Verbal particles in English have two possible phrase structural realizations. One possibility allows the particle to be lexically attached to the verb. When the particle combines lexically with the verb, the particle cannot be modified, it cannot be separated from the verb, and it intervenes between the verb and the direct object. The other possibility is that the particle projects a full PP. It can then be modified and separated from the verb, and it does not intervene between the verb and the direct object. The two c-structural representations of *on* do not pose a problem for the analysis at hand as LFG allows mismatches between c-structure and f-structure. Whether or not *on* precedes the direct object, it will construct the same f-structure.

Continuative *on* constrains the verb’s aspect and affects the argument realization of the verb. Under the present analysis, both traits follow from lexical specifications, together with independently motivated principles and formal mechanisms of LFG. Continuative *on* has the features of an *activity*: [– TELIC, + DYNAMIC, + DURATIVE], and these features must combine directly with the aspect features of the verb. It follows that a verb with incompatible aspect features cannot combine with *on*, and that *on* supplies feature values unspecified by the verb. Continuative *on*’s effect on the verb’s overt syntactic argument

realization is accounted for by treating the particle *on* as an XADJ whose SUBJ must be identified with the lowest core grammatical function of the verb.

5 Extensions and consequences

This section introduces three phenomena that relate to continuative *on* in different ways and shows how the analysis developed above can shed light on these topics. The three phenomena examined are: (1) the distinction between spatial and non-spatial uses of *on*; (2) the Swedish particle *på*, which is a continuative particle like *on*; and (3) the ‘keep on V-ing’ construction.

5.1 Spatial *on*

As mentioned above, the Oxford English Dictionary characterizes the meaning of continuative *on* as “onward movement in space or time”. The intuition that *on* can relate to either space or time is also noted by McIntyre (2004), who relies on this distinction in order to account for the transitivity restriction. McIntyre’s (2004) analysis, briefly described above in section 3, presupposes that continuative *on* can only cooccur with intransitive (uses of) verbs. However, he provides the following transitive examples (McIntyre 2004: example 9a):

(85) We prodded/moved/passed them on.

McIntyre argues that transitive examples such as (85) are in fact not problematic for his account, as they all involve *on* in its *spatial* use. He thus makes a crucial distinction between *on* as it denotes a concrete spatial path, and true aspectual *on*. Aspectual *on* is to be interpreted as a metaphorical path of an event through time, rather than a spatial path that a concrete entity follows. The path of aspectual *on* is a metaphorical extension of the spatial path, but the two senses are distinct. As McIntyre analyzes spatial *on* differently from aspectual *on*, it is not a problem for him that spatial *on* can occur with direct objects: spatial *on* with objects is simply an instantiation of the caused motion construction.

There are, however, data to show that not all transitives with *on* are spatial:

- (86) Her role became such of a success, that she starred in her own show, “Rhoda”. Valerie Harper was at the time unsure about doing her own show, but Mary *encouraged* her *on*, and the Rhoda character lasted until 1979, 4 1/2 seasons and 110 episodes.
(<http://members.aol.com/Dave7373/mtm.html>)
- (87) The schoolmaster saw he did not like to study and *coaxed* him *on* with a rod.
(<http://www.gospelcom.net/chi/DAILYF/2001/10/daily-10-31-2001.shtml>)
- (88) That things went so well here has *spurred* me *on* to do more research in neuroscience.
(http://www.brown.edu/Administration/George_Street_Journal/vol24/24-GSJ26i.html)
- (89) Obviously this sense of guilt, this idea that I had betrayed a friendship, *spurred* me *on* when I got older, not only to study birds but also actively to promote their well-being and do what I could to prevent their numbers from dwindling.
(BNC)

The *on* in the phrases *encourage on*, *coax on* and *spur on* certainly denotes continuing action, but no movement is involved. It could be argued that the original meaning of *on* in *encourage on*, etc., concerns spatial movement and the uses illustrated above are metaphorical extensions of the spatial meaning. However, this is exactly what McIntyre argues for aspectual, non-spatial *on* in general.

McIntyre (2004) offers an argument for his claim that only spatial *on* is compatible with transitivity:

“...each sense has its own synonym: *onwards* matches only the spatial sense and *on and on* only the aspectual sense.” (p. 4)

McIntyre's diagnostics seem valid to me, especially for *onwards*, as native speakers have the intuition that *onwards* is clearly connected to concrete motion. Adopting McIntyre's diagnostics, examples such as (90) are problematic for the claim that *on* can only be used in its spatial sense with transitives:

(90) *I wanted to stop singing, but everybody spurred me onwards.

(91) I wanted to stop singing, but everybody spurred me on.

Example (90) is ungrammatical, yet (91) is fine. We see that *on* in (91) cannot be rephrased with *onwards* and so, following McIntyre's reasoning, *on* is not used in its spatial sense in (91), even though (91) is transitive. Consider also examples (92–93) which illustrate the same point:

(92) *He was tired and hoarse and would have cut his speech short if his wife hadn't encouraged him onwards to keep talking.

(93) He was tired and hoarse and would have cut his speech short if his wife hadn't encouraged him on to keep talking.

This is not to say that transitive *on* is *never* used interchangeably with *onwards*, of course. Both *encourage* and *spur* easily take *onwards* in the following expressions:

(94) She spurred the horse onwards.

(95) She encouraged the runner onwards.

However, (90–93) show that transitive *on* cannot always be paraphrased with *onwards*.

Again using McIntyre's *onwards* and *on and on* diagnostic, there is further evidence that transitive *on* is not always used spatially, as *on and on* can be used in transitive clauses:

(96) I wanted to stop singing, but everybody spurred me *on and on*.

- (97) He was tired and hoarse and would have cut his speech short, but the crowd *encouraged* him *on and on*. (BNC)
- (98) This gratifying recognition is the engine that has *spurred* him *on and on and on*.
(<http://www.dollhouse lady.com/guest.htm>)
- (99) The sturdy Cypress stood firm before wind and rain and storm; and the little Flame Wine grew *on and on*, hugging the lower branches of her new, indulgent, ever smiling friend, who *encouraged* her *on and on*.
(<http://www.mywords4u.com/dovpaolo.htm>)

Assuming that *on and on* is indeed a test for non-spatial *on*, then (96–99) provides further evidence that *on* is not necessarily spatial in connection with transitives. Regardless of the *on and on* diagnostic, it is clear that the activity that is continued in the sentences above does not denote spatial movement. In (96), for example, the singing is continued, and singing does not involve spatial movement.

I conclude that examples such as those in (86–89) and others show that continuative *on* can be used (non-spatially) with direct objects. The restriction on valency is orthogonal to the issue of spatial movement; instead the valency restriction follows from the generalizations discussed in sections 3 and 4.3.2. However, this does not invalidate the intuition that there is a spatial and a non-spatial *on* particle. In general, speakers seem to share McIntyre’s intuition that there are indeed two uses of *on*. One piece of evidence for this is that only the spatial *on* can be paraphrased with *onwards*, as discussed above. Another piece of evidence comes from the fact that examples such as (100) are grammatical:¹⁹

- (100) The river extends *on*.
- (101) The road leads *on*.

In the examples above, *on* cooccurs with stative verbs and has a spatial reading. The spatial reading is evidenced by the examples in (102–103):

(102) The river extends onwards.

(103) The road leads onwards.

The examples in (100–101) do not have a reading of ongoing activity:²⁰

(104) *The river keeps on extending.

(105) *The road keeps on leading.

So, there seems to be a purely spatial *on*, which denotes a path rather than an ongoing activity. Spatial *on* can be paraphrased with *onwards*, and it can cooccur with stative verbs (as in (104)). Unlike non-spatial *on*, spatial *on* thus has an unspecified [DYNAMIC] feature. I know of no examples that would indicate that spatial and non-spatial *on* have different [TELIC] and [DURATIVE] feature specification.

Some speakers report the intuition that only spatial *on* can be used with *ditransitive* verbs. The particle *on* cannot be substituted with *onwards* in (80–82), which seems to be evidence against this claim:

(106) *Mr. Hawkins sent me onwardss the letter.

However, *onwards* is not a particle and only particles are allowed in the construction illustrated by the ditransitive examples (for further discussion of this particular construction, see den Dikken (1995), Sag (1987), and others). It is unclear why *on* should be spatial with double objects. I will leave this issue an open question for now, but we will see some indirect support for the intuition that *on* is spatial with ditransitives in the section on Swedish below.

The lexical entry in (79) does not capture the intuition (due to McIntyre 2004) that continuative *on* is ambiguous between a spatial and a non-spatial reading. The two readings are close, as they both have to do with *continuation*. The fact that spatial *on* is unspecified for the feature [DYNAMIC] indicates that the two readings are associated with two separate lexical entries. The lexical entry in (79) above is non-spatial *on*, and the lexical entry for spatial *on* is given in (107):

- (107) $on_{spatial}: P^0$ (\uparrow PRED) = ‘ $on_{spatial} <(\uparrow$ SUBJ) $>$ ’,
 $(\uparrow$ SUBJ) = ((XADJ \uparrow) LCGF)
 ((XADJ \in \uparrow) ASPECT TELIC) = –
 ((XADJ \in \uparrow) ASPECT DURATIVE) = +

Spatial and non-spatial *on* are very similar. This similarity is reflected in the two lexical entries, which are identical except for the fact that spatial *on* is unspecified for the feature [DYNAMIC]. The other difference between the two lexical entries has to do with the spatial interpretation, and this is not marked in the lexical entries here. Finally, it is important to stress that even though there does seem to be a distinction between spatial and non-spatial *on*, this distinction is not tied to transitivity.

5.2 Swedish

The Swedish verbal particle *på* has a use which corresponds closely to English continuative *on*:²¹

- (108) Torbjörn pratade på.
 T. talked on.
 ‘Torbjörn talked on.’

The existence of *på* in Swedish shows that a continuative particle is not just an idiosyncratic lexical quirk peculiar to English: other languages can have continuative particles as well. This section presents data that demonstrate the similarities and differences of *på* and *on*. The similarities are accounted for by positing a lexical entry for *på* which is the same as the entry for continuative *on*. The differences follow from two independent factors: Swedish *på* does not have a spatial use, and particles in Swedish and English are c-structurally different.

Swedish continuative *på* corresponds to non-spatial *on* only, and so a sentence like (109) is not ambiguous:

- (109) Lisa sprang på.
L. ran on
'Lisa ran on.'

In English, *Lisa ran on* is ambiguous between the reading 'Lisa continued running' and 'Lisa ran onwards'. The latter reading is not available in Swedish, although it may be inferred from the meaning of run: the most likely scenario is of course one where Lisa is running along a path rather than on one spot.

Swedish does not have sentences corresponding to (100–101); (100) is repeated here as (110):

- (110) The river extends on.

The fact that Swedish lack these types of examples is unsurprising, as *på* only denotes continuation in time, not space.

Continuative *on* cannot be used with double object constructions in Swedish, even though other particles can occur with double objects in Swedish (Toivonen 2003:91-93). A sentence like (111) does not have a direct counterpart in Swedish:

- (111) Please pass me on the information.

The fact that Swedish does not have an expression directly corresponding to (111) is consistent with the suggestion made with regard to *on* in English double object constructions: only spatial *on* can be used in these constructions.

Swedish *på* is f-structurally identical to English (non-spatial) *on*, as will be shown below. However, *på* is c-structurally distinct from *on*. It is well-known that there are differences among the Germanic languages with respect to the linear ordering of the particle and the direct object (see, e.g., Svenonius 1994). English allows the particle to appear on either side of the direct object (as illustrated above); Danish particles obligatorily follow the direct object; and Swedish particles obligatorily precede the direct object. The examples in (112–113) illustrate the Swedish pattern:

(112) *Matts ville kasta ut soporna.*
 M. wanted throw out garbage.the
 ‘Matts wanted to throw out the garbage.’

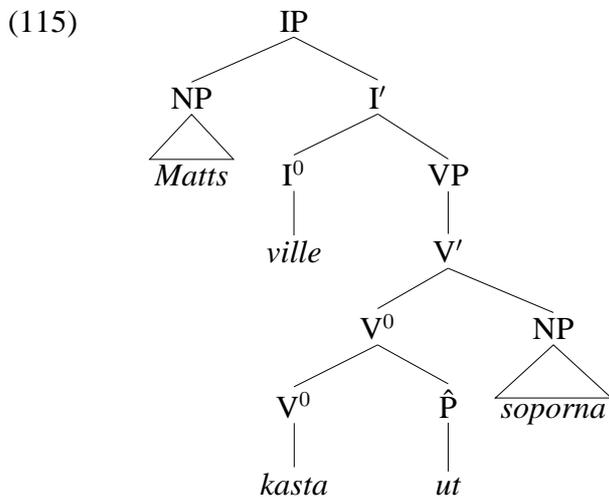
(113) **Matts ville kasta soporna ut.*
 M. wanted throw garbage.the out.

This distinction in word order reflects a difference in phrase structure.

Another difference between English and Swedish concerns the separability of the verb and the particle. As shown in examples (52–55) in section 4.2, English pre-object particles cannot be separated from the verb. However, Swedish particles are trivially separated from the verb:

(114) *Kastar Matts aldrig ut soporna?*
 throws M. never out garbage.the
 ‘Does Matts never throw out the garbage?’

In (114), the subject *Matts* and the adverb *aldrig* intervene between the verb *kastar* and the particle *ut*. Toivonen (2003) explains the difference between Swedish and English as follows: English pre-object particles are lexically attached to the verb, whereas Swedish particles are non-projecting words that are head-adjoined to V^0 . The c-structure for (112) is thus (115). The notation \hat{P} marks a non-projecting preposition.²²



This structure is different from the structure for English particles; compare (115) to (68) and (69) above. The difference between (115) and (68) captures the generalization that English pre-object particles cannot be separated from the verb whereas Swedish particles can.

Whether or not one adopts the exact structures for Swedish and English proposed in Toivonen (2003), it is clear that verbal particles are c-structurally different in the two languages. Yet data presented below show that *on* and *på* have the same aspectual function. The differences in c-structure are not problematic in LFG, as this framework recognizes that there is substantial cross-linguistic variation at c-structure, and radically different c-structure representations can correspond to the same f-structure.

The lexical entry for Swedish *på* is virtually identical to the lexical entry for non-spatial *on*. Like *on*, Swedish *på* specifies the features [– TELIC, + DYNAMIC, + DURATIVE] and can only be combined with verbs that are compatible with those features (Norén 1996, Toivonen 2003):

(116) Marika jobbar på.
 M. works on
 ‘Marika works on.’

(117) Sofia sjöng på.
 S. sang on
 ‘Sofia sang on.’

(118) *Marika visste på.
 M. knew on.

(119) *Sofia vann på.
 S. won on

Like *on*, Swedish *på* specifies features left unspecified by the verb. Consider the verb *springa* ‘to run’, which like English *run* can be telic or atelic, depending on its complement:²³

- (120) a. Thora sprang omkring i en timme. (atelic)
 T. ran around in an hour.
 ‘Thora ran around for an hour.’
- b. Thora sprang till skogens slut på en timme. (telic)
 T. ran to forest’s end on an hour
 ‘Thora ran to the edge of the forest in an hour.’

When *på* is used, the verb gets an atelic interpretation:

- (121) Thora sprang på i en timme.
 T. ran on in an hour.
 ‘Thora ran on for an hour.’

The examples above show that Swedish continuative *på* has the same aspectual features as English non-spatial *on*.

In many examples, Swedish *på* is incompatible with direct objects. This is illustrated in (122) with the optionally transitive verb *äta* ‘to eat’:

- (122) a. Snöfrid åt på.
 S. ate on.
 ‘Snöfrid ate on.’
- b. *Snöfrid åt på glass.
 S. ate on ice.cream.

The particle *på* can be used with direct objects only if the object is identified with the subject of *på*:

- (123) a. Han *manade på* publiken.
 He urged on audience.the.
 ‘He spurred on the audience.’

- b. Han borde *sporra på* sina medspelare och få med dom i
 he should spur on his.REFLEXIVE with.players and get with them in
 matchen istället för att klanka ner på dom.
 game.the instead for to blame down on them.
 ‘He should spur on his team mates and pull them along in the game instead
 of blaming them.’
 (<http://svenskafans.com/spanien/realmadrid/>)

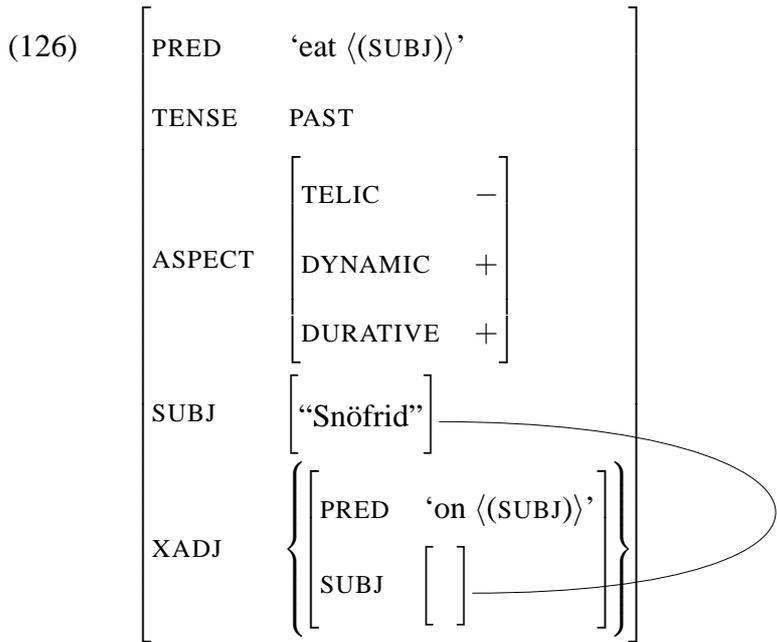
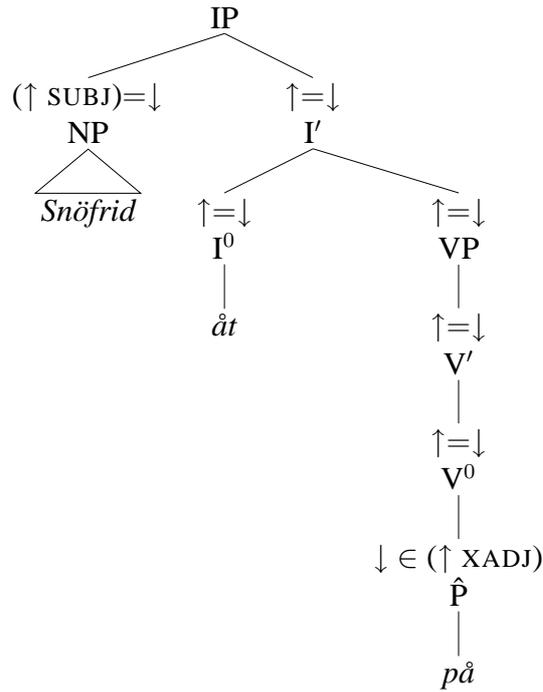
The examples in (123) show that the subject of *på* is identified with the lowest available grammatical function. Again, this is parallel to the English finding.

To sum up, we see that Swedish *på* mirrors continuative *on* in aspectual specifications, aspectual demands on the verb, and valency restrictions. The analysis of *på* relies on its lexical entry, just like the analysis of *on*. The entry for continuative *på* is given in (124):

- (124) *på*: \hat{P} (\uparrow PRED) = ‘on <(\uparrow SUBJ)>’
 (\uparrow SUBJ) = ((XADJ \in \uparrow) LCGF)
 ((XADJ \in \uparrow) ASPECT TELIC) = –
 ((XADJ \in \uparrow) ASPECT DYNAMIC) = +
 ((XADJ \in \uparrow) ASPECT DURATIVE) = +

The entry in (124) captures the behavior of *på* illustrated above. The c-structure and f-structure representations for (122a) are given in (125–126):

(125)



There are no significant differences between the f-structure in (126) and the f-structure of the corresponding sentence in English. However, the c-structure of the corresponding English sentence is of course different from (125).

This section has introduced the Swedish continuative particle *på* which parallels English *on*. The existence of *på* transforms the study of continuative *on* into a topic of cross-linguistic interest. A thorough comparative study of continuative particles in Germanic is a promising topic for future research.

Swedish *på* provides support for two components of the analysis of *on* developed in section 4. First, English continuative *on* was argued to correspond to two lexical entries: a spatial and a non-spatial one. This predicts that a language could have only one or the other, and Swedish *på* confirms this prediction: *på* has the non-spatial reading only. Second, the English analysis relies on unification at f-structure to account for the aspect marking characteristics of *on*. Swedish *på* is c-structurally different from *on*, but the aspectual similarities between the two particles nevertheless receive an explanation, as the particles map onto identical f-structures. Since the analysis proposed for English *on* is not purely structural, it captures Swedish *på* without further stipulation.

5.3 *The verb keep*

The ‘V on’ construction and the ‘keep (on) V-ing’ construction are very similar in meaning. However, as was pointed out above, the two constructions differ in usage. First, *keep (on)* does not place any restrictions on the argument selection of the verb:

(127) a. Jack kept reading the paper.

b. *Jack read on the paper.

(128) a. Ma kept eating the apple.

b. *Ma ate on the apple.

The (b) examples of (127—128) are ungrammatical since *on* must predicate over the lowest core grammatical function. However, the (a) examples are fine, so the two constructions differ here.

A second difference is that *keep (on)* can take verbs that are aspectually incompatible with *on*:

(129) a. On the battle field, soldiers kept dying.

b. *On the battle field, soldiers died on.

- (130) a. Averell kept stopping everywhere.
 b. *Averell stopped on everywhere.

The verb *to die* is inherently [− DURATIVE] and *to stop* is [+ TELIC], and they are therefore both incompatible with the aspectual features of *on*.

Consider first the contrast regarding valency illustrated in (127–128). The verb *keep* is a standard raising verb with an athematic subject and an open predicate complement, an XCOMP:²⁴

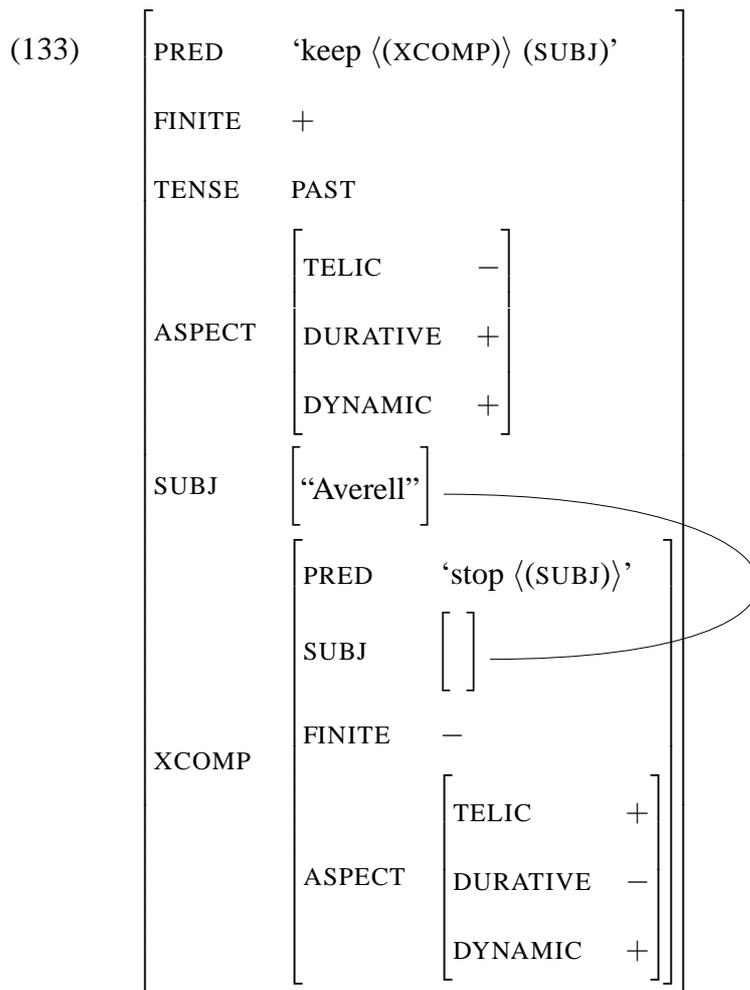
- (131) (↑ PRED) = ‘keep <(↑ XCOMP)> (↑ SUBJ)’
 (↑ SUBJ) = (↑ XCOMP SUBJ)

The verb *keep* requires the two subjects to be identified, but otherwise the arguments of the lower verb are not restricted: *keep* cannot dictate the valency of the verb in its XCOMP.

Let us now turn to the contrasts shown in (129–130) which do not concern argument selection, but situation-type aspect. The *keep (on)* construction has the same aspectual features as *V on*: [− TELIC, + DURATIVE, + DYNAMIC]. Why can verbs with incompatible aspect features be used with *keep*? Under the present analysis this follows quite naturally. The lexical entry of *keep* is given in (132):

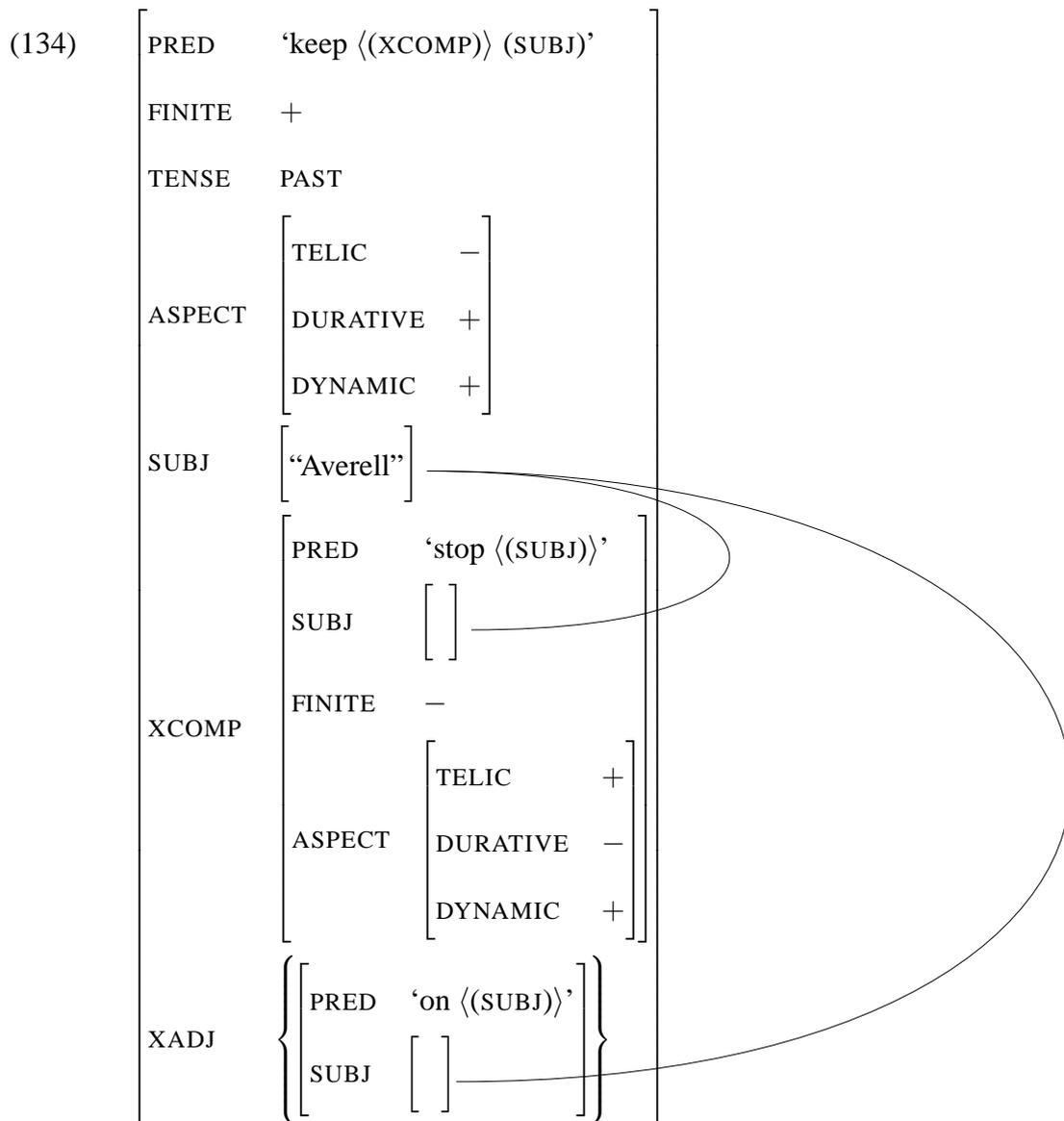
- (132) (↑ PRED) = ‘keep <(↑ XCOMP)> (↑ SUBJ)’
 (↑ SUBJ) = (↑ XCOMP SUBJ)
 (↑ ASPECT TELIC) = −
 (↑ ASPECT DURATIVE) = +
 (↑ ASPECT DYNAMIC) = +

Crucially, *keep* takes an open predicate complement, an XCOMP, as an argument. That XCOMP will map its information into its own f-structure, which will be embedded in the main f-structure. The structure for ‘Averell kept stopping’ is given in (133):



The subject of *keep* is shared with the subject of its predicate complement. The aspect features of the outer f-structure are not identical to the aspect features of the inner f-structure, but there is no reason why they would be: features in separate structures do not unify.

Under the present treatment of *on*, it follows that both *keep* and *keep on* are possible, since the aspectual features of *on* and *keep* are compatible. Also, the subject is the lowest core grammatical function of *keep* (XCOMP is not a core grammatical function), and so *on* is unproblematically predicated of the subject. The f-structure for ‘Averell kept on stopping’ is given in (134):



The goal of this section has been to compare and contrast the characteristics of *keep* (*on*) and continuative *on*. A standard raising verb treatment of *keep* and the analysis of *on* presented in section 4 explain the characteristics of each construction, and these analyses also shed light on the differences between the two types of clauses. For further discussion of the semantics of various uses of *keep* (including uses not directly relevant here), see Jackendoff (1976) and Levy (2002).

6 Concluding remarks

This paper has shown that although sentences with and without the particle *on* may be very close in meaning, they are not synonymous. This is demonstrated by (135) and (136):

(135) The children jumped.

(136) The children jumped on.

The verb *jumped* is normally a semelfactive, as in (135), but the particle *on* gives *jumped* an activity reading, as in (136). The presence of *on* also entails that the activity the subject is performing is a continuation of a previously initiated activity. Example (136) is infelicitous if the children had just begun jumping.

The analysis presented in this paper explains these two characteristics through lexical feature specifications contributed by a single lexical entry for continuative *on*. It has been proposed that the particle *on* maps its aspectual features directly onto the f-structure of the verb, and hence the clause. The particle thus functions as an aspect marker. In addition, *on* is a secondary predicate with the meaning ‘continue’, and as a predicate it takes a subject. This subject is required to be identified with the lowest core grammatical function of the verb.

The empirical characteristics of the continuative particle offer two pieces of evidence for a separation of c-structure (phrase-structural) and f-structure syntax, as assumed in LFG. First, different c-structural realizations of *on* correspond to the same f-structure. Second, Swedish *på* and English *on* are f-structurally identical, but c-structurally distinct.

In addition to lexical feature specifications of *on*, the analysis relies on independently motivated principles of LFG. Of particular importance is feature unification, which is also adopted in theories other than LFG, such as Head-Driven Phrase Structure Grammar and even some recent versions of the Minimalist Program (Adger 2003). This key aspect of the analysis is thus a common property of linguistic theory in general. The point of theoretical convergence defined by feature unification is therefore a promising starting point

for investigating whether the analysis presented here can be adapted to other frameworks, which will inevitably also reveal points of divergence worth investigation.

FOOTNOTES

*I am grateful to Ash Asudeh for many insightful comments on various versions of this paper. I also want to thank Ray Jackendoff, Kate Kearns, Beth Levin, Andrew McIntyre, Chris Potts, Jeff Runner, and the anonymous reviewers for helpful comments, criticism and discussion. The audiences at Canterbury University and LSA05 also provided many useful remarks. All remaining shortcomings are the responsibility of the author.

¹Notable exceptions are Bolinger (1971: Chapter 7), Fraser (1976), Emonds (1985: 253), Klipple (1997), McIntyre (2001), Jackendoff (2002) and McIntyre (2004), who all discuss (or at least mention) one or more of the English aspectual particles.

²The aspect marking characteristics of *on* can be compared to the properties of the aspectual prefixes in Slavic, for example. There are two types of aspectual prefixes in Slavic: prefixes that mark perfective and imperfective, and *Aktionsart* or situation-type prefixes. The particle *on* is more like the second type, as will become clear below. See Smith & Rappaport (1997) for a discussion the two types of prefixes in Russian.

³Many of the examples in this paper are retrieved from the world wide web. Some sentences are from the British National Corpus (BNC; <http://sara.natcorp.ox.ac.uk/>) or from novels. Yet other sentences are taken from the linguistics literature on particles. Some examples have been constructed. All examples have been checked by native speakers of English.

⁴I am grateful to Andrew McIntyre (p.c.) for example (7). He marks the example with a single question mark, but my informants find it completely ungrammatical.

⁵The principle in (21) can be formalized in various ways; for example, by using actual defaults (see, e.g., Lascarides & Copestake 1999 and references cited there), or by reference to an *elsewhere* mechanism, which can be formalized by adding ordered disjunction (Erjavec 1994) to the regular expression language describing f-structures. (F-Structures are discussed below.)

⁶It is unclear how the featural specification adopted in this section accounts for the ungrammaticality of examples like **widen on* and **cool on*. These are so-called degree

achievements; see (Hay et al. 1999) for a discussion of the telicity of such verbs. Thanks to Kate Kearns (p.c.) for drawing these examples to my attention.

⁷McIntyre (2004) distinguishes between spatial and non-spatial *on* and he recognizes that spatial *on* does cooccur with objects; he assumes that spatial *on* is substantively different from non-spatial *on* and the two should receive different analyses. See section 5.1 below for further discussion.

⁸An interesting issue to consider concerns weather verbs, such as ‘rain’. A sentence like *it rained on* is acceptable. The aspectual features of rain match the features of *on*, so that is unproblematic. The potential problem arises with generalization (31): weather-*it* is often considered to be an expletive and not a thematic subject. There is thus no ‘it’ that can continue (or ‘move through time’). However, it has previously been noted that weather-*it* is different from true expletive *it*. Chomsky (1981:324f) notes, based on control data, that “weather-*it* behaves as if though it were referential, but it can have no referent”. Chomsky labels weather-*it* a ‘quasi-argument’, which shares some qualities with true arguments, and so differs from true non-arguments or true expletives (see also Cardinaletti 1990:9–11 and others). The fact that weather-*it* can be used with *on* is thus consistent with its general behavior.

⁹It is important to keep in mind that the meaning of continuative *on* is ‘continue’ and therefore the predicate cannot be paraphrased as ‘Jenny is on’, which brings out another interpretation of *on*.

¹⁰Example (35) is of course grammatical on the irrelevant and unlikely reading that Mandy challenged the train.

¹¹Andrew McIntyre (p.c.) points out another example: *Mary flew the plane on*, where Mary must be the pilot and not the passenger.

¹²In a few instances, a verb may select for a secondary predicate such as *on*; e.g., *spur* in (40). In those cases, *on* is an XCOMP, selected for by the verb. The analysis otherwise remains the same.

¹³Although see Toivonen 2002 for a class of examples where the word order makes a difference in meaning. See also Lohse et al. (2004) for a recent discussion of processing factors that influence the word order in sentences containing particles.

¹⁴The literature on verbal particle is extensive, so I cannot review all previously proposed analyses here. See the papers in Dehé et al. (2002) for a recent collection of papers relating to particles.

¹⁵The XADJ value is in curly brackets, as it is a set (see section 4.1).

¹⁶For a range of proposals on how to model situation type, see Dowty (1979), Pustejovsky (1991), Jackendoff (1991, 1996), Verkuyl (1993), and references listed in section 2.2.

¹⁷Following the TENSE representation of Nordlinger & Bresnan (1996), I represent the aspect features as a complex feature value. Note, however, that the aspect features do not form a complete (subsidiary) f-structure of their own, as the structure contains no PRED-feature. Note further that the label ASPECT could be exchanged for AKTIONSART or SITUATION TYPE.

¹⁸OBJECT_θ was formerly called OBJ2 or ‘second object’ in LFG. Note that the GF hierarchy in LFG is slightly different from the Relational Grammar grammatical relations hierarchy, where *direct object* precedes *indirect object*, which is (in English) a PP. In the double object construction, the second object is considered a *chômeur* in RG. In LFG, the two objects in the double object construction are labelled OBJ and OBJ_θ, respectively.

¹⁹Examples (100–101) were suggested to me by Andrew McIntyre (p.c.).

²⁰Some speakers marginally accept (104), but not as a paraphrase of (100).

²¹Like English *on*, *på* has non-continuative uses as well: it is used in expressions like *the TV is on* and *put clothes on*.

²²The placement of the finite verb in Swedish is controversial. In (115), it is in I⁰, but there are some arguments that the finite verb is always in C⁰ (see, e.g., Holmberg 1986). This point is orthogonal to the issues at hand.

²³The *på* in (120b) is a transitive preposition, taking *en timme* as a complement. This use of *på* is unrelated to continuative *på*.

²⁴In LFG, athematic arguments are notationally distinguished from thematic arguments by being placed outside the angled brackets.

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Table 1: Aspectual features and classes

Aspectual class	Telic	Dynamic	Durative	Examples
State	–	–	+	<i>know, have</i>
Activity	–	+	+	<i>run, paint</i>
Accomplishment	+	+	+	<i>destroy</i>
Achievement	+	+	–	<i>notice, win</i>
Semelfactive	–	+	–	<i>cough, tap</i>