Definite descriptions of events: progressive interpretation in Ga (Kwa)

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Abstract

This paper demonstrates that the progressive interpretation in Ga is an effect of the interaction between the imperfective aspect and a definite description of events. Crucially, the data from Ga point to the consequences of the view that definite descriptions of events encode the familiarity of the discourse referent and its uniqueness in bearing the property in question. Namely, they yield direct evidentiality and the necessary ongoingness of the event at the topic time. Thus, the paper identifies previously untested variation in the semantics of the progressive in a cross-linguistic perspective and shows that not only lexical but also grammatical aspect exhibits striking parallelisms with the nominal domain.

Keywords Progressive aspect · Definite descriptions · Fieldwork semantics · Ga language · Evidentiality

1 Introduction

Deo (2009, 2015) observed that in a cross-linguistic perspective the imperfective aspect is associated with three different readings: a progressive or event-in-progress reading, a habitual or generic characterizing reading, and a continuous reading with

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lexically stative predicates.¹ The three readings are illustrated below, based on examples from Polish:²

- (1) Q: What is Natalia doing right now?
 A: Natalia czyt-a książkę. EVENT-IN-PROGRESS READING
 Natalia read-IMPF book.ACC
 ‘Natalia is reading a book.’
- (2) Q: What does Natalia do on Sundays?
 A: Natalia czyt-a książkę. HABITUAL READING
 Natalia read-IMPF book.ACC
 ‘Natalia reads a book.’
- (3) Q: Where does Natalia live?
 A: Natalia mieszk-a w Londynie. CONTINUOUS READING WITH ST. PRED.
 Natalia live-IMPF in London.LOC
 ‘Natalia lives in London.’

Looking at Ga, the general imperfective is realized by the suffix -ɔ, i.e., sentences with ɔ-marked verbs are compatible with all the three readings presented above (see Sect. 3.2). Example (4) is acceptable in the context given, illustrating the habitual reading:³

- (4) context: Every Sunday Kofi goes to swim in the ocean.
 Kõfi sèlè-ɔ.
 Kofi swim-IMPF
 ‘Kofi swims.’

Importantly, also clefted sentences with the imperfective form obtain a habitual interpretation, as demonstrated in (5). However, as it will be shown later in the paper, (5) cannot obtain a progressive interpretation.⁴

¹ As the continuous reading is only possible with lexically stative predicates and the event-in-progress reading only with non-statives, it might be that actually they constitute the same interpretation of the imperfective differentiated by the Aktionsart of the verb. Thanks to the Editor for pointing my attention to this issue.

² The glosses used in this paper are as follows: DET = determiner; SG = singular; PL = plural; 1 = First person; 2 = Second person; 3 = Third person; PRT = particle; NOM = nominalizer; NEG = negation; IMPF = imperfective; PROG = progressive; PROSP = prospective; ACC = Accusative, LOC = Locative. An example marked with ‘*’ means that the example was judged to be unacceptable in the given context and I hypothesize that it is for grammatical reasons, ‘#’ also means that the example was judged as unacceptable in the given context but for semantic or pragmatic reasons. Examples without any diacritics were judged as acceptable in the given context.

³ By saying that an example is acceptable/unacceptable in the context, I actually report my language consultants judgments who were asked whether a given sentence is acceptable in the context, not whether it is true in the context.

⁴ I propose analyzing the Ga *ni*-structure as a cleft because the particle *ni* introduces a structural bi-partition into the focused constituent to its left and the backgrounded part to its right and thus exhibits the typical properties of the cleft structure in a cross-linguistic perspective, see Sect. 3.1 (Renans 2016b, c). Note, however, that the pragmatics of clefts differ significantly cross-linguistically, compare e.g., French and English clefts (e.g., Bourns 2014; Lambrecht 2001; Destruel 2013). The semantics of the Ga *ni*-structure

- (5) context: Tom's younger son and daughters do not like swimming and they do not do it, but his oldest son, Kofi, loves swimming and he does it regularly.
 Kòfi nì sèlè-ò.
 Kofi PRT swim-IMPF
 'It is Kofi who swims.'

Interestingly, however, when the definite determiner *le* is added to the VP in clefts with the imperfective form, such a sentence invariably obtains the progressive interpretation, as demonstrated in (6). Crucially also, (6) without the particle *ni* is unacceptable. I call this structure the analytic progressive.

- (6) Kòfi #(nì) sèlè-ò **le**. ANALYTIC PROGRESSIVE
 Kofi PRT swim-IMPF DET
 'It is Kofi who is swimming.'
- a. PROGRESSIVE CONTEXT: Tom and his family (wife, two sons, and two daughters) are on the beach. Tom and his wife can see a swimming child.
 ⇒ (6) is acceptable in this context
- b. HABITUAL CONTEXT: Tom's younger son and daughters do not like swimming and they do not do it, but his oldest son, Kofi, loves swimming and he does it regularly.
 ⇒ (6) is unacceptable in this context

Importantly, the interpretation of the analytic progressive is restricted to events which are actually ongoing (instantiated) at the topic time, as presented in (7).

- (7) 'Harry Potter' nì mí kánè-ò **le**.
 'Harry Potter' PRT 1.SG read-IMPF DET
 'I am reading 'Harry Potter'.'
- a. EVENT INSTANTIATED AT THE TOPIC TIME: Tom can see that his friend John is in the process of reading something. He wants to know what it is.
 ⇒ John can utter (7) in this context
- b. EVENT NOT- INSTANTIATED AT THE TOPIC TIME: Tom and John are jogging. They are talking about books. Tom asks John which books he is reading.
 ⇒ John cannot utter (7) in this context

Moreover, the analytic progressive is used in direct evidence contexts, but typically not in indirect evidence contexts, as illustrated in (8):⁵

Footnote 4 continued

resembles the semantics of English clefts, but they differ in their pragmatics. I chose to translate the *ni*-structure as a cleft in English because it comes closest to empirical adequacy. Thank you to an anonymous reviewer for asking for clarification.

⁵ In the original example, it is Tom's daughter, Anna, who is swimming. I have changed this detail for presentational reasons.

- (8) Kòfí nì sèlè-ṣ lɛ.
 Kofi PRT swim-IMPF DET
 ‘It is Kofi who is swimming.’
- DIRECT EVIDENCE CONTEXT: Tom and his family (wife, two sons, and two daughters) are on the beach. Tom can see that his two daughters and the youngest son are playing with sand, and his oldest son, Kofi, is swimming.
 ⇒ Tom can utter (7) in this context
 - INDIRECT EVIDENCE CONTEXT: The same as above but this time Tom cannot see his oldest son, but the younger one told him that he was in the process of swimming.
 ⇒ Tom cannot utter (7) in this context

These observations lead to the following questions that the paper aims at providing answers to:

- Why do clefted sentences conveying imperfective aspectual reference and with the definite determiner *lɛ* attached to the VP invariably obtain the progressive interpretation? And how is this interpretation derived compositionally?
 ⇒ ANALYTIC PROGRESSIVE PUZZLE
- Why must the analytic progressive refer to events which are instantiated at the topic time?
 ⇒ INSTANTIATION AT THE TOPIC TIME PUZZLE
- Why does the analytic progressive impose evidential restrictions on the interpretation of the sentence?
 ⇒ DIRECT EVIDENTIALITY PUZZLE

I will argue that the analytic progressive is a definite description of events. The definite determiner *lɛ* encodes the information that there is a familiar discourse referent, an event of swimming by Kofi in the case of (8), which is unique in bearing the property in question. The analysis of the progressive interpretation is based on Ferreira (2005, 2016). He claims that both habitual and progressive are quantifiers over events. Whereas in the habitual a sequence of events is quantified over, in the progressive a singular event is quantified over. Ferreira (2016) argues that the singularity of events is introduced by the presence of a covert singular operator. By contrast, I argue that the uniqueness of the events in the VP denotation is caused by the definite determiner *lɛ*. The fact that there is a unique event quantified over in the analytic progressive will account for the observation that the analytic progressive can only refer to events which are instantiated/actually ongoing at the topic time. The fact that the definite determiner encodes familiarity of the discourse referent, on the other hand, will lead to direct evidentiality in progressive contexts. By that the Ga data contribute to the still growing body of evidence that languages have definite descriptions of other categories than NPs and point to interactions between the definite descriptions and the aspectual system of the language—an observation that has not been discussed in the theoretical literature so far.

The outline of the paper is as follows. In Sect. 2, I present empirical generalizations regarding the semantic properties of the progressive aspect in Ga which lead to the puzzles presented in the introduction. Section 3 presents the main ingredients of the

analysis: the semantics of the cleft structure, the imperfective marker -ɔ, and the definite determiner *lɛ*. Section 4 puts all the ingredients together and presents the solutions to the puzzles. It starts with accounting for the invariable progressive interpretation of the analytic progressive, as it forms the basis for providing the answers for further puzzles, and follows with the reasons for which the analytic progressive can only refer to events which are instantiated at the topic time and requires a direct evidential context. Section 5 discusses then why the analytic progressive form requires the *ni*-cleft structure and why clefted sentences with the imperfective marker -ɔ but without the definite determiner *lɛ* obtain the habitual but not the progressive interpretation. Section 6 concludes.

2 Progressive aspectual reference in Ga

Ga (Kwa) is an underresearched language spoken in the Greater Accra Region (Ghana) by ca. 745,000 speakers. Its basic word order is SVO. It is a tonal language with two tones: High and Low. All data in this paper come from my original fieldwork with seven Ga native speakers (five women and two men) in May 2012, February 2013, January 2014, and October 2014 in Accra and one Ga native speaker in Berlin in 2012–2015. The language consultants in Ghana were students at the time of conducting the fieldwork. One of them has a background in linguistics. All of the language consultants grew up in a Ga speaking community and they all speak Ga in their families. To collect the data I used the methodology presented in Matthewson (2004).

Before I dive into a presentation of the data illustrating the semantic properties of progressive aspectual reference in Ga, let me briefly outline some basic assumptions I make. Following Reichenbach (1947) and Klein (1994), among others, I assume a threefold distinction between event time, i.e., the time at which an event takes place, topic time (also called the reference time), i.e., the time the speaker talks about, and utterance time, i.e., the time at which the sentence is uttered. The role of aspect is to relate the event time and the topic time. In particular, imperfective aspect locates the topic time within the running time of the event (Dowty 1982, 1986; Hinrichs 1981; Klein 1994; Kratzer 1998, a.o.).

Ga has a rich system of overt aspectual markers (Dakubu 2008; Renans 2016b). Interestingly, there are many ways of obtaining a progressive interpretation in Ga. For example, one can use the verbal prefix *mii-*, as presented in (9-a),⁶ or a clefted imperfective sentence with the definite determiner *lɛ* attached to the VP, as in (9-b).⁷ The former I call the synthetic progressive and the latter the analytic progressive.

⁶ When the Agent is a pronoun, progressive aspectual reference is conveyed by a vowel lengthening, as in (i):

(i) context: Tom wants to talk to Anna, so he asks her father where he can find her. Anna's father says:
 È-è-sèlè.
 3SG-PROG-swim
 'She is swimming.'

⁷ Yet another way of obtaining a progressive interpretation in Ga is to use a clefted imperfective sentence with the demonstrative *nɛɛ* attached to the VP, see Renans (2016a).

- (9) PROGRESSIVE CONTEXT: Tom and his family (wife, two sons, and two daughters) are on the beach. Tom and his wife can see that Kofi is in the process of swimming. Tom's wife says:
- a. Kòfí **mù**-sèlè. SYNTHETIC PROGRESSIVE
Kofi PROG-swim
'Kofi is swimming.'
 - b. Kòfí **#(nì)** sèlè-**ɔ** **lɛ**. ANALYTIC PROGRESSIVE
Kofi PRT swim-IMPF DET
'It is Kofi who is swimming.'

Crucially, (9-b) without the particle *ni* is unacceptable and with *ni* but without the definite determiner *lɛ* attached to the VP obtains a habitual interpretation, as demonstrated in (10):

- (10) Kòfí **nì** sèlè-**ɔ**.
Kofi PRT swim-IMPF
'It is Kofi who swims.'
- a. PROGRESSIVE CONTEXT: Tom and his family (wife, two sons, and two daughters) are on the beach. Tom can see that his two daughters and the youngest son are playing with sand and his oldest son, Kofi, is swimming.
⇒ Tom cannot utter (10) in this context
 - b. HABITUAL CONTEXT: Tom's younger son and daughters do not like swimming and they do not do it, but his oldest son, Kofi, loves swimming and he does it regularly.
⇒ Tom can utter (10) in this context

Both the synthetic and the analytic progressive entail progressive aspectual reference, as both of them are compatible with progressive aspectual reference, as for example in (9), and are incompatible with habitual aspectual reference, as illustrated in (11) and (12):⁸

- (11) HABITUAL CONTEXT: Every Sunday Anna goes to swim in the ocean.
#Anna **mù**-sèlè. SYNTHETIC PROGRESSIVE
Anna PROG-swim
intended: 'Anna swims.'
- (12) HABITUAL CONTEXT: Tom's younger son and daughters do not like swimming and they do not do it, but his oldest son, Kofi, loves swimming and he does it regularly.

⁸ An anonymous reviewer pointed out to me that in some languages, progressive aspect is compatible with iterated interpretation (a habitual interpretation restricted to the last week), as in (i):

(i) Roger was running a mile last week. This week he is up to three.

(from Moens and Steedman 1988, p.18)

I do not have parallel data in Ga, so the question whether the analytic or synthetic progressive in Ga is acceptable in the sentences such as (i) has to await future research. Thank you for pointing my attention to this issue.

#Kòfí nì sèlè-ɔ̃ lɛ.

ANALYTIC PROGRESSIVE

Kofi PRT swim-IMPf DET

intended: 'It is Kofi who swims.'

Moreover, a compatibility with different temporal references suggests that the synthetic and the analytic progressive convey aspectual rather than temporal information. That both progressive forms are compatible with present temporal reference was shown above with (9). Examples (13) and (14), in turn, demonstrate that the synthetic progressive is also compatible with past and future temporal reference, respectively.

(13) PAST TEMPORAL REFERENCE:

A: What were you doing yesterday, when I called you?

B: Míí-káne wòlò.

PROG-read book

'I was reading a book.'

(14) FUTURE TEMPORAL REFERENCE:

A: What will you be doing tomorrow at 16:00?

B: Béní à-bàá-tswá ɣmèjí 16:00 wó lɛ, míí-káne wòlò.

when 3SG-PROSP-ring bells 16:00 tomorrow DET 1SG.PROG-read book

'Tomorrow at 16:00, I will be reading a book.'

By contrast, the analytic progressive is compatible with past but not with future temporal reference, as illustrated in (15) and (16), respectively.⁹

(15) PAST TEMPORAL REFERENCE:

Béní mī-bà shía nyé lɛ, Kòfí nì kánè-ɔ̃ wòlò yè tsú lɛ
when 1SG-come home yesterday DET Kofi PRT read-IMPf book at room DET
mli lɛ.

in DET

'When I came back home yesterday, it was Kofi who was reading a book in the room.'

(16) FUTURE TEMPORAL REFERENCE:

#Béní má-bà shía wó lɛ, Kòfí nì kánè-ɔ̃ wòlò yè
when 1SG.PROSP-come home tomorrow DET Kofi PRT read-IMPf book at
tsú lɛ mli lɛ.

room DET in DET

intended: 'When I come back home tomorrow, it will be Kofi who will be reading a book in the room.'

To sum up, the data in this section gives rise to the following questions:

- Why do clefted sentences conveying imperfective aspectual reference and with the definite determiner *lɛ* attached to the VP invariably obtain the progressive

⁹ Note that also the imperfective marker -ɔ̃ in isolation, i.e., not in the analytic progressive form, is compatible with present and past but not with future temporal reference, for discussion see Section 3.2.

interpretation? And how is this interpretation derived compositionally?

⇒ ANALYTIC PROGRESSIVE PUZZLE

Even though both the synthetic and the analytic progressive convey progressive aspectual reference, their semantics is not alike. For example, whereas the synthetic progressive is a general, unmarked form of progressive similar to the English one, the interpretation of the analytic progressive is restricted to events ongoing at the topic time that the speaker has strong, usually direct, evidence for, which is shown empirically in the next sections. Although the aim of this paper is to account for the semantics of the analytic progressive form, for presentational reasons I include the data regarding the semantic properties of the synthetic progressive as well.

2.1 Evidentiality

Evidentiality is a linguistic category that marks the type of evidence (or source of information) that the speaker's claim is based on (e.g., Faller 2002). It turns out that whereas the synthetic progressive does not encode any evidential restrictions, the analytic progressive requires direct evidence, as demonstrated in (17) and (18).

- (17) DIRECT EVIDENCE CONTEXT: Tom and his family (wife, two sons, and two daughters) are on the beach. Tom can see that his two sons and the youngest daughter are playing with sand, and his oldest daughter, Anna, is swimming. He says to his wife:

a. Anna **mù**-sèlè. SYNTHETIC PROGRESSIVE

Anna PROG-swim

'Anna is swimming.'

b. Anna **nì** sèlè-**ǵ** **lè**. ANALYTIC PROGRESSIVE

Anna PRT swim-IMPF DET

'It is Anna who is swimming.'

- (18) INDIRECT EVIDENCE CONTEXT: Tom and his family (wife, two sons, and two daughters) are on the beach. Tom can see that his two sons and the youngest daughter are playing with sand. He cannot see his oldest daughter, but the younger one told him that she was in the process of swimming. Tom says to his wife:

a. Anna **mù**-sèlè. SYNTHETIC PROGRESSIVE

Anna PROG-swim

'Anna is swimming.'

b. #Anna **nì** sèlè-**ǵ** **lè**. ANALYTIC PROGRESSIVE

Anna PRT swim-IMPF DET

'It is Anna who is is swimming.'

Importantly, since (17) and (18) constitute a minimal pair, i.e., the only difference between both contexts is that in (17) Tom has direct evidence that Anna is swimming and in (18) he has not, and since the analytic progressive is acceptable in the context of (17) but not in the context of (18), it strongly suggests that the unacceptability of (18-b) is due to the differences in the evidential restrictions encoded by the two

progressive forms and not due to the fact that *Anna* is the pivot of the cleft. If that was the case, then the analytic progressive should have been unacceptable in the context of (17) as well, contrary to fact.

The contrast between (19) and (20) provides further evidence that the analytic progressive, unlike the synthetic one, encodes evidential restrictions. Both sentences with the analytic and the synthetic progressive forms are acceptable in the context in which the speaker and Maria spent the whole day together, as demonstrated in (19). By contrast, in contexts which exclude the possibility that the statements are based on direct evidence, as in (20), sentences with the synthetic progressive form are still acceptable, but sentences with the analytic progressive form are not acceptable any longer. Again, since (19) and (20) constitute a minimal pair and since the analytic progressive is acceptable in the context of (19) but not the context of (20), its unacceptability in (20) cannot be due to the cleft-semantics.

(19) context: I live with Maria. Yesterday, we spent the whole day together.

- a. B́ení Lisa tswà nyé lɛ, Màrɪà mù-hòó gbékè ńyéníí.
when Lisa phone yesterday DET Maria PROG-cook evening food
'When Lisa phoned yesterday, Maria was cooking dinner.'
- b. B́ení Lisa tswà nyé lɛ, Màrɪà nì hó-ò gbékè ńyéníí
when Lisa phone yesterday DET Maria PRT cook-IMPF evening food
lɛ.
DET
'When Lisa phoned yesterday, it was Maria who was cooking dinner.'

One of my language consultants commented that (19-b) is acceptable in the context of (19), because the speaker and Maria were together the whole day and therefore the speaker saw her cooking.¹⁰

(20) context: Yesterday, I was in Kumasi (the whole day) and Maria was in Accra (the whole day).

- a. B́ení Lisa tswà nyé lɛ, Màrɪà mù-hòó gbékè ńyéníí.
when Lisa phone yesterday DET Maria PROG-cook evening food
'When Lisa phoned yesterday, Maria was cooking dinner.'

¹⁰ I do not have data regarding the (in)compatibility of the analytic progressive with other evidential meanings, e.g., inferential. As for other direct evidential meanings, as auditory or other sensory, the language consultants commented on (i) that in this case the speaker can hear the birds singing:

- (i) Lòdòf-ǵì nì lá-á lɛ.
birds-PL PRT sing-IMPF DET
'Birds are singing.'

Based on this comment, I conjecture that the analytic progressive is compatible with any kind of direct evidentiality, not only visual one.

- b. #Béní Lisa tswà nyé lɛ, Màrà nì hó-ɔ gbékè nínéní
 when Lisa phone yesterday DET Maria PRT cook-IMPF evening food
 lɛ.
 DET
 ‘When Lisa phoned yesterday, it was Maria who was cooking dinner.’

Note, however, that one of my language consultants accepted (19-b) and (20-b) in the context of (19) and (20), respectively, but she commented that in (20-b) the speaker is more certain that Lisa was cooking than in (20-a). She also said that using (20-b) requires having better evidence than using (20-a). This is in line with the observation that the analytic progressive can also be used in contexts with a rigidly structured program, e.g., in sport competition context. This observation is illustrated in (21):

- (21) context: Anna participates in a long-distance swimming competition. Tom, Anna’s father, knows that Anna’s turn to swim is from 13:00–14:00. Tom cannot see Anna but it is 13:30 now.
 Anna nì sèlè-ɔ lɛ.
 Anna PRT swim-IMPF DET
 ‘It is Anna who is swimming.’

This gives rise to the following generalization—the analytic progressive can be used either in direct evidence contexts or in contexts with a rigidly structured program, as sport competition, leading to the following puzzle:

- Why is the analytic progressive only acceptable in direct evidence contexts or contexts with rigidly structured program?
 ⇒ DIRECT EVIDENTIALITY PUZZLE

Importantly, I propose that the direct evidential meaning is conveyed by the whole structure, i.e., the interaction between the imperfective marker -ɔ, the cleft structure introduced by the particle *nì*, and the definite determiner *lɛ*. I have found no evidence which would suggest that the evidential meaning is conveyed by any of these elements in isolation. For example, both sentences with the imperfective marker -ɔ and the cleft structure are acceptable in the context below (both in questions and answers) which suggest that the speaker does not have a direct access to the event(s) of swimming by Lisa. Also, the language consultants have never offered any comments which would suggest that the imperfective marker -ɔ and the *nì*-cleft structure outside of the analytic progressive form might convey any evidential meaning. By contrast, they consistently offered comments that suggested that the analytic progressive form conveys direct evidential meaning which subsequently made me to test for its evidential properties.

- (22) context: John has three daughters: Philomina, Dora and Lisa. One of them swims regularly, one plays tennis and one plays basketball. Once John and his colleague Marc were talking about their families. Marc wanted to know who in John’s family swims every day. He asked:
 Q1: Namɔ sele-ɔ?
 who swim-IMPF
 ‘Who swims?’

- Q2: Namɔ ni sele-ɔ?
 who PRT swim-IMPF
 ‘Who is it who swims?’
- A1: Lisa sele-ɔ.
 Lisa swim-IMPF
 ‘Lisa swims.’
- A2: Lisa ni sele-ɔ.
 Lisa PRT swim-IMPF
 ‘It is Lisa who swims’

2.2 Events *not-instantiated* at the topic time

Another way in which the two progressive forms in Ga are distinct is with respect to their (in)compatibility with contexts in which the event is not instantiated at the topic time, i.e., contexts in which the event is not actually ongoing at the topic time. For illustration, consider (23). John might have started reading ‘Harry Potter’ before jogging and he might continue reading it after running. However, the event of reading ‘Harry Potter’ is not actually ongoing at the topic time in (23), because John is not reading ‘Harry Potter’ but jogging at the topic time. Events which are actually ongoing at the topic time I call instantiated at the topic time, events which are not actually ongoing at the topic time I call not-instantiated at the topic time.

It turns out that whereas the synthetic progressive, as the English one, is compatible with events not-instantiated at the topic time, the analytic progressive is not, as demonstrated below:

- (23) context: Tom and John are jogging. They are talking about books. Tom asks John which books he is reading. John replies:
- a. Múí-káne ‘Harry Potter.’ SYNTHETIC PROGRESSIVE
 1SG.PROG-read ‘Harry Potter’
 ‘I am reading ‘Harry Potter’.’
- b. #‘Harry Potter’ nì mí kánè-ɔ̃ lɛ. ANALYTIC PROGRESSIVE
 ‘Harry Potter’ PRT 1.SG read-IMPF DET
 ‘It is ‘Harry Potter’ that I am reading.’

Whereas (23-a) is acceptable in the context of (23), (23-b) is not. One of my language consultants gave a comment that (23-b) could be used if the speaker was physically in the process of reading a book while uttering (23-b) and this observation is supported by the data presented below:

- (24) context: Tom can see that his friend John is in the process of reading something. He wants to know what it is. John replies:
 ‘Harry Potter’ nì mí kánè-ɔ̃ lɛ.
 ‘Harry Potter’ PRT 1SG read-IMPF DET
 ‘It’s ‘Harry Potter’ that I am reading.’

Table 1 Semantic properties of the synthetic and the analytic progressive in Ga

	synthetic progressive	analytic progressive
direct evidence	✓	✓
indirect evidence	✓	—
events <i>instantiated</i> at the topic time	✓	✓
events <i>not-instantiated</i> at the topic time	✓	—

‘✓’ means that the form is acceptable in the given context, ‘—’ means that the form is not acceptable in the given context

The contrast between (23) and (24) strongly suggests that the unacceptability of (23-b) is not due to the fact that ‘Harry Potter’ is the pivot of the cleft but due to the fact that the event of reading ‘Harry Potter’ in (24) is not instantiated at the topic time, which gives rise to the following puzzle:

- Why must the analytic progressive refer to events which are instantiated at the topic time?
⇒ INSTANTIATION AT THE TOPIC TIME PUZZLE

2.3 Summary

In this section, I discussed the two strategies of conveying progressive aspectual reference in Ga, i.e., the synthetic and the analytic progressive. Crucially, the progressive interpretation in the latter is conveyed by the interaction between the particle *ni*, introducing the cleft structure, the imperfective marker *-ɔ*, and the definite determiner *le* attached to the VP. Importantly, when the definite determiner *le* attached to the VP is not present in the structure, the sentence invariably obtains the habitual interpretation.

Moreover, I presented semantic differences between the two progressive forms in Ga. Whereas the use of the analytic progressive is restricted to events instantiated at the topic time for which the speaker has strong (direct) evidence, the synthetic progressive does not impose any evidential constraints on its interpretation. A summary of the semantic differences between the synthetic and the analytic progressive form is presented in Table 1. In the next section, I present the main ingredients of the analysis which provide the basis for solving the puzzles, i.e., (i) analytic progressive puzzle, (ii) instantiation at the topic time puzzle, and (iii) direct evidentiality puzzle.

3 Main ingredients of the analysis: clefts, imperfective, and definiteness

3.1 The cleft-introducing particle *ni*

The particle *ni*-introduces a structural bi-partition into the focused constituent to its left (the pivot) and the backgrounded material to its right. It follows that the particle *ni* has a rigid syntactic position, i.e., it can only occur just after the ex-situ focused

constituent, as demonstrated in (25) and (26), and it cannot attach to in-situ focused constituents, as shown in (27):

- (25) Q: Who read a book yesterday?
 A: Kòfí **nì** káné (***nì**) wòlò (***nì**).
 Kofi PRT read PRT book PRT
 ‘It is Kofi who read a book.’
- (26) Q: What did Kofi eat yesterday?
 A: Bànkú **nì** Kòfí (***nì**) yè nyè.
 banku PRT Kofi PRT eat yesterday
 ‘It was banku that Kofi ate yesterday.’
- (27) Q: What did Kofi read yesterday?
 A1: *Kòfí káné àdèsawòlò **nì** nyè.
 Kofi read newspaper PRT yesterday
 A2: ‘Adèsawòlò **nì** Kòfí káné nyè.
 newspaper PRT Kofi read yesterday
 ‘It was a newspaper that Kofi read yesterday.’

I propose that the *ni*-structure is a mono-clausal cleft structure in which the pivot is base generated in its left-peripheral position.¹¹ For illustration, the proposed syntactic structure for (28) is presented in (29):¹²

- (28) A: Who swam?
 B: Kòfí **nì** sèlè.
 Kofi PRT swim
 ‘It is Kofi who swam.’

As for the information-structural properties of the *ni*-structure, the focus is invariably placed on the pivot. It is indicated by the observation that an element out of the pivot cannot answer wh-questions, as illustrated by the unacceptability of (30-A) and (31-A) in the context of the questions given in (30-Q) and (31-Q), respectively:

¹¹ For a discussion of syntax of the *ni*-structure, see Renans (2016b).

¹² Note that a similar structure in which a cleft-introducing element (the particle *ni* in the case of Ga) intervenes between the index and the pivot was proposed by Hole (2011) for Chinese *shì...de* clefts.

- (30) Q: Námò (nì) káné
 who PRT read
 wòlò?
 book
 ‘Who read a book?’
 A: #Wòlò **nì** Kòfí
 book PRT Kofi
 káné.
 read
 ‘It is a book that Kofi
 read.’
- (31) Q: Ménì (nì) Kòfí yè nyè?
 what PRT Kofi eat yesterday
 ‘What did Kofi eat yesterday?’
 A: #Kòfí **nì** yè àbèlé.
 Kofi PRT eat corn
 ‘It is Kofi who ate corn.’

Moreover, pivots cannot express aboutness topics, as presented in (32):

- (32) A: Tell me something about John.
 B: #John **nì** káné wòlò nyè.
 John PRT read book yesterday
 intended: ‘As for John, he read a book yesterday.’

VPs can also be the pivot but only in a nominalized form, accompanied either by a finite copy of the verb in its canonical position inside the VP, as in (33-A1), or by *fee*-support (‘do’-support), as in (33-A3):

- (33) Q: What did Kofi do yesterday?
 A1: Sèlè-mò **nì** Kòfí sèlè nyè.
 swim-NOM PRT Kofi swim yesterday
 A2: *Sèlè **nì** Kòfí sèlè nyè.
 swim PRT Kofi swim yesterday
 intended: ‘It was swimming that Kofi did yesterday.’
 A3: Wòlò kánè-mò **nì** Kòfí fèé nyè.
 book read-NOM PRT Kofi do yesterday
 ‘It is reading a book that Kofi did yesterday.’

Importantly, the pivot is interpreted exhaustively, as demonstrated by the data in (34). If the pivot would not be interpreted exhaustively, it should be possible to conjoin two sentences with the same VP-descriptions but with different elements in pivots, contrary to fact.¹³

- (34) a. #Felix **nì** kánè-ò wòlò **nì** Kòfí **nì** kánè-ò wòlò.
 Felix PRT read-IMPF book and Kofi PRT read-IMPF book
 ‘It is Felix who reads a book and it is Kofi who reads a book.’
 b. Felix kánè-ò wòlò **nì** Kòfí kánè-ò wòlò.
 Felix read-IMPF book and Kofi read-IMPF book
 ‘Felix reads a book and Kofi reads a book.’

¹³ For further discussion of semantic properties of the *ni*-structure in Ga, and in particular an in-depth discussion of the exhaustivity inference, see Renans (2016b, c) and Grubic et al. (2019).

Following Büring (2011), I propose modeling the exhaustivity effect triggered by the *ni*-structure as a conditional presupposition. The two meaning components of (28) are presented below in (35) and the lexical entry of *ni* is presented in (36).¹⁴

- (35) *ni*- STRUCTURE:
- a. *assertion*: $P(x)$
'Kofi swam.'
 - b. *not-at-issue*: $P(x) \rightarrow x = \max(P)$
'If Kofi swam, then Kofi was a maximal swimmer.'
- (36) $\llbracket ni \rrbracket = \lambda P.\lambda x : P(x) \rightarrow x = \max(P).P(x)$

For details of the analysis of the cleft structure triggered by the particle *ni* and a discussion of further semantic properties of this structure, see Renans (2016b, c) and Grubic et al. (2019).

3.2 The imperfective marker -ɔ

3.2.1 Imperfective aspect

As it has been already mentioned in the introduction, Deo (2009) observed that in a cross-linguistic perspective the imperfective aspect is associated with three different readings, i.e., the habitual reading, the event-in-progress reading, and the continuous reading with stative predicates. These readings are also conveyed by verbs marked with the suffix -ɔ, as illustrated below:

- (37) context: Every Sunday Kofi goes swimming in the ocean.
Kòfí sèlè-ɔ. HABITUAL READING
Kofi swim-IMPF
'Kofi swims.'
- (38) context: Tom and his family (wife, two sons, and two daughters) are on the beach. Tom and his wife can see a swimming child. Tom's wife says:
Kòfí nì sèlè-ɔ lɛ. EVENT- IN- PROGRESS READING
Kofi PRT swim-IMPF DET
'It is Kofi who is swimming.'
- (39) Bill sùnmò-ɔ Susan. CONTINUOUS READING WITH STATIVE PREDICATES
Bill love-IMPF Susan
'Bill loves Susan.'

¹⁴ I follow the convention of Heim and Kratzer (1998) to write the presupposed material between the colon and the dot.

The suffix $-\text{ɔ}$ is compatible with past and present temporal reference, as illustrated in (40) and (41), but not with future temporal reference in either matrix or subordinate clauses, as demonstrated in (42) and (43), respectively.^{15,16}

- (40) A: What did you do on Sundays when you were a child?
 B: Mí-kánè- ɔ wòlò.
 1SG-read-IMPF book
 ‘I read a book.’
- (41) A: What do you do on Sundays?
 B: Mí-kánè- ɔ wòlò.
 1SG-read-IMPF book
 ‘I read a book.’
- (42) A: What will you do on Sundays over the summer break?
 B: #Mí-kánè- ɔ wòlò.
 1SG-read-IMPF book
 intended: ‘I will read a book.’
- (43) context: Anna is telling her friend about her plans.
 #Má-yà Accra kèkè lè mí-sèlè- ɔ dáágbi.
 1SG.PROSP-go Accra PRT DET 1SG-swim-IMPF every.day
 intended: ‘I will move to Accra, and then I will swim every day.’

Following Klein (1994); Kratzer (1998), I assume that aspect denotes a relation between the time of the event and the contextually given topic time of a sentence. In the formal implementation of this idea by Kratzer (1998), aspect heads map properties of events onto properties of time. Based on the data presented so far and following Kratzer (1998), I propose that also the imperfective marker $-\text{ɔ}$ denotes the relation between the topic time and the time of the event. In particular, it locates the contextually given topic time (t) within the running time of the event ($\tau(e)$), as in (44), where s stands for situation and ϵ is a type of eventuality.^{17,18} λt is an argument slot for the

¹⁵ Habits in the future are expressed either by verbs in their unmarked form or by the prefix *baa-*, which conveys prospective aspectual reference (Renans 2016b).

¹⁶ There are at least two conceivable ways in which the incompatibility of the suffix $-\text{ɔ}$ with future temporal reference could be accounted for. First, there might be a covert non-future tense marker in sentences without the prospective marker *baa-*, analyzed in line with Matthewson (2006). Second, it might be that the marker $-\text{ɔ}$ conveys non-future temporal reference. However, both approaches have to deal with some problems, for discussion see Renans (2016b).

¹⁷ It is a modification of Kratzer’s (1998) lexical entry for the imperfective aspect:

(i) $\llbracket \text{Imperfective} \rrbracket^{s,c} = \lambda P.\lambda t.\lambda w.\exists e[t \subseteq \tau(e) \wedge P(e)(w)]$ (adapted from Kratzer 1998, p.107)

The difference is that I assume a proper inclusion relation between the topic time and the running time of the event, i.e., the event time is a proper super-interval of the topic time. Otherwise, the telic event could take place exactly at topic time, leading to the unattested readings. Thank you to Craige Roberts (p.c.) for pointing my attention to this issue.

¹⁸ In fact, it is a simplification. Note that in order to derive the proper meaning in past cases, it must be guaranteed that the event doesn’t share its last subinterval with the topic time. In fact, Ferreira’s (2016) inclusion relation I assume, which is discussed in Sect. 3.2.2, guarantees that. Thanks to Craige Roberts for discussion on this issue.

topic time, which is compositionally filled in in TP and then gets a value from context (Kratzer 1998; Cable 2013, a.o). For illustration, the structure of (45) up to the TP level is presented in (46) and its interpretation is given in (47).

$$(44) \quad \llbracket -\textcircled{\smile} \rrbracket^{g,c} = \lambda P_{\langle e, t \rangle} . \lambda t . \lambda s . \exists e [t \subset \tau(e) \wedge P(e) \wedge e \text{ is in } s]$$

- (45) Kòfí sèlè-ò.
Kofi swim-IMPF
'Kofi swims.'

- (47) a. $\llbracket \text{TP} \rrbracket^{g,c} = \lambda s . \exists e [g(5) \subset \tau(e) \wedge \text{swim}(e) \wedge \text{Ag}(e) = x_1 \wedge e \text{ is in } s]$
 b. There is an event of swimming by the agent x_1 , the running time of which $(\tau(e))$ includes the contextually provided topic time $g(5)$.

Summing up, the suffix $-\textcircled{\smile}$ is a general imperfective marker which can obtain the habitual reading, event-in-progress reading, and continuous reading with lexically stative predicates. In the next subsection, I briefly discuss how habitual and progressive readings come about.

3.2.2 Habitual and progressive aspect

I assume neo-Davidsonian event semantics (Parsons 1990; Schein 1993) in which verbs denote relations between events and their arguments introduced by thematic roles. For illustration, the denotation of the verb *buy* is given below:

$$(48) \quad \llbracket \text{buy} \rrbracket = \lambda x . \lambda y . \lambda e . \text{buy}(e) \wedge \text{Th}(e) = x \wedge \text{Ag}(e) = y$$

Events have subevents which form a semi-lattice structure (Krifka 1992; Landman 1997; Cipria and Roberts 2000; Kratzer 2008). For example, a swimming event from 1 pm to 2 pm has a subevent of swimming from 1 pm to 1:30 pm, which has a subevent of swimming from 1 pm to 1:15 pm, etc. A sum of all subevents of the swimming event is a maximal spatiotemporally contiguous event of swimming (a supremum of the semi-lattice structure). When events are counted, we count these maximal spatiotemporally (self-connected) events, following Counting Principle which says that counting domain cannot contain non-identical overlapping individuals (Kratzer 2007, p.16, following Casati and Varzi 1999, p.112).

Now, Ferreira (2005) claims that habitual and progressive have the same temporal (and modal) components, but they differ with respect to the number of events being

quantified over: singular or plural.¹⁹ He assumes two abstract operators *sg* and *pl* which extract some elements from a predicate denotation. *sg* extracts the minimal elements and *pl* extracts sums, that is non-minimal elements, as shown in (49) and (50), where $\oplus$ is a mereological sum-formation and $\otimes(e_1, e_2, \dots, e_n)$ means that the events are non-overlapping.

- (49) a. $sg = \lambda P. \lambda e. min(e, P)$
 $min(e, P) \Leftrightarrow P(e) \wedge \neg \exists e' < e : P(e')$
 b. $pl = \lambda P. \lambda e. sum(e, P)$
 $sum(e, P) \Leftrightarrow P(e) \wedge \exists e_1, e_2, \dots, e_n < e : P(e_1) \wedge P(e_2) \wedge \dots \wedge P(e_n) \wedge$
 $\otimes(e_1, e_2, \dots, e_n) \wedge e = e_1 \oplus e_2 \oplus \dots \oplus e_n$ (Ferreira 2016, p. 357)

In the case of three events e_1, e_2, e_3 the VP denotation and the *sg* ($\llbracket VP \rrbracket$) and *pl* ($\llbracket VP \rrbracket$) are as follows:

- (50) a. $\llbracket VP \rrbracket = \{e_1, e_2, e_3, e_1 \oplus e_2, e_2 \oplus e_3, e_1 \oplus e_3, e_1 \oplus e_2 \oplus e_3\}$
 b. $sg(\llbracket VP \rrbracket) = \{e_1, e_2, e_3\}$
 c. $pl(\llbracket VP \rrbracket) = \{e_1 \oplus e_2, e_2 \oplus e_3, e_1 \oplus e_3, e_1 \oplus e_2 \oplus e_3\}$
 (Ferreira 2016, p. 358)

The events are located in time and thus there are also singular and plural intervals: the singular interval is a running time of the singular event and the plural interval is the running time of the plural event. In order to account for the existence of plural events and intervals, Ferreira (2016) defines the inclusion relation:

- (51) *Inclusion*
 An interval i is included ($\subset$) in an interval i' iff the left boundary of i' precedes the left boundary of i and the right boundary of i precedes the right boundary of i' .
 (Ferreira 2016, p. 361)

The inclusion of the interval in the singular and plural interval is represented graphically in (52-a) and (52-b), respectively:

- (52) a. $—[i_1]—[i_2]— \longrightarrow \quad i_2 \subset i_1$
 b. $—[i_1]—[i_3]—[i_2]— \longrightarrow \quad i_3 \subset i_1 \oplus i_2$ (Ferreira 2016, p. 361)

In particular, in the case of the inclusion of the event in the plural event it might happen that an interval i is included in the plural interval j even if they do not have any time points in common.²⁰ The plural event contains non-temporally contiguous subevents and thus it might happen that the singular event is included in the plural event even though the singular interval does not overlap with any of the intervals whose join constitutes the plural interval.

As already mentioned above, in Ferreira's (2005; 2016) system, the difference between the progressive and the habitual lies in the number of events quantified over, as

¹⁹ For critical comments on the plurality-based analyses of imperfective marking, see for example Deo (to appear).

²⁰ See Ferreira (2016) for a discussion.

demonstrated in (53): while in the progressive reading the singular P-event is quantified over, in the habitual reading the plural P-event is quantified over.

- (53) a. $\dots \exists e : \dots sg(P)(e) \dots$ PROGRESSIVE READING
 b. $\dots \exists e : \dots pl(P)(e) \dots$ HABITUAL READING
 (adapted from Ferreira 2016, p. 358)

As already discussed, whether there is a singularity or a plurality of events in the denotation of the VP depends on the presence of a covert singular or plural operator which combines with Imperfective giving rise to the following:

- (54) $[[Imp_{sg}] = \lambda P. \lambda t. \exists e [t \subseteq \tau(e) \wedge min(e, P)]]$ PROGRESSIVE READING
 $[[Imp_{pl}] = \lambda P. \lambda t. \exists e [t \subseteq \tau(e) \wedge sum(e, P)]]$ HABITUAL READING
 (adapted from Ferreira 2016, p. 362)

For example, the structure of the English sentence *John smoked* is given in (55): (55-a) is the progressive interpretation of the sentence and (55-b) is the habitual interpretation. In the former, a single event must be ongoing at the topic time. In the latter, on the other hand, a plural event must be ongoing at the topic time. Specifically, it is required that John smoked at least once before the topic time and should smoke at least once after the topic time. However, the smoking event is not required to take place at the topic time.

- (55) a. $[_{TP} Past [_{AspP} Impf_{sg} [John\ smoke]]]$ PROGRESSIVE READING
 b. $[_{TP} Past [_{AspP} Impf_{pl} [_{VP} John\ smoke]]]$ HABITUAL READING
 (adapted from Ferreira 2005, p. 97)

Looking at Ga aspectual system, I do not assume covert *sg* and *pl* operators in the structure. Since the imperfective marker $-\textcircled{\small o}$ does not impose any restrictions with respect to the number of events quantified over, sentences with the $-\textcircled{\small o}$ -marked verbs are compatible with both progressive and habitual aspectual references. The quantification over particular, spatiotemporally contiguous event leading to the obligatory progressive interpretation, on the other hand, is induced by the adverbial version of the definite determiner $\mathcal{I}e$, to which I turn in the next section.

3.3 The definite determiner $\mathcal{I}e$

The particle $\mathcal{I}e$ is a cross-categorial definite determiner that attaches to many elements, including NPs and VPs (Dakubu 2005; Renans 2016a, b).²¹ In both cases it conveys the information that a discourse referent is familiar and unique in bearing the property

²¹ The particle $\mathcal{I}e$ has many different functions besides marking NPs and VPs as definite, e.g., it occurs in the antecedents of conditionals and subordinate temporal clauses as well as marking topics (Dakubu 1992; Renans 2016b) (see also Renans 2016b, a for empirical evidence that $\mathcal{I}e$ is a definite determiner in the nominal domain). These functions exhibited by $\mathcal{I}e$ corroborate its analysis as some kind of background marker. I think that the unified analysis of $\mathcal{I}e$ as a definite determiner and a background marker is possible. However, since the unified analysis of the definite determiner $\mathcal{I}e$ is beyond the scope of this paper, it has to await future research. Thank you to an anonymous reviewer for asking for clarification.

in question. Since this is not a paper on the semantics of the definite determiner in the nominal domain, I only present the data from the verbal domain.

The observation that languages can have definite descriptions of categories other than NPs is not new. For example, Larson (2003) analyzes final clausal definite determiners in Fón and Haitian Creole as definite adverbs, Grubic (2015) proposes analyzing the Ngamo background marker *i/=ye* as conveying the information that the topic situation is definite and Hole (2011) argues that Chinese *shì...de* clefts encode a uniqueness and a familiarity presupposition of events. However, there are at least two important points that make *le* interesting from a theoretical point of view. First, it has the same overt form in both the nominal and the verbal domain. And second, it influences the aspectual interpretation of the sentence. As it has already been shown in Sect. 2, whereas the clefted sentence with VP *le* invariably obtains a progressive interpretation, the same sentence without *le* obtains a habitual interpretation:²²

- (56) PROGRESSIVE CONTEXT: Tom and his family (wife, two sons, and two daughters) are on the beach. Tom and his wife can see a swimming child. Tom's wife says:

- a. Kòfí nì sèlè-ó le.
Kofi PRT swim-IMPF DET
b. #Kòfí nì sèlè-ò.
Kofi PRT swim-IMPF
intended: 'It is Kofi who is swimming.'

- (57) HABITUAL CONTEXT: Tom's younger son and daughters do not like swimming and they do not do it, but his oldest son, Kofi, loves swimming and he does it regularly.

- a. #Kòfí nì sèlè-ó le.
Kofi PRT swim-IMPF DET
b. Kòfí nì sèlè-ò.
Kofi PRT swim-IMPF
intended: 'It is Kofi who swims.'

The particle *le* attached to the VP has already been discussed in Dakubu (2005). She refers to Boadi (1974), who claims that the definite determiner in Akan, when used in the same way as in (58), suggests 'not merely that the event in the proposition occurred, but that it has been referred to earlier in the discourse.' (Dakubu 2005, p. 19)²³

- (58) Kòfí (nì) è-yí le.
Kofi PRT 3sg-beat DET
'He indeed beat KOFI.' (from Dakubu 2005, p. 19)

²² VP *le* in the *ni*-cleft construction occurs also with other aspectual markers, i.e., unmarked, prospective, and progressive, see Renans (2016b) for discussion. However, a description and formal account of their semantic properties have to await future research.

²³ Note that my language consultants did not accept the VP *le* without the particle *ni*. It seems that the confusion arises because the particle *ni* can also be realized as a vowel lengthening of the word it attaches to.

Dakubu (2005) claims that Boadi's (1974) observation is also valid for Ga. She notes that Ga native speakers comment that in sentences like (58) 'the event is expected, or otherwise known to the hearer.' Importantly, my data are in line with these observations. Across categories, NP *lɛ* and VP *lɛ*, the discourse referent picked up by *lɛ* (an event described by the VP denotation in the case of VP *lɛ*) must be strongly or weakly familiar (see Renans 2016a, b for discussion and empirical evidence that NP *lɛ* encodes familiarity).²⁴

(59) Taxonomy of familiarity:

- a. strong familiarity: the NP has as antecedent a discourse referent introduced via the utterance of a (usually) preceding NP
- b. weak familiarity:
 - (i) the entity referred to is perceptually accessible to the interlocutors
 - (ii) the entity referred to is globally familiar in the general culture or at least among the participants in the discourse, although not mentioned in the immediate discourse
 - (iii) introduction of the NP's discourse referent is licensed solely by contextual existence entailments
 - (iv) weak familiarity is guaranteed by giving a functional interpretation to the definite description (which function may have to be accommodated) with the intended argument(s) both familiar and highly salient (Bridging)

(from Roberts 2003, p. 304)

Empirical support for this view comes from the data presented below. Compare (60-a) with (60-b). The determiner *lɛ* attached to the VP is unacceptable in contexts in which the interlocutors are not familiar with the VP discourse referent, an event described by the VP denotation, as in (60-a), and it is acceptable in contexts in which the VP discourse referent is known to the interlocutors, as in (60-b).²⁵

(60) Kòfí nì sèlé lɛ.

Kofi PRT swim DET

intended: 'Kofi swam.'

- a. context 1: We didn't talk about swimming before. Suddenly, I have decided to tell my friend who was swimming yesterday.
⇒ (60) is unacceptable in this context
- b. context 2: We talked about swimming before and we are arguing who swam yesterday.
⇒ (60) is acceptable in this context

²⁴ On the notion of event discourse referent, see Partee (1984).

²⁵ Throughout the paper I use almost exclusively atelic predicates. One reason to do that was to ensure that the definite determiner *lɛ* attaches to the vP, not the direct object. I admit that the use of telic predicates would constitute an important piece of data shedding further light on the meaning contribution of *lɛ*, *nì* and *-ɔ*. In particular, it is not clear whether the sentence in (60) obtains an atelic or telic interpretation, as the atelic predicate *sɛle-ɔ* 'to swim' could be coerced to the telic one. Knowing which interpretation the sentence in (60) can obtain and examining it for its evidential and (in)definite interpretations constitute important empirical and theoretical questions which however are left for future research. Thank you to the Editor for pointing my attention to these issues.

A language consultant gave a comment that in the case of (60) we must have talked about swimming before and the speaker is putting emphasis that it was Kofi who did it.

Moreover, one can use VP *lɛ* when the discourse referent, an event in the case of the VP *lɛ*, is not previously mentioned in the conversation but just known to the interlocutors, as in (61). It means that the discourse referent picked up by *lɛ* does not have to be strongly familiar, but it can be weakly familiar as well.²⁶

- (61) context: There is a long-distance swimming competition in Accra today. Tom knows that Anna's turn to swim is scheduled for 13:00–14:00. It is 13:30 now.
Tom says:
Anna nì sèlè-ɔ̃ lɛ.
Anna PRT swim-IMPf DET
'It is Anna who is swimming.'

In addition, the use of the VP *lɛ* can also be licensed by direct perceptual evidence. For example, the VP *lɛ* is acceptable in the context of (62) because the event of swimming by Anna is (weakly) familiar to Tom due to the direct perceptual access to the event.

- (62) context: Tom and Anna are on the beach. Tom can see that Anna is swimming.
He says:
Anna nì sèlè-ɔ̃ lɛ.
Anna PRT swim-IMPf DET
'It is Anna who is swimming.'

Turning to the uniqueness inference, since the particle *lɛ* can be attached to the VP only when the cleft-introducing particle *nì* is present in the sentence as well, it is difficult to find an independent piece of evidence that *lɛ* triggers a uniqueness inference also in these cases. Consider (63):

- (63) context: John, Tom, and Maria are in the process of swimming.
#John nì sèlè-ɔ̃ lɛ.
John PRT swim-IMPf DET
'It is John who is swimming.'

That (63) is not acceptable in the provided context could be attributed to the fact that *lɛ* triggers a uniqueness presupposition and therefore it is infelicitous in contexts in which there is more than one event of the given kind. However, since *nì* triggers the exhaustive interpretation of the pivot, namely that John and nobody else is swimming, the same effect is expected without the VP *lɛ*. Therefore, it is difficult to tell whether the observed exhaustivity effect is triggered by *nì* or the uniqueness inference triggered by *lɛ*.

A good test for the uniqueness inference triggered by *lɛ* is to check its acceptability in contexts in which the same agent performs more than one activity of the same kind, for example in a context in which Kofi swam several times. In that case the exhaustivity triggered by the particle *nì*, i.e., that only Kofi and nobody else swims, should not interact with the uniqueness triggered by the particle *lɛ*, i.e., that there is a unique event of the given kind. It means that one would expect *lɛ* to be unacceptable

²⁶ Note that weak familiarity requires an event to be familiar both to the speaker and the addressee and the context provided in (61) is compatible with this requirement.

in habitual contexts (in which for example Kofi swims regularly) and acceptable in progressive contexts (in which there is an ongoing unique event of swimming by Kofi). And this is precisely the initial observation of this paper, i.e., sentences with the analytic progressive form are only acceptable in progressive contexts:²⁷

- (64) Kòfí nì sèlè-ó lɛ.
Kofi PRT swim-IMPF DET
'It is Kofi who is swimming.'
- a. PROGRESSIVE CONTEXT: Tom and his family (wife, two sons, and two daughters) are on the beach. Tom and his wife can see a swimming child.
⇒ Tom can utter (64) in this context
 - b. HABITUAL CONTEXT: Tom's younger son and daughters do not like swimming and they do not do it, but his oldest son, Kofi, loves swimming and he does it regularly.
⇒ Tom cannot utter (64) in this context

Lɛ however does not trigger an interpretation that a discourse referent is unique in being the only entity in the world having the property denoted by the NP/VP but that there is a unique familiar discourse referent. The data in (65) provides empirical evidence for that claim (see Renans 2016b for discussion):

- (65) Mì-nà màj ònúkpá lɛ.
1SG-see town elder DET
'I saw the town elder.'
- a. context: There were five town elders at the celebrations. We've talked about one of them. ⇒ (65) is acceptable in this context
 - b. context: There were five town elders at the celebrations. We've talked about two of them. ⇒ (65) is unacceptable in this context

To conclude this subsection, the definite determiner *lɛ* encodes the information that a discourse referent is familiar and unique in bearing the property in question. In the next

²⁷ In light of what has been said so far, one would expect (i-a) with the unmarked form *sele* to be unacceptable in the context of (i), contrary to fact:

- (i) context: Last year, John swam every day.
- a. John nì sèlè lɛ.
John PRT swim DET
'It was John who swam last year.'
 - b. #John nì sèlè-ó lɛ.
John PRT swim-IMPF DET
intended: 'It was John who swam last year.'

One possible analysis of (i) would be to say that there is a quantification over the minimal situation in (i-a) containing only a swimming event by John and nothing else and hence *lɛ* could still be analyzed as invoking the uniqueness inference. Since the interaction between the definite determiner *lɛ* and the unmarked form is beyond the scope of this paper, I am leaving it for future research. Note also that, as expected, the same sentence with the imperfective form *seleɔ* in (i-b) is unacceptable in the context of (i).

subsection, I propose a formal semantic analysis of $l\mathcal{E}$ which captures these empirical generalizations.

3.3.1 A formal analysis of the definite determiner $l\mathcal{E}$

Following Elbourne (2005); Schwarz (2009) and Arkoh and Matthewson (2013), I claim that the definite determiner $l\mathcal{E}$ takes two arguments: the property denoted by the NP and the pronominal index, which I formally analyze as a variable of type e .²⁸ The lexical entry for $l\mathcal{E}$ is given in (66):

$$(66) \quad \llbracket l\mathcal{E} \rrbracket = \lambda y. \lambda P : \exists! x [P(x) \wedge x = y]. \iota x [P(x) \wedge x = y]$$

For illustration, the structure of *wolo l\mathcal{E}* ('the book') is presented in (67) and its derivation in (68):²⁹

- (68) a. $\llbracket \text{D} \rrbracket^{g,c} = \lambda P. \iota x [P(x) \wedge x = g(3)]$
 b. $\llbracket \text{DP} \rrbracket^{g,c} = \iota x [\text{wolo}(x) \wedge x = g(3)]$
 c. the unique individual x such that x is a book and x is identical to $g(3)$

The assignment function maps the covert index to familiar entities and thus it accounts for strongly and weakly familiar uses of $l\mathcal{E}$.³⁰

Extending the analysis to the verbal domain, I propose for VP $l\mathcal{E}$ the same lexical entry as for NP $l\mathcal{E}$. In particular, it also takes two arguments: the pronominal index, which I formally analyze as a variable of type e , the type of eventualities, and the property denoted by the vP denotation, a set of events. The assignment function maps the covert index to familiar entities, i.e., familiar events. Thus, when $l\mathcal{E}$ attaches to the VP, it takes a property (a set of events) and says that there is a unique spatiotemporally contiguous familiar event which has this property, i.e., a supremum of the event-type given by the vP.³¹ As an example, the structure of *sele l\mathcal{E}* ('the swimming event') is given in (69) and its derivation in (70).³²

²⁸ According to these authors, definite determiners take also a situation argument, which I ignore here.

²⁹ For presentational reasons, I omit the presupposed material.

³⁰ Using the pronominal index to capture both strong and weak familiar uses of the definite determiner is a departure from the previous works on definiteness which tend to associate the presence of the pronominal index with the strong familiar uses. Thank you to an anonymous reviewer for pointing this out to me.

³¹ The spatiotemporally contiguity comes from the Counting Principle which says that the domain of quantification contains maximal self-connected events (Kratzer 2007; Casati and Varzi 1999).

³² The structure in (69) is unusual in that D takes vP as its argument and it does not project its properties. It might be that both NP $l\mathcal{E}$ and VP $l\mathcal{E}$ have the same semantics, but they are not of the same syntactic

(69)

- (70) a. $\llbracket le \rrbracket^{g,c} = \lambda y. \lambda P. \iota e P(e) \wedge e = y$
 b. $\llbracket D \rrbracket^{g,c} = \llbracket le \rrbracket^{g,c}(g(3)) = [\lambda y. \lambda P. \iota e [P(e) \wedge e = y]](g(3)) = \lambda P. \iota e [P(e) \wedge e = g(3)]$
 c. $\llbracket vP \rrbracket^{g,c} = \lambda e. \text{swim}(e) \wedge Ag(e) = x_1$
 d. $\llbracket vP \rrbracket^{g,c} = \llbracket D \rrbracket^g(\llbracket vP \rrbracket)$
 $= [\lambda P. \iota e P(e) \wedge e = g(3)](\lambda e. \text{swim}(e) \wedge Ag(e) = x_1)$
 $= \iota e [\text{swim}(e) \wedge Ag(e) = x_1 \wedge e = g(3)]$
 e. the unique spatiotemporally contiguous event e such that e is a swimming event, whose agent is x_1 and e is $g(3)$

3.3.2 The definite determiner in the analytic progressive

I argue that VP le syntactically still behaves like a verb, i.e., it can be labeled as a verbal projection, and therefore it can be taken as an argument by aspect. Consider (71) and its structure given in (72):

- (71) Kòfí nì sèlè-ó le.
 Kofi PRT swim-IMP DET
 ‘It is Kofi who is swimming.’

(72)

A question that arises immediately according to the way I have set things up is why *sele* is not analyzed as the nominalized form of *sele* (‘swim’) and why *le* is not claimed to operate on such a nominalized form. A first piece of evidence that ‘sele’ is not nominalized comes from the cleft structure in Ga. As shown in Sect. 3.1, VPs in Ga can be clefted only in their nominalized form. Therefore, the prediction is that if *sele* were a nominalized form of *sele*, it should be acceptable as the pivot, contrary to fact:

Footnote 32 continued

category. For presentational reasons, however, I am labeling VP le and NP le in a uniform way. A more detailed explication of this issue has to await future research.

- (73) Q: What is Tom doing right now?
 A1: *Sèlè-ò nì Tom fé-ó lɛ.
 swim-IMPF PRT Tom do-IMPF DET
 A2: Sèlè-mò nì Tom fé-ó lɛ.
 swim-NOM PRT Tom do-IMPF DET
 intended: 'It is swimming that Tom is doing right now.'

A language consultant commented on (73-A1) that it is not a good sentence, it means something like 'It is swim that Tom is doing right now.' By contrast, she said that (73-A2) means 'It is swimming that Tom is doing right now' and it is fine.

Another piece of evidence that -ò is not a nominalized form comes from associative NPs. The test presented in (74) is based on the observation that associative complements within NPs are nominal. The fact that the -ò marker is not acceptable in this construction suggests that it is not a nominalization marker.

- (74) context: Priscilla and Dede are talking about yesterday's swimming competition. Priscilla says:
 a. Kòfí sèlè-mó lɛ sà mí-híè.
 Kofi swim-NOM DET be.agreeable 1SG-self
 b. *Kòfí sèlè-ò lɛ sà mí-híè.
 Kofi swim-IMPF DET be.agreeable 1SG-self
 intended: 'The swimming of Kofi pleases me.'

Moreover, verbs marked with -ò cannot be taken as an argument by intransitive verbs. Since nominalized verbs should be of the proper type to be an argument of intransitive verbs, the unacceptability of the marker -ò in this construction serves as further evidence against the analysis of -ò as a nominalizer.

- (75) context: Kofi and Dede are talking about their favorite sports. Kofi says:
 a. Mí-sùmò-ò sèlè-mò.
 1SG-like-IMPF swim-NOM
 b. *Mí-sùmò-ò sèlè-ò.
 1SG-like-IMPF swim-IMPF
 intended: 'I like swimming.'

Based on the data presented above, I conclude that the suffix -ò is not a nominalization marker. Example (77) demonstrates the syntactic structure of (71), repeated below in (76), up to the TP level and (78) presents its formal derivation. Due to the type-clash at the vP₂ level (whereas vP₂ is of type ϵ , -ò is of type $\langle\langle\epsilon, t\rangle, \langle i, \langle s, t\rangle\rangle\rangle$), the vP₂ denotation is type-shifted from ϵ to $\langle\epsilon, t\rangle$ (Partee 1986).

- (76) Kòfí nì sèlè-ó lɛ.
 Kofi PRT swim-IMPF DET
 'It is Kofi who is swimming.'

(77)

- (78) a. $\llbracket vP_2 \rrbracket^{g,c} = \iota e[\text{swim}(e) \wedge \text{Ag}(e) = x_1 \wedge e = g(3)]$
type clash with Impfv, type-shift from ϵ to $\langle \epsilon, t \rangle$:
 $= \lambda e.e = \iota e'[\text{swim}(e') \wedge \text{Ag}(e') = x_1 \wedge e' = g(3)]$
- b. $\llbracket -\cap \rrbracket^{g,c} = \lambda P.\lambda t.\lambda s.\exists e[t \subset \tau(e) \wedge P(e) \wedge e \text{ is in } s]$
- c. $\llbracket \text{Asp} \rrbracket^{g,c} = \llbracket -\cap \rrbracket^{g,c}(\llbracket vP_2 \rrbracket^{g,c})$
 $= [\lambda P.\lambda t.\lambda s.\exists e[t \subset \tau(e) \wedge P(e) \wedge e \text{ is in } s]](\lambda e.e = \iota e'(\text{swim}(e') \wedge \text{Ag}(e') = x_1 \wedge e' = g(3)))$
 $= \lambda t.\lambda s.\exists e[t \subset \tau(e) \wedge e = \iota e'(\text{swim}(e') \wedge \text{Ag}(e') = x_1 \wedge e' = g(3)) \wedge e \text{ is in } s]$
- d. $\llbracket \text{TP} \rrbracket^{g,c} = \lambda t.\lambda s.\exists e[t \subset \tau(e) \wedge e = \iota e'(\text{swim}(e') \wedge \text{Ag}(e') = x_1 \wedge e' = g(3)) \wedge e \text{ is in } s](g(5))$
 $= \lambda s.\exists e[g(5) \subset \tau(e) \wedge e = \iota e'(\text{swim}(e') \wedge \text{Ag}(e') = x_1 \wedge e' = g(3)) \wedge e \text{ is in } s]$
- e. There is a unique spatiotemporally contiguous swimming event $g(3)$ whose agent is x_1 and the running time of which includes the contextually provided topic time $g(5)$.

4 Solutions to the puzzles

Now, all the individual pieces of the analysis are here and I can put all the elements together and discuss how they account for the puzzles presented in the introduction. First, I will present the compositional derivation of the analytic progressive. Building on that, I will explain why the analytic progressive can only refer to events which are instantiated at the topic time and where the evidential requirements imposed by the analytic progressive come from.

4.1 The analytic progressive puzzle

Putting all the pieces of the analysis together, the syntactic structure of (79) is as in (80).³³

- (79) Kòfí nì sèlè-ɔ̃ lɛ.
 Kofi PRT swim-IMPF DET
 'It is Kofi who is swimming.'

After computing all the steps of the derivation, one obtains the meaning in (81):^{34,35}

- (81) a. $\llbracket \text{FP}_2 \rrbracket^{g,c} = \lambda s. \exists e [g(5) \subset \tau(e) \wedge e = \iota e' [\text{swim}(e') \wedge \text{Ag}(e') = \text{Kofi} \wedge e' = g(3)] \wedge e \text{ is in } s]$

³³ *FP* stands for a functional projection. The labeling *FP*₁, *FP*₂ is in order to refer to nodes in derivations and is not intended to have theoretical implications.

³⁴ For a whole, step-by-step derivation, see Appendix A.

³⁵ For presentational reasons, I omit the presupposed material.

- b. There is a unique familiar spatiotemporally contiguous event of swimming by Kofi (and nobody else), the running time of which includes the contextually provided topic time $g(5)$.

Events form a semi-lattice structure. In (80), it is a structure of all sub-events of swimming. The supremum of this structure is the set of all the subevents of swimming, the maximal spatiotemporally contiguous event of swimming. When le attaches to the VP, it takes a property denoted by the vP (a set of subevents) and conveys the information that there is a unique spatiotemporally contiguous event which has this property, i.e., a supremum of the event-type given by the VP. In (80), it is a unique spatiotemporally contiguous event of swimming.

The imperfective marker $-o$ conveys the proper inclusion relation between the topic time (which coincides with the time of speaking in (80)) and the event time. As discussed above, following Ferreira (2005, 2016), I assume that habitual and progressive differ with respect to the number of events being quantified over. While in the progressive a singular event is quantified over, in the habitual a plural event is quantified over. Since in the analytic progressive, due to the presence of le attached to the vP, there is only one unique spatiotemporally contiguous event in the denotation of the vP, a unique event of swimming in (80), the imperfective marker $-o$ locates the topic time within the running time of this particular event. This leads to the interpretation that the topic time is properly included in the particular event, i.e., the progressive interpretation. In case of (80), it gives rise to the interpretation that the topic time (which coincides with the time of speaking) is properly included in the running time of the particular event of swimming, i.e., the swimming event is ongoing at the time of speaking.

The definite determiner takes also as its argument an individual pronoun ('3' in the case of (81)). The assignment function maps it to familiar entities, i.e., swimming events. Therefore the meaning of the definite determiner le ensures that there is a unique spatiotemporally contiguous familiar event of swimming. It follows that the analytic progressive refers to the unique familiar spatiotemporally contiguous event which is actually ongoing at the topic time (i.e., which is instantiated at the topic time). This in turn will straightforwardly explain the second puzzle from Sect. 2 and will enable us to account for the evidential properties of the analytic progressive. I will start in the next section with the former.

4.2 Instantiation at the topic time puzzle

As has been already presented in Sect. 2.2, the analytic progressive cannot refer to events which are not instantiated at the topic time:

(82) 'Harry Potter' $nì$ mí kánè- $\dot{\bar{o}}$ le .

'Harry Potter' PRT 1.SG read-IMPF DET

'It is 'Harry Potter' that I am reading.'

- a. context: Tom can see that his friend John is in the process of reading something. He wants to know what it is.

⇒ John can utter (82) in this context

- b. context: Tom and John are jogging. They are talking about books. Tom asks John which books he is reading.
 ⇒ John cannot utter (82) in this context

As it has been shown in Sect. 4.1, in the analytic progressive, a unique familiar event is quantified over. Subsequently, the imperfective aspect locates the topic time within the running time of that event. As a consequence, the topic time is by force included in the running time of the unique familiar event and thus the event has to be ongoing at the topic time, i.e., it has to be instantiated at the topic time.

Now, the topic time in (82) coincides with the utterance time, i.e., with the actual time of speaking by John. Therefore, in order to felicitously use a sentence with the analytic progressive form, the event described by the sentence uttered by John has to be actually ongoing at the time of speaking.³⁶ For that, John can utter (82) when he is actually in the process of reading, as it is the case in (82-a). However, he cannot utter (82) in the context in which he is not in the process of reading, as it is the case of (82-b); at the topic time of (82-b), John is in the process of running, not reading.

Note that the same sentence as in (82) but without the vP-*le* obtains a habitual interpretation that it is ‘Harry Potter’ that I read (for example every Summer). Specifically, this sentence can be felicitously uttered in the context in which the speaker is running at the topic time and tells her friend which book she reads every Summer. This follows from the proposed semantics for *-o*, as it just requires that the topic time is included in the running time of event, either singular or plural. As was discussed in Sect. 3.2.2, the inclusion relation in case of plural events allows an interval *i* to be included in the plural interval *j* even if they do not have any time points in common. This then accounts for the habitual reading of (82) without VP-*le*. It also predicts that in habitual cases, the event described by the VP does not have to be instantiated (actually ongoing) at the topic time.

4.3 Direct evidentiality puzzle

As illustrated in Sect. 2.1, the analytic progressive is acceptable in direct evidence contexts but it is unacceptable in indirect evidence contexts. Moreover, the analytic progressive can also be used in a situation in which the speaker refers to highly structured events, i.e., events that have a rigid time table such as for example a swimming competition. The relevant data are repeated below:

- (83) Anna **nì** sèlè-**ó** **le**.
 Anna PRT swim-IMPf DET
 ‘It is Anna who is swimming.’

- a. DIRECT EVIDENCE CONTEXT: Tom and his family (wife, two sons, and two daughters) are on the beach. Tom can see that his two sons and the youngest daughter are playing with sand, and his oldest daughter, Anna,

³⁶ Note that the requirement is that the event is actually ongoing at the topic time (which in the case of (82) coincides with the time of speaking). This in particular accounts for the events in the past for which the time of speaking does not coincide with the utterance time.

- is swimming.
 ⇒ Tom can utter (83) in this context
- b. INDIRECT EVIDENCE CONTEXT: The same as in (83-a) but this time Tom cannot see his oldest daughter, Anna, but the younger one told him that she was in the process of swimming.
 ⇒ Tom cannot utter (83) in this context
- c. SWIMMING COMPETITION CONTEXT: Anna participates in a long-distance swimming competition. Tom, Anna's father, knows that Anna's turn to swim is from 13:00–14:00. Tom cannot see Anna but it is 13:30 now.
 ⇒ Tom can utter (83) in this context

I propose that the evidential restrictions of the analytic progressive are an effect of the interaction between the semantics of the definite determiner *le*, in particular its requirement that the discourse referent must be familiar, and the progressive aspectual reference conveyed by the analytic progressive, in particular its requirement that the event has to be instantiated at the topic time.

Recall that the definite determiner *le* conveys the meaning that the discourse referent picked up by *le* is weakly or strongly familiar. However, even though the definite determiner *le* is acceptable in all the familiar contexts listed in Robert's (2003) taxonomy of familiarity in Sect. 3.3, the felicitous use of the analytic progressive, in which *le* is attached to the VP, is restricted only to the subset of these familiar contexts. This is caused by the fact that in the analytic progressive, the unique event which is instantiated at the topic time is quantified over (see Sect. 4.2). Let me explain what I mean based on the examples in (83).

If the speaker has direct evidence that for example Anna is swimming, as in (83-a), then the event of swimming-by-Anna is familiar to the speaker due to the perceptual accessibility of the event. In addition, since the speaker can see that Anna is swimming while uttering the sentence that Anna is swimming, the event is instantiated at the topic time, which in (83-a)–(83-c) is the utterance time. Therefore, since both requirements—that the event is familiar to the speaker and is instantiated at the topic time—are fulfilled in the context, the analytic progressive form can be felicitously used in direct evidence contexts. By contrast, if the speaker heard from somebody else that Anna is swimming, as in (83-b), the event of swimming by Anna is familiar to the speaker due to the previous linguistic material but it is not necessarily instantiated at the topic time. Crucially, the speaker cannot be sure whether Anna is still in the process of swimming at the topic time of (83-b), i.e., at the time the speaker utters the sentence. In particular, it could be that meanwhile Anna has stopped swimming and therefore the event might be not instantiated at the topic time. Thus, the requirement of the analytic progressive form that the event must be instantiated at the topic time is not fulfilled in the context and therefore the sentences with the analytic progressive form cannot be used in indirect evidence contexts.³⁷

³⁷ A reviewer asked whether the analytic progressive in Ga could be used in the situation in which Tom is at home and his younger daughter tells him over phone that Anna is in the process of swimming. Just after that Tom reports to his wife that Anna is in the process of swimming. While I did not elicit the progressive forms in this particular scenario, the analysis I proposed predicts that the analytic progressive form would not be acceptable in this situation. The event of swimming by Anna is familiar to Kofi, because he was told

The analytic progressive form can be however felicitously used in the contexts in which the time tables of the events are rigidly scheduled even though the speaker does not have direct access to the event, as in (83-c). Crucially, it is possible because the two requirements imposed by the semantics of the analytic progressive form, i.e., that the event is familiar and instantiated at the topic time, are fulfilled in the context. In particular, since the context of (83-c) specifies that Anna's father knows about the swimming event by Anna, the event is familiar to the speaker. In addition, since the event was scheduled for 13:00–14:00, the speaker knows that the event is instantiated at the topic time, i.e., at 13:30. Therefore, the analytic progressive form can be felicitously used in (83-c). To sum up, the evidential properties of sentences with the analytic progressive form are by-products of two requirements imposed on the event by the semantics of the analytic progressive, that is, that the event must be familiar and instantiated at the topic time.

Summing up the whole section, the observation that the definite determiner attached to the VP encodes the information that a discourse referent, an event, is familiar and unique in bearing the property in question together with the observation that the suffix *-ɔ* conveys the imperfective aspectual inference enabled to account for the puzzles presented in the introduction of the paper.

5 Two additional puzzles

The presented data give rise also to two additional puzzles, the answers for which are compatible with the analysis developed so far but which do not directly follow from the analysis' ingredients discussed in Sect. 3. The remaining two puzzles are as follows:

- Why do sentences with the analytic progressive form require *ni*?
⇒ ANALYTIC PROGRESSIVE AND 'NI' PUZZLE
- Why do clefted sentences conveying imperfective aspectual inference but without the definite determiner *le* attached to the VP only obtain a habitual interpretation?
⇒ HABITUAL INTERPRETATION PUZZLE

5.1 The analytic progressive and 'ni'

As it was shown in Sect. 3.1, sentences with the analytic progressive form are unacceptable without the particle *ni* in the structure, as illustrated in (84).

- (84) Kòfí #(ni) sèlè-ɔ lɛ.
Kofi PRT swim-IMPF DET
'Kofi is swimming.'

Footnote 37 continued

it, and Kofi can be pretty sure that Anna was in the process of swimming at the time his younger daughter told him about it. However, at the moment Kofi is reporting it to his wife he cannot be sure anymore whether Anna is still swimming—maybe she was at the end of the pool and finished swimming just after Kofi's daughter told him about it. Verifying whether this prediction is born out has to await future research.

I argue that (84) without *ni* is judged as being unacceptable for pragmatic reasons. Crucially, the derivation of (84) does not collapse if *ni* is not present in a sentence.³⁸ This is a desired result as there are environments in which *le* can occur without *ni*, e.g., in subordinate temporal clauses, as demonstrated in (85).

- (85) B́ení mì-bà sh́ía nyé **le**, Kòfí mìl-káne wòlò yè tsú le
 when 1SG-come home yesterday DET Kofi PROG-read book LOC room DET
 mli.
 in
 ‘When I came back home yesterday, Kofi was reading a book in the room.’

I argue that (84) without *ni* is judged as being unacceptable, because it violates Maximize Presupposition (Heim 1991):

- (86) MAXIMIZE PRESUPPOSITION:
 Among a set of alternatives, use the felicitous sentence with the strongest presupposition. (from Chemla 2008, p.142)

Maximize Presupposition can be illustrated based on the contrast in (87):

- (87) a. #A sun is shining.
 b. The sun is shining. (from Singh 2011, p.150)

Examples (87-a) and (87-b) do not differ in their asserted content. However, (87-b) carries a stronger presupposition than (87-a), i.e., it presupposes that there is a unique sun. In addition, this presupposition is fulfilled in the context. Therefore, because of Maximize Presupposition, it is infelicitous to use (87-a).

The reason for the unacceptability of (84) without *ni* is parallel to the reason for the unacceptability of (87-a). Consider two alternative constructions in (88) and (89):

<p>(88) Kòfí nì sèlè-ó le.
 Kofi PRT swim-IMPF DET
 ‘It is Kofi who is swimming.’</p> | <p>(89) #Kòfí sèlè-ó le.
 Kofi swim-IMPF DET
 ‘Kofi who is swimming.’</p> |
|---|---|

Importantly, events are ontologically different from individuals, i.e., they are instantiated in a world by individuals. Conceptually, it is impossible to identify a swimming event without knowing its agent or a stealing event without being familiar with its agents or themes. However, one is able to identify a stealing-a-ring event or a swimming event by Kofi. Yet if Bill is swimming as well, then it is not an event of swimming by Kofi but an event of swimming by Kofi and Bill. Now, the construction in (88) triggers the exhaustive interpretation that Kofi and nobody else is swimming and thus it unambiguously identifies the swimming event by Kofi. By contrast, (89) does not trigger the exhaustive presupposition and thus the swimming-event is not unambiguously identified. Therefore, (88) triggers a stronger presupposition in comparison to the structure in (89) and thus due to the Maximize Presupposition principle, (89) becomes unacceptable.

³⁸ The structure of (84) as well as its derivation are presented in Appendix B.

It should be also noted that when *le* attaches to NPs, as in (90), the particle *ni* does not have to be present in the sentence.

- (90) context: We have talked about a bank in Osu. I said that I was there yesterday, then Kofi says:
 Mì-hú mì-tèè shikátòdòhé **le** nyè.
 1SG-also 1SG-go.past bank DET yesterday
 ‘I also went to the bank yesterday.’

I propose that *le* does not require *ni* in the nominal domain due to the ontological differences between entities and events. In particular, whereas an event identification is done via its agents or themes, an NP identification is not. For that, there is no pragmatic requirement for agents or themes to be exhaustively identified. In other words, whereas the presence of *le* in (88) invariably leads to the exhaustive interpretation of the agent or the theme, the presence of *le* attached to the NP in (90) does not ensure that the agent is interpreted exhaustively. Therefore, only in the case of the VP *le* the exhaustivity presupposition is satisfied and hence the presence of *ni* is required.

5.2 The habitual interpretation

The last puzzle to solve is the question why clefted sentences with the imperfective form but without the VP-*le* invariably convey habitual aspectual reference, as demonstrated in (91):

- (91) Kòfí nì sèlè-ó.
 Kofi PRT swim-IMPF
 ‘It is Kofi who swims.’
- a. PROGRESSIVE CONTEXT: Tom and his family (wife, two sons, and two daughters) are on the beach. Tom and his wife can see a swimming child.
 ⇒ Tom cannot utter (91) in this context
 - b. HABITUAL CONTEXT: Tom’s two sons and daughters do not like swimming and they do not do it, but his oldest son, Kofi, loves swimming and he does it regularly.
 ⇒ Tom can utter (91) in this context

The structure of (91) is presented in (92):

Since no element in (92) restricts the quantification over events to the unique spatiotemporally contiguous event, (91) is compatible with both progressive and habitual aspectual reference, as demonstrated in (93):³⁹

- (93) a. $\llbracket \text{FP}_2 \rrbracket^{g,c} = \lambda s. \exists e [g(5) \subset \tau(e) \wedge \text{swim}(e) \wedge \text{Ag}(e) = \text{Kofi} \wedge e \text{ in } s]$
 b. There are event(s) of swimming by Kofi (and nobody else), the running time of which include(s) the contextually provided topic time $g(5)$

I propose that the progressive interpretation of (92) is ruled out by the Blocking Principle which says that in case of two competing forms, a more specialized form blocks the use of a less specialized form. Following Cipria and Roberts (2000) one can refer here to Horn (1984). He has argued that when there are two elements in a paradigm: one marked and one unmarked for some feature, the unmarked form will tend to obtain the interpretation which is impossible for the marked form. He motivates this claim by making reference to the Gricean (1975) Maxim of Quantity which makes the speaker to use the more informative form whenever it is possible. Now, there are two competing forms: the imperfective clefted sentences without the VP le , as in (95-a), and the analytic progressive form (an imperfective clefted sentence with the VP le), as in (94-b):

³⁹ For a whole, step-by-step derivation, see Appendix C.

- (94) a. Kòfí nì sèlè-ò. GENERAL IMPERFECTIVE
 Kofi PRT swim-IMPF
 ‘It is Kofi who swims.’
 b. Kòfí nì sèlè-ó lɛ. ANALYTIC PROGRESSIVE
 Kofi PRT swim-IMPF DEF
 ‘It is Kofi who is swimming.’

Importantly, as it was discussed above in the paper, while the analytic progressive can only obtain the progressive interpretation, the imperfective clefted sentences without *lɛ* can in principle convey both the progressive and habitual interpretation. Thus, the analytic progressive is a more specialized form and therefore it blocks the use of imperfective clefted sentences without the VP *lɛ* in the situations in which the use of the progressive interpretation is required.⁴⁰

A similar claim was made by Cipria and Roberts (2000) for Spanish imperfecto and pretérito. The observation is that while imperfecto can obtain only the atelic interpretation, the pretérito is unmarked with respect to the Aktionsart and can obtain both atelic and telic reading. A default interpretation however is a telic one. Since the imperfecto is a marked form, which can only obtain the atelic interpretation and the pretérito is an unmarked form, there is a tendency—due to the Maxim of Quantity—to interpret the latter as conveying the telic interpretation.

6 Summary and directions for future research

The paper discussed the semantics of the analytic progressive in Ga. In particular, it was shown that the progressive interpretation in sentences with the analytic progressive form arises as a result of the interaction between the imperfective aspect, the exhaustivity effect triggered by clefts, and the definite determiner *lɛ* attached to the VP. It turned out that the analytic progressive is effectively a definite description of events which crucially is marked by an overt definite determiner. Whereas it was observed in the previous literature that languages have definite descriptions of categories other than NPs (e.g., Hole 2011; Larson 2003; Grubic and Zimmermann 2011), the fact that the definite determiner not only has the same overt form but also the same semantics in both domains to the best of my knowledge constitutes an entirely new observation in the theoretical literature.

The analysis of the analytic progressive in Ga as a definite description of events, in which a discourse referent, an event, is familiar and unique in bearing the property in question made it possible to account for the puzzles presented at the beginning of the paper. On the more general, theoretical level, the analysis of the analytic progressive

⁴⁰ The reviewer asked why the imperfective clefted sentences (without VP *lɛ*) generally do not obtain the progressive aspectual reference, while general imperfective in Romance languages can convey the progressive aspectual reference even though there is also a periphrastic progressive form. While the full answer to this question would require a detailed discussion on the semantics of different aspectual references across various Romance languages, which is out of scope of this paper, the quick tentative answer is that it might be that the periphrastic progressive does not actually compete with the general imperfective form and for that does not block the progressive interpretation of the general imperfective (note however that for example in Spanish, the imperfecto does compete with pretérito (Cipria and Roberts 2000)).

as a definite description of events points to the conclusion that not only lexical but also grammatical aspect shows extensive similarities to the nominal domain; the observation that has not been made so far. This in turn suggests that both domains should be analyzed in a parallel manner using the same formal tools.

In addition, the fact that in the analytic progressive, there is a quantification over a unique, familiar event accounts for the evidential restrictions of the analytic progressive. Namely, it explains why the analytic progressive requires direct evidential contexts or contexts in which a course of events is highly-structured, such as sport-competition contexts. Again, the observation that imperfective aspect is associated with a direct evidential meaning is new in the cross-linguistic literature on evidentiality and (im)perfective aspect. In particular, it constitutes an interesting counterpart to the observation that e.g., in Turkish, perfective morphology is ambiguous between conveying a perfective aspectual reference and an indirect evidential meaning (e.g. Izvorski 1997). Thus we end up with the following cross-linguistic picture: in some languages, e.g., in Turkish, an indirect evidential interpretation is associated with the perfective aspect, while in others, e.g., in Ga, direct evidentiality is associated with the imperfective aspect. The question is what the evidential status of perfective sentences in Ga and imperfective sentences in Turkish is. Is the perfective aspect in Ga associated with indirect evidentiality and the imperfective aspect in Turkish with direct evidentiality? And if yes, is it a pragmatic or a semantic effect? These questions should be answered in future research.

To conclude, the fact that the progressive interpretation in sentences with the analytic progressive form in Ga arises as an interaction between the cleft, imperfective aspect and a definite description of events not only can account for the semantic properties of the analytic progressive in Ga but also has an impact on the cross-linguistic, theoretical studies on various (linguistic) sub-disciplines. This in turn shows that the semantic field research on under-studied languages is an important and highly needed branch of linguistics which have high potential to shed new light on very often old linguistic problems.

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Appendix

A Analytic progressive in Ga

- (95) Kòfí nì sèlè-ó lɛ.
 Kofi PRT swim-IMPf DET
 ‘It is Kofi who is swimming.’⁴¹

⁴¹ For the ease of presentation, I omit in the derivation the presupposed material introduced by the particle *nì* and the definite determiner *lɛ*.

(96)

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- (97)
- $\llbracket [e] \rrbracket^{g,c} = \lambda y. \lambda P. ie[P(e) \wedge e = y]$
 - $\llbracket [D] \rrbracket^{g,c} = \llbracket [e] \rrbracket^{g,c}(g(3))$
 $= [\lambda y. \lambda P. ie[P(e) \wedge e = y]](g(3))$
 $= \lambda P. ie[P(e) \wedge e = g(3)]$
 - $\llbracket [vP] \rrbracket^{g,c} = \lambda e. swim(e) \wedge Ag(e) = x_1$
 - $\llbracket [vP_2] \rrbracket^{g,c} = \llbracket [D] \rrbracket^{g,c}(\llbracket [vP] \rrbracket^{g,c})$
 $= [\lambda P. ie[P(e) \wedge e = g(3)]](\lambda e. swim(e) \wedge Ag(e) = x_1)$
 $= ie[[\lambda e. swim(e) \wedge Ag(e) = x_1](e) \wedge e = g(3)]$
 $= ie[swim(e) \wedge Ag(e) = x_1 \wedge e = g(3)]$
 type clash with Impfv, type-shift form ϵ to $\langle \epsilon, t \rangle$:
 $= \lambda e. e = ie'[swim(e') \wedge Ag(e') = x_1 \wedge e' = g(3)]$
 - $\llbracket [-\text{ɔ}] \rrbracket^{g,c} = \lambda P. \lambda t. \lambda s. \exists e[t \subset \tau(e) \wedge P(e) \wedge e \text{ ins}]$
 - $\llbracket [Asp] \rrbracket^{g,c} = \llbracket [-\text{ɔ}] \rrbracket^{g,c}(\llbracket [vP_2] \rrbracket^{g,c})$
 $= [\lambda P. \lambda t. \lambda s. \exists e[t \subset \tau(e) \wedge P(e) \wedge e \text{ ins}]](\lambda e. e = ie'[swim(e') \wedge Ag(e') = x_1 \wedge e' = g(3)])$
 $= \lambda t. \lambda s. \exists e[t \subset \tau(e) \wedge [\lambda e. e = ie'[swim(e') \wedge Ag(e') = x_1 \wedge e' = g(3)]](e) \wedge e \text{ ins}]$
 $= \lambda t. \lambda s. \exists e[t \subset \tau(e) \wedge e = ie'(swim(e') \wedge Ag(e') = x_1 \wedge e' = g(3)) \wedge e \text{ ins}]$
 - $\llbracket [TP] \rrbracket^{g,c} = \llbracket [Asp] \rrbracket^{g,c}(g(5))$
 $= \lambda t. \lambda s. \exists e[t \subset \tau(e) \wedge e = ie'[swim(e') \wedge Ag(e') = x_1 \wedge e' = g(3)]] \wedge e \text{ ins}](g(5))$

- $= \lambda s. \exists e [g(5) \subset \tau(e) \wedge e = \iota e' [e' \text{ in } s_2 \wedge \text{swim}(e') \wedge \text{Ag}(e') = x_1 \wedge e' = g(3)] \wedge e \text{ in } s]$
 h. $\llbracket \text{CP} \rrbracket^{g,c} = \lambda x_1. \lambda s. \exists e [g(5) \subset \tau(e) \wedge e = \iota e' [\text{swim}(e') \wedge \text{Ag}(e') = x_1 \wedge e' = g(3)] \wedge e \text{ in } s]$
 i. $\llbracket \text{ni} \rrbracket^{g,c} = \lambda P. \lambda x. P(x)$
 j. $\llbracket \text{FP}_1 \rrbracket^{g,c} = \llbracket \text{ni} \rrbracket^{g,c} (\llbracket \text{CP} \rrbracket^{g,c})$
 $= [\lambda P. \lambda x. P(x)] (\lambda x_1. \lambda s. \exists e [g(5) \subset \tau(e) \wedge e = \iota e' [\text{swim}(e') \wedge \text{Ag}(e') = x_1 \wedge e' = g(3)] \wedge e \text{ in } s])$
 $= \lambda x. \lambda s. \exists e [g(5) \subset \tau(e) \wedge e = \iota e' [\text{swim}(e') \wedge \text{Ag}(e') = x \wedge e' = g(3)] \wedge e \text{ in } s]$
 k. $\llbracket \text{FP}_2 \rrbracket^{g,c} = \llbracket \text{FP}_1 \rrbracket^{g,c} (\text{Kofi})$
 $= [\lambda x. \lambda s. \exists e [g(5) \subset \tau(e) \wedge e = \iota e' [\text{swim}(e') \wedge \text{Ag}(e') = x \wedge e' = g(3)] \wedge e \text{ in } s]] (\text{Kofi})$
 $= \lambda s. \exists e [g(5) \subset \tau(e) \wedge e = \iota e' [\text{swim}(e') \wedge \text{Ag}(e') = \text{Kofi} \wedge e' = g(3)] \wedge e \text{ in } s]$
 l. There is a unique familiar spatiotemporally contiguous event of swimming by Kofi (and nobody else), the running time of which includes the contextually provided topic time $g(5)$.

B The analytic progressive without 'ni'

- (98) Kòfí #(*ni*) sèlè-ó lè.
 Kofi PRT swim-IMPF DET
 intended: 'Kofi is swimming.'⁴²

⁴² For the ease of presentation, I omit in the derivation the presupposed material introduced by the definite determiner *lɛ* and the cleft-introducing particle *ni*.

- (100) a. $\llbracket [e] \rrbracket^{g,c} = \lambda y. \lambda P. \iota e [P(e) \wedge e = y]$
 b. $\llbracket [D] \rrbracket^{g,c} = \llbracket [e] \rrbracket^{g,c}(g(3))$
 $= [\lambda y. \lambda P. \iota e [P(e) \wedge e = y]](g(3))$
 $= \lambda P. \iota e [P(e) \wedge e = g(3)]$
 c. $\llbracket [vP] \rrbracket^{g,c} = \lambda e. \text{swim}(e) \wedge Ag(e) = x_1$
 d. $\llbracket [vP_2] \rrbracket^{g,c} = \llbracket [D] \rrbracket^{g,c}(\llbracket [vP] \rrbracket^{g,c})$
 $= [\lambda P. \iota e [P(e) \wedge e = g(3)]](\lambda e. \text{swim}(e) \wedge Ag(e) = x_1)$
 $= \iota e [[\lambda e. \text{swim}(e) \wedge Ag(e) = x_1](e) \wedge e = g(3)]$
 $= \iota e [\text{swim}(e) \wedge Ag(e) = x_1 \wedge e = g(3)]$
 type clash with Impfv, type-shift from ϵ to $\langle \epsilon, t \rangle$:
 $= \lambda e. e = \iota e' [\text{swim}(e') \wedge Ag(e') = x_1 \wedge e' = g(3)]$
 e. $\llbracket [-\neg] \rrbracket^{g,c} = \lambda P. \lambda t. \lambda s. \exists e [t \subset \tau(e) \wedge P(e) \wedge e \text{ in } s]$
 f. $\llbracket [Asp] \rrbracket^{g,c} = \llbracket [-\neg] \rrbracket^{g,c}(\llbracket [vP_2] \rrbracket^{g,c})$
 $= [\lambda P. \lambda t. \lambda s. \exists e [t \subset \tau(e) \wedge P(e) \wedge e \text{ in } s]](\lambda e. e = \iota e' [\text{swim}(e') \wedge Ag(e') = x_1 \wedge e' = g(3)])$
 $= \lambda t. \lambda s. \exists e [t \subset \tau(e) \wedge [\lambda e. e = \iota e' [\text{swim}(e') \wedge Ag(e') = x_1 \wedge e' = g(3)]](e) \wedge e \text{ in } s]$
 $= \lambda t. \lambda s. \exists e [t \subset \tau(e) \wedge e = \iota e' (\text{swim}(e') \wedge Ag(e') = x_1 \wedge e' = g(3)) \wedge e \text{ in } s]$
 g. $\llbracket [TP] \rrbracket^{g,c} = \llbracket [AspP] \rrbracket^{g,c}(g(5))$
 $= \lambda t. \lambda s. \exists e [t \subset \tau(e) \wedge e = \iota e' [\text{swim}(e') \wedge Ag(e') = x_1 \wedge e' = g(3)] \wedge e \text{ in } s](g(5))$
 $= \lambda s. \exists e [g(5) \subset \tau(e) \wedge e = \iota e' [e' \text{ is in } s_2 \wedge \text{swim}(e') \wedge Ag(e') = x_1 \wedge e' = g(3)] \wedge e \text{ in } s]$
 h. There is a unique familiar spatiotemporally contiguous event of swimming by Kofi, the running time of which includes the contextually provided topic time $g(5)$.

C Habitual interpretation

- (101) Kòfí nì sèlè-ò.
 Kofi PRT swim-IMPF
 'It is Kofi who swims.'⁴³

⁴³ For the ease of presentation, I omit in the derivation the presupposed material introduced by the particle *ni*.

(102)

Derivation:

- (103)
- $\llbracket \text{vP} \rrbracket^{g,c} = \lambda e. \text{swim}(e) \wedge \text{Ag}(e) = x_1$
 - $\llbracket [-\emptyset] \rrbracket^{g,c} = \lambda P. \lambda t. \lambda s. \exists e [t \subset \tau(e) \wedge P(e) \wedge e \text{ in } s]$
 - $\llbracket \text{AspP} \rrbracket^{g,c} = \llbracket [-\emptyset] \rrbracket^{g,c} (\llbracket \text{vP} \rrbracket^{g,c})$
 $= [\lambda P. \lambda t. \lambda s. \exists e [t \subset \tau(e) \wedge P(e) \wedge e \text{ in } s]] (\lambda e. \text{swim}(e) \wedge \text{Ag}(e) = x_1)$
 $= \lambda t. \lambda s. \exists e [t \subset \tau(e) \wedge [\lambda e. \text{swim}(e) \wedge \text{Ag}(e) = x_1](e) \wedge e \text{ in } s]$
 $= \lambda t. \lambda s. \exists e [t \subset \tau(e) \wedge \text{swim}(e) \wedge \text{Ag}(e) = x_1 \wedge e \text{ in } s]$
 - $\llbracket \text{TP} \rrbracket^{g,c} = [\lambda t. \lambda s. \exists e [t \subset \tau(e) \wedge \text{swim}(e) \wedge \text{Ag}(e) = x_1 \wedge e \text{ in } s]] (g(5))$
 $= \lambda s. \exists e [g(5) \subset \tau(e) \wedge \text{swim}(e) \wedge \text{Ag}(e) = x_1 \wedge e \text{ in } s]$
 - $\llbracket \text{CP} \rrbracket^{g,c} = \lambda x_1. \lambda s. \exists e [g(5) \subset \tau(e) \wedge \text{swim}(e) \wedge \text{Ag}(e) = x_1 \wedge e \text{ in } s] 1$
 - $\llbracket \text{ni} \rrbracket^{g,c} = \lambda P. \lambda x. P(x)$
 - $\llbracket \text{FP}_1 \rrbracket^{g,c} = \llbracket \text{ni} \rrbracket^{g,c} (\llbracket \text{CP} \rrbracket^{g,c})$
 $= [\lambda P. \lambda x. P(x)] (\lambda x_1. \lambda s. \exists e [g(5) \subset \tau(e) \wedge \text{swim}(e) \wedge \text{Ag}(e) = x_1 \wedge e \text{ in } s])$
 $= \lambda x. \lambda s. \exists e [g(5) \subset \tau(e) \wedge \text{swim}(e) \wedge \text{Ag}(e) = x \wedge e \text{ in } s]$
 - $\llbracket \text{FP}_2 \rrbracket^{g,c} = [\lambda x. \lambda s. \exists e [g(5) \subset \tau(e) \wedge \text{swim}(e) \wedge \text{Ag}(e) = x \wedge e \text{ in } s]] (\text{Kofi})$
 $= \lambda s. \exists e [g(5) \subset \tau(e) \wedge \text{swim}(e) \wedge \text{Ag}(e) = \text{Kofi} \wedge e \text{ in } s]$
 - There are event(s) of swimming by Kofi (and nobody else), the running time of which includes the contextually provided topic time $g(5)$.

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