Towards an interface definition of root phenomena

Abstract

Root phenomena are those that typically occur in matrix clauses but are also allowed in a restricted set of embedded ("root-like") clauses. This paper explores root phenomena with an interpretive import, and identifies three kinds of data that a purely syntactic approach cannot account for: the gradience in acceptability within clause types, the variable behaviour of peripheral adverbial clauses, and the existence of root phenomena in "fragments". I argue that far from being noise in otherwise harmonious behaviour, these data are essential to consider for a full understanding of root phenomena, and that a strictly syntactic approach cannot capture them. An interface account is called for, where (most of) the burden of licensing befalls on the interpretive component.

1 Root phenomena

1.1 A first definition

Root phenomena are those that normally occur in matrix clauses but are also allowed in a restricted set of embedded ("root-like") clauses (Heycock 2005). Typical examples in English include auxiliary inversion, argument fronting, locative inversion, and tag questions as illustrated in turn below. As shown in the (b) examples, these phenomena tend not to be possible in embedded clauses.

(1) a. Man, are we in for it!! (Green 1976: 8a)
     b. *He discovered that boy, was I in over my head. (Green 1976: 8b)

(2) a. Her regular column, she began to write again. The other ones, she never resumed.
     b. *When her regular column she began to write again, I thought she would be OK. (Haegeman 2010b: 1b)

(3) a. In the deepest part of the forest lived a scary Gruffalo.
     b. He told me that in the deepest part of the forest lived a scary Gruffalo.

(4) a. Acupuncture really works, doesn't it?
     b. I suppose acupuncture really works, doesn't it?

Since Emonds (1970), many have attempted to capture root phenomena as a syntactic property of clauses. That approach associates the ability for a clause-type to stand alone

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with its ability to host root phenomena. Root-like clauses are generally assumed to be essentially finite embedded clauses selected by verbs of assertion (such as *told* in (4-b) — see e.g. Hooper & Thompson 1973; Emonds 2004), although some adjunct clauses have also been found to allow root phenomena (see Heycock 2005 for an overview). Under a strict version of the syntactic approach, clauses are endowed with some kind of boolean feature [+/- root], and only those belonging to the type [+ root] can host phenomena such as those illustrated in (1)-(4).

It has recently been proposed that root properties could be captured syntactically by positing a reduced structure in non-root clauses (as in Haegeman 2006), and/or by appealing to restrictions on syntactic movement across elements endowed with properties inherent to rootness (Haegeman 2010b,a). In the former approach, root properties are entirely dependent on the presence of a dedicated functional projection in the CP field. That projection is responsible for anchoring to the speaker (Haegeman 2006: 1660). It was originally identified with ForceP (Haegeman 2002) and later with SpeakerDeixisP (Haegeman 2006) — situated between FocusP and FinP. By contrast, in the latter approach, root phenomena are blocked in clauses derived by movement to the CP field of an epistemic operator, over which further movement is blocked because of intervention effects.

The movement approach is argued to best capture the difference between central adverbial clauses (which lack root properties) and peripheral adverbial clauses (endowed with root properties) (Haegeman 2010b). Central adverbial clauses express conditions for the realisation of the state of affairs in the main clause. They are syntactically and prosodically integrated to the main clause, from which they inherit their temporal anchoring and point of view. Peripheral adverbial clauses structure the discourse background of the associated clause. They are relatively independent from the main clause: they can be anchored directly to speech time and to the speaker, and are prosodically independent. Only peripheral adverbial clauses are claimed to have root properties. This enables them to host high modal markers (e.g. *probably* in (5)) and argument fronting (6). Both phenomena are banned from central adverbial clauses (7)-(8).

(5)   He will send the text by email today, so that it probably will reach me on time.
                                                                    (Haegeman 2006: (3c))

(6)   I think we have more or less solved the problem for donkeys here, because those we haven't got, we know about.   (Haegeman 2010b: (42b))

(7)   *?? John works best while his children are probably asleep.   (Haegeman 2010b: (2a))

(8)   *When her regular column she begain to write again, I thought she would be OK.
                                                                    (Haegeman 2010b: (1b))

2 Three problems for a strictly syntactic approach

2.1 Gradience

One of the key puzzles posed by root phenomena is their gradient nature: their acceptability can be much degraded depending on a host of interpretive properties, some of which are listed below.

Negation in the matrix clause usually blocks root phenomena (something Hooper & Thompson 1973 attribute to the fact that it turns the predicate into a non-assertive one), but not automatically so:

(9)   I didn't realise that standing in the corner was his black umbrella.   (Green 1976: 71b)

Neg preposing presupposes agreement of the speaker rather than a third party:

(10)   a.   I regret that never before has such a proposal been made.   (Green 1976: 40)
           b.   *He regrets that never before has such a proposal been made.   (Green 1976: 40)

The subject in locative inversion needs to be new information:

(11)   a.   It seems that into the garden ran a golden-haired girl.   (Green 1976: 20)
           b.   *It seems that into the garden ran the cat with the red collar.   (Green 1976: 31a)

PP fronting and Clitic Left Dislocation (CLLD) are sometimes possible in central adverbial clauses:

(12)   He was washing the dishes when in came the dog.   (Green 1976: 62b)

(13)   Haegeman (2007: examples (11))
           a.   Si ce   livre-là   tu   le trouves à la   Fnac, achète-le.
                   if that book-there you it find   at the Fnac buy-it
                   'If you find that book at the Fnac, buy it.'
           b.   Dès   que ton   texte je l'aurai   lu,   je t'appellerai.
                   as-soon as   your text   I it-will-have read I you-will-call
                   'As soon as I've read your text, I'll call you.'
           c.   Quand cette chanson je l'ai   entendue, j'ai   pensé   à toi.
                   when   this   song   I it-have heard   I-have thought of you
                   'When I heard this song, I thought of you.'

CLLD is however generally not acceptable in central adverbial clauses:[1]

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[1]Bianchi & Frascarelli (2010) claim that only aboutness-shift topics are root phenomena (not common-ground topics and not contrastive topics). It is unclear whether this can be maintained for spoken French (see De Cat in preparation-a).

(14) a. #On était bien plus heureux quand, les lettres, on les   recevait le
         one was much more happy   when   the letters one them received the
         matin.
         morning
         'We were much happier when we received the letters in the morning.'
      b. #Elle a   commencé à aller mieux quand l'éditorial, elle a   recommencé
         she has started   to go   better when the-editorial she has restarted
         à l'écrire.
         to it-write
         'She started getting better when she started writing the editorial again.'
      c. #Depuis que cette boulangerie je l'ai   découverte, j'adore mon
         since   that this bakery   I it-have discovered   I-adore my
         quartier.
         neighbourhood
         'Since discovering this bakery, I adore my neighbourhood.'

Root phenomena are more strictly banned from restrictive relative clauses, but even there they are sometimes allowed:

(15)   ... places where, upon mentioning the name of an habitue friend, might be obtained strange whiskey and fresh gin in many of their ramifications. (Dorothy Parker, in Green 1996)

Understanding the causes of this gradience is key to understanding the nature of root phenomena.

2.2   Variable behaviour of adverbial clauses

A second problem for strictly syntactic approaches to root phenomena is the variable behaviour of adverbial clauses, depending on their attachment level in the clause. This was originally pointed out by Hooper & Thompson (1973), and has recently been revisited by Larson & Sawada (this volume). As illustrated by the contrast below, peripheral adverbial clauses cease to be able to host root phenomena when sentence-initial.

(16)   Mildred drives a Mercedes [because her son, he owns stocks in Xerox].

(17)   *[Because her son, he owns stocks in Xerox], Mildred drives a Mercedes.

A strictly syntactic approach to root phenomena would need to explain why the locus of attachment of peripheral adverbial clauses has such an effect — an effect that, under such an approach, would have to be captured in terms of amount of structure projected (under a cartographic approach) or alleviation of intervention effects (under a movement approach). How can such variations in the internal syntax of peripheral adverbial clauses be captured in a principled way?

2.3   Root-like fragments

The third problem for strictly syntactic approaches to root phenomena arises from the existence of structures that are syntactically non-clausal but that nonetheless exhibit root-like properties. The evidence presented below comes from Japanese *fragments*.

Fragments (also known as nonsententials Progovac et al. 2006) or Bare Argument Ellipsis (Culicover & Jackendoff 2005)) are verbless utterances interpreted as full propositions with assertoric force. In (18), the utterance signals the presence or the existence of a frog. It could be interpreted as (19-a) if uttered out of the blue or as (19-b) in a context where the speaker had been trying to guess what somebody had been talking about.

(18)   Oh a frog!

(19)   a.   There's a frog here! / I see a frog!
       b.   Oh you meant a frog!

The second utterance in (20), uttered in answer to A's question, is interpreted as (21-a) or arguably (21-b).

(20)   A: What's for supper, dad?
       B: Gruts.

(21)   a.   Gruts are for supper.
       b.   We're having gruts.

A question that has been hotly debated since the 70s is that of whether such non-sentential utterances should be analysed syntactically as full clauses or not. Recent proponents of the YES option include Merchant (2001, 2004, 2008); recent proponents of the NO option include Culicover & Jackendoff (2005) and Stainton (2006).

Merchant (2004) proposes that fragments are fully propositional in syntax, but that most of their structure remains unpronounced. He analyses fragments as ellipsis, and more specifically as a form of sluicing. Merchant argues that the fragment occupies the specifier of a left-peripheral phrase (which he suggests may be FocusP) whose head is endowed with an E feature. This feature has two functions: (i) it instructs PF not to parse its complement (and hence not to pronounce it) and (ii) it consists of a partial identity function over propositions, which is supposed to ensure that the complement of an E-endowed head has an appropriate antecedent in the discourse (which essentially ensures that the content of the unpronounced structure is identifiable/recoverable). Crucial for the argument developed below is the fact that, under the ellipsis analysis, the full structure must be inherited verbatim from the immediately preceding discourse. Merchant (2006) uses island sensitivity as key evidence for his sluicing analysis: he attributes the unacceptability of the answer in (22) to the illicit movement the pronounced constituent would have had to undergo to reach the [spec,FP] position.

(22)   Q: Does Abby speak the same Balkan language that *Ben* speaks?
       A: *No, *Charlie.*

No, she speaks the same Balkan language that *Charlie* speaks.

Culicover & Jackendoff (2005) and Stainton (2006) argue that the syntactic ellipsis approach cannot account for all fragments. In particular, it cannot hold in cases where the fully pronounced structure would be ungrammatical, for instance as a result of island violation. Examples of such fragments are provided below (all are adapted from Culicover & Jackendoff 2005). In each example, the context is provided in (a), the fragment in (b), and the full syntactic structure one would have to postulate for it following Merchant's analysis is given in (c).

(23)   a.   Haruko has been drinking sake all weekend.
          b.   Yes. And shochu.
          c.   *And shochu, Haruko has been drinking sake *t* all weekend.

(24)   a.   Whose sake has she been drinking?
          b.   Her mother's.
          c.   *Her mother's, she has been drinking *t* sake.

(25)   a.   Haruko drinks sake that comes from a very special part of Japan.
          b.   Where?
          c.   *Where does Haruko drinks sake that comes from a very special part of (Japan)?

(26)   a.   Yasu met a child who speaks Urdu.
          b.   With a Japanese accent?
          c.   *With a Japanese accent, Yasu met a child who speaks Urdu *t*.

In addition to these, some examples of fragments have no full-clause equivalent at all:

(27)   a.   Would you like a drink?
          b.   How about tea?

Stainton (2006) beautifully argues that such fragments have pragmatic Force in spite of not having syntactic Force, which implies that there is no one-to-one correspondance between "what [is] done (a "full-fledged speech act" i.e. propositional, force-bearing and literal) and what [is] used (lexical projections, not of semantic type <t>, not having [an expression encoding] force, and not embedded in any higher tree)" (Stainton 2006: 29).

I present below new evidence from Japanese showing that verbless utterances can have Force without it being realised syntactically. It is based on the distribution of a politeness marker. As a preliminary step, it is therefore necessary to consider the distribution of the corresponding politeness marker used in full clauses.

Miyagawa (this volume) shows that the politeness marker -MAS- (illustrated in (28)) occurs exclusively in root-like clauses.

(28)   Watasi-wa piza-o   tabe-<u>mas</u>-u.
        I-TOP   pizza-ACC eat-MAS-PRES
        'I will eat pizza.' (Formal register)

-MAS- occurs in a subset of the subordinate environments allowing the topic marker -WA, which leads Miyagawa (this volume) to postulate a three-way distinction in the root-like status of clauses: P(erformative)-roots, semi-roots, and non-roots (to which I will come back in section 3.2). As shown in Table 1, -MAS- is only allowed in P-roots, while -WA is allowed both in P-roots and in semi-roots.

	WA	MAS	
say clauses	✔	✔	P-root
because clauses	✔	✔	"
believe/ know clauses	✔	✗	Semi-root
indirect questions	✔	✗	"
when clauses	✗	✗	Non-root
deny/ be surprised clauses	✗	✗	"

Table 1: The distribution of -WA and -MAS- in Japanese (Miyagawa this volume)

In verbless clauses, another politeness marker is used (-DES-), which is functionally equivalent to -MAS- (Miyagawa, p.c.). The simple, verbless clause in (29) hosts (-DES-); its embedded equivalent in (30) doesn't (it cannot), and as a result politeness is marked in the matrix clause only.

(29) a. Tomoko-san-wa   atama-ga ii   <u>desu</u>.
          Tomoko-HONOR-TOP head-NOM good DES
          'Tomoko is clever.' (Lit: 'Tomoko's head is good.')
      b. [Tomoko-san-wa   atama-ga ii   to]   omi-<u>masu</u>.
          Tomoko-HONOR-TOP head-NOM good QUOTE believe-MAS
          'I believe Tomoko is clever.'

Crucially, -DES- is required to mark politeness in *because* (verbless) clauses (which, as peripheral adverbial clauses, are predicted to be able to host root phenomena), as shown in the (a) sentences below, but it cannot be used in *when* (verbless) clauses, as shown in the (b) sentences.

(30) a. [Tenki-ga   ii   <u>desu</u> kara] Yoko-san-wa   Tomoko-san-o
          weather-NOM good des   because Yoko-HONOR-TOP Tomoko-HONOR-ACC
          syootai site   kuremasu.
          invite CONNECTIVE give-MAS-NON-PAST
          'Yoko will invite Tomoko because the weather is good.'
      b. [Tenki-ga   ii   toki] Yoko-san-wa   Tomoko-san-o   syootai
          weather-NOM good when Yoko-HONOR-TOP Tomoko-HONOR-ACC invite
          site   kuremasu.
          CONNECTIVE give-MAS-NON-PAST

'Yoko will invite Tomoko when the weather is good.'

(31) a. [Yoko-san-wa   siawase <u>desu</u> kara] Taro-ga   Tomoko-san-o
          Yoko-HONOR-TOP happy   DES   because Taro-SUBJ Tomoko-HONOR-ACC
          syootai site   kuremasu.
          invite CONNECTIVE give-MAS-NON-PAST
          'Taro will invite Tomoko because Yoko is happy.'
      b. Taro-ga   [Yoko-san-ga   siawase nara] Tomoko-san-o   syootai
          Taro-SUBJ Yoko-HONOR-SUBJ happy   COND Tomoko-HONOR-ACC invite
          site   kure<u>mas</u>u.
          CONNECTIVE give-MAS-NON-PAST
          'Taro will invite Tomoko when Yoko is happy.'

(32) a. Watasi-wa [musume-ga   byooki <u>desu</u>   kara] uti   ni <u>imashita</u>.
          I-TOP   daughter-SUBJ illness DES-NON-PAST because home at stayed
          'I stayed at home because my daughter is ill.'
      b. Watasi-wa [musume-ga   byooki no   toki] uti   ni
          I-TOP   daughter-SUBJ illness CONNECTIVE when home at
          imasu.
          stay-MAS-NON-PAST
          'I stay at home when my daughter is ill.'

This suggests that -DES-, like -MAS-, is a (P-)root phenomenon. Let's now return to the problem at hand.

The third problem for a strictly syntactic approach to root phenomena can be illustrated by the fact that -DES- (a politeness marker restricted to root-like clauses) can appear in fragments that cannot be accounted for by the syntactic ellipsis approach, i.e. fragments that do not have a full clausal structure. (33-b), (34-b) and (35-b) show that -DES- can be used in fragments that, under Merchant's (2004) analysis, would have to be extracted out of island (complex NPs or coordinated structure).[2]

(33) a. Kanozyo-wa dare-no sake-o   nondei-ta   no?
          she-TOP   who-GEN sake-ACC drinking-PAST Q
          'Whose sake has she been drinking?'
      b. Kanozyo-no hahaoya-no(-o)   <u>desu</u>/*masu.
          3P.SG.-GEN mother-NOMINALISER-(ACC) DES/MAS
          'Her mother's.'

(34) a. Haruko-wa [nihon-no tokubetu-na   tokoro-de tukurareteiru]
          Haruko-TOP Japan-GEN special-CONNECTIVE place-at   produce-PAST-ASP

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[2]Incidentally, note that the impossibility to use -MAS- in the fragments above provides additional evidence against a sluicing analysis: if these were syntactically full clauses copied from an antecedent in the discourse, they would involve verbs and the use of -MAS- rather than -DES- would be obligatory. Merchant's variable island repair strategy, which is invoked to account for the extractability of question words out of elided islands, can therefore not be invoked here, on account of the presence of DES rather than the expected MAS.

               sake-o   nomi masu.
               sake-ACC drink masu
               'Haruko drinks sake that comes from a very special part of Japan.'
      b.   Doko <u>desu</u>/*masu ka?
           where DES/MAS   Q
           'Where?'

(35)   a.   Syusyoo-wa   tomato-jyuusu to nani-ga   suki-desu-ka?
           prime-minister-TOP tomato-juice   and what-NOM fond-of-DES-Q
           'The Prime Minister likes tomato juice and what?'
      b.   Biiru-desu.
           beer-DES
           'Beer.'

The examples in (36-b) and (37-b) show that -DES- can be used in fragments for which it is impossible to identify a full sentence equivalent syntactically based on a copy the (a) sentence.

(36)   a.   Nanika   nomi masu ka?
           something drink MAS Q
           'Would you like a drink?'
      b.   Otya-wa doo <u>desu</u>/*masu ka?
           tea-TOP how DES/MAS   Q
           'How about tea?'

(37)   a.   Pizza-o   tor-oo.
           pizza-ACC order-VOLITIONAL
           'Let's get a pizza.'
      b.   Margharita <u>desu</u>/*masu ka?
           Margharita DES/MAS   Q
           'Margharita?'

The politeness marker -DES- is restricted to root environments, but as shown above it can appear in fragments that cannot be analysed as full clauses under Merchant's sluicing analysis.[3] Fragments that do not have a clausal structure are predicted not to be able to host root phenomena, under a strictly syntactic approach.

2.4 Summary

A strictly syntactic approach to root phenomena has been shown to face (at least) three major challenges: (i) the variable levels of acceptability in particular syntactic structures, (ii) the radically different behaviour of peripheral adverbial clauses depending on where

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[3]It might be that some of the Japanese fragments above could be analysed as reduced clefts (along the lines of Saito 2004). This is not without problems for Merchant's analysis and does not provide compelling evidence for the presence of syntactic Force in fragments — see De Cat (in preparation-b) for discussion.

they are attached in their host clause, and (iii) the existence of root phenomena in (fragment) utterances that do not have a full clausal structure.

3 Solution 1: Gradience as mismatch

Strictly syntactic approaches to root phenomena focus on the properties of clauses. Traditionally, such approaches have paid little attention to the interpretive import of the root phenomena themselves. What mattered was that these occured typically in root clauses, and in a limited set of embedded clauses. The focus was on capturing syntactically the properties of such embedded clauses, which enable them to behave like root clauses. As a consequence, most of the gradience observed in section 2.1 had to be treated as exceptions, that remain unaccounted for and unpredictable — just noise in the data.

I take the opposite view and pursue Green's (1976; 1996) insight that the gradient nature of root phenomena can only be captured if both the interpretive properties of root phenomena and those of the clause hosting them are considered. Gradience cannot be captured by a mere typology of clauses.

3.1 The interpretive import of root phenomena

I contend that two types of root phenomena need to be distinguished from an interpretive point of view:[4] (i) those that indicate speaker involvement (e.g. emphatic agreement from the speaker or speaker acknowledgement of the addressee) and (ii) those that have an information-structural import.

In the speaker-involvement type, the clause typically requires a prosodic contour characteristic of direct speech (e.g. an exclamatory contour) and has performative properties. In English, this includes cases such as VP fronting (38), fronting of PP (39) (repeated from (12)) or a negated constituent (40) (both accompanied by aux-subject inversion), exclamatory inversion (41) (repeated from (1)). In Japanese, it includes politeness marking with -MAS- or -DES- (see section 2.3), whose performative property is to acknowledge the status of the addressee. (This is of course not an exhaustive list.)

(38)   John said that he'd win it, and win it he did!

(39)   He was washing the dishes when in came the dog. (Requires exclamative contour on *in*.)

(40)   Never before has such a proposal been made.

(41)   Man, are we in for it!!

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[4]I leave open the question as to whether there may be root phenomena (such as some instances of V2) without an interpretive import. If so, they would be predicted not to be sensitive to the constraints explored in this paper. See e.g. Frey (2006); Wiklund et al. (2009); Bentzen (2011). My analysis predicts that those V2 phenomena that have been shown to be sensitive to the root-like status of their host clause (Wiklund et al. 2009; Bentzen 2011) do have an interpretive import, but I am not in a position to speculate as to its exact nature.

The information-structural type does not require direct speech contour but involves special prosody when fronted elements are involved. It includes argument fronting (related to either topic or focus, depending on the context and the presence of resumptives) as in (42) (repeated from (2)), clitic left dislocation,[5] in which the dislocated element expresses the topic (De Cat 2007), as in (43), and locative inversion (as in (44), repeated from (3)), which introduces a thetic (i.e. all focus) structure.

(42)   Her regular column, she began to write again. The other ones, she never resumed.

(43)   Les petits,   ils   auront   de   la   soupe.
         the little-ones they will-have PART. the soup
         'The little ones will have soup.'

(44)   In the deepest part of the forest lived a scary Gruffalo.

3.2   The interpretive properties of root-like clauses

In parallel to the above, root-like clauses can be endowed with two types of relevant interpretive properties: epistemic properties and performative properties.

3.2.1   Epistemic properties

The information-structural properties of root-like clauses can be revealed by the observation of a phenomenon that is not restricted to root contexts but that is sensitive to the contrast between central and peripheral adverbial clauses (as are root phenomena): the licensing postverbal nominal subjects in French.

In French, the only type of VS order allowed in embedded contexts is stylistic inversion,[6] a phenomenon confined to literary (or very formal) French. Stylistic inversion is not allowed in yes-no questions (whether matrix or subordinate), but it is otherwise found in matrix and subordinate contexts alike.

(45)   Quand arriva la   tante, cela se   fit tout naturellement.   (Lahousse 2010)
         when   arrived the aunt   that REFL did very naturally
         'When the aunt arrived, that happened very naturally.'

Lahousse (2010, 2011) demonstrates that French VS is only licensed in thetic contexts, i.e. in clauses with an all-focus interpretation. In such contexts, aboutness topics are impossible.

Most relevant here is the fact that French VS requires extra licensing in peripehral adverbial clauses (46), but not in central adverbial clauses (45). In the former, VS only appears in the presence of an overt indicator of thetic structure, such as the stage topic *là* 'there' in (46).

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[5]I will leave aside here the question as to whether right dislocation is also a root phenomenon.

[6]*Inversion* is a misnomer in this case. As argued by Lahousse (2011), in genuine stylistic inversion the subject stays in its VP-internal [Spec, *Theta*P] position.

(46)   Un nom prédestiné, parce que là   renaîtrait   le phénix.
          a   name predestined because   there would-be-born-again the phoenix

Combining insights from Haegeman (2010b) and Lahousse (2010), the properties of adverbial clauses are as follows: only peripheral adverbial clauses but not central adverbial clauses (i) allow root phenomena such as argument fronting, (ii) allow epistemic qualification (manifested for instance by the presence of high epistemic adverbials and epistemic modals) and (iii) need overt indicators of thetic structure in order to allow stylistic inversion. This is summarised in Table 2.

	peripheral clauses	central clauses
Root phenomena allowed?	yes	no
Epistemic qualification allowed?	yes	no
VS needs overt licensing?	yes	no

Table 2: Properties of adverbial clauses

Epistemic qualification is inherently linked with the evaluation of truth: it signals the level of speaker commitment to the truth of the proposition. Following the tradition stemming from Reinhart (1981), the truth of propositions is evaluated with respect to their topic. A link between the possibility of hosting epistemic qualifying expressions and overt topics is therefore expected. Clauses that are not a locus of truth evaluation are expected not to have a topic-comment articulation, and not to host epistemic qualifying expressions. This is what happens in central clauses, as shown in (5) vs. (7).

The relevant difference between central and peripheral clauses may therefore be captured in terms of information structure: only the latter can have their own information structure (and truth value) independently from that of the matrix clause. Central adverbial clauses do not have that level of autonomy. One might be tempted to interpret this, as standard in the literature on Root Phenomena, in terms of presupposition: as hypothesised by Hooper & Thompson (1973), the defining property of root-like clauses might be that they are not presupposed. There is however one notable exception to this, as discussed by Wiklund et al. (2009) and Bentzen (2011) (based on observations already present in Hooper & Thompson 1973): the object clause of semi-factive predicates does allow root phenomena in spite of being presupposed. If being presupposed prevented a clause from having its own information structure, this would predict that the complement of non-factive predicates cannot host dislocated topics. The examples below demonstrate that they can,[7] and that this does not affect the presupposed status of the embedded proposition (evidence to that effect comes from the fact that the proposition would remain true under negation of the matrix verb, and that the presupposition can be cancelled as shown in (48) — see Bentzen 2011 for details).

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[7]The dislocated topics in these examples are licit under topic-shift interpretation, which Bianchi & Frascarelli (2010) have demonstrated is a root phenomenon in Italian. See also De Cat (in preparation-a).

(47) a. J'ai   réalisé que <u>les</u> <u>photos</u>, on les   avait toutes oubliées.
          I-have realised that the picture we them had   all   forgotten
          'I realised that we had left all the pictures behind.'
      b. Tu sais que   <u>les</u> <u>manuscrits</u> <u>de</u>   <u>Clara</u> <u>Shumann</u>, tu
          do you know that the   manuscripts from Clara   Shumann
          pourrais les   consulter au   musée ?
          you   could them   peruse at-the museum
          Do you know that you could peruse Clara Shumann's manuscripts at the
          museum?

(48) Pas si vite ! Les   photos, on ne   les avait PAS toutes   oubliées.
      not so fast the photos one   NEG them had not   all   forgotten
      'Hey, wait a minute ! We had NOT left all the pictures behind.'

In the case of semi-factives, presupposition of their complement arises from the (pragmatic) *assumption* of truth. This does not preclude the (semantic) truth of the proposition in question to obtain with respect to a topic. In other words, the presupposition in this case stems from conversational rules (see e.g. Stalnaker 1974 and Simons 2007). The use of an epistemic expression or an overt topic enables the speaker to clarify the level of their commitment to the presupposed truth of the proposition (that would otherwise be attributed to them by conversational rules). This could be done to anticipate or pre-empt a challenge of the presupposition (in a *Hey, wait a minute* move) from their addressee.

The condition for an independent information structure may therefore be that the clause be non-presupposed or that the presupposition it carries be pragmatic in nature (so that the speaker be able to express the degree to which they are commited to its truth).

3.2.2   Performative properties

The other relevant interpretive property of root clauses is that they have pragmatic force (see e.g. Stainton 2006). Root clauses are speech acts (including, but not limited to assertions), and as such they automatically imply the involvement of a speaker (by default the person uttering the sentence). This enables the speaker in question to express their emotive reaction to what is being said (implying e.g. surprise, disapproval,...), as in (49) (repeated from (12)). In (49), the preposition fronting emphasises the coming in of the dog, implying that the speaker considers it unexpected or undesired.[8]

(49)   He was washing the dishes when in came the dog.

Bentzen (2011) proposes that the key characteristic of root(-like) clauses is that they convey the Main Point of the Utterance (MPU), i.e. the proposition which renders a particular utterance relevant. "The main point of an utterance U given in answer to a question is that part of the content of U which constitutes the proffered answer to the question"

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[8]The question as to which clauses can display such performative properties will be explored in section 4.

(Simons 2007: fn.2). In (50), the MPU of the answer is conveyed by the embedded clause; the rest of the sentence only conveys evidential information.

(50) Q: Why didn't Louise come to the meeting yesterday?
      A: I heard that she's out of town.

Clauses with MPU potential correspond to those identified by Hooper & Thompson (1973) as hosts for root phenomena (i.e. the complement of assertive and semi-factive predicates, and peripheral adverbial clauses) — see Bentzen (2011) for evidence.

I will assume that clauses that carry the MPU are necessarily endowed with pragmatic force,[9] and remain agnostic for the time being as to whether clauses with pragmatic force necessarily convey the MPU.

Now that the properties of root-like clauses and those of (some) root phenomena have been established, we are in a position to try to capture the gradient nature of the distribution of root phenomena.

3.3   Accounting for gradience

Gradience results from the degree of mismatch between the interpretive requirements of the root phenomenon in question and the interpretive properties of the host clause. From this, a number of predictions derive straightforwardly.

3.3.1   Prediction 1

Phenomena expressing emphatic agreement from the speaker (such as VP fronting, Neg preposing and emphatic inversion in English) require not only a host clause with performative attributes, but also that the point of view expressed be that of the speaker. This explains the contrast in (51) (repeated from (10)).

(51) a.   I regret that never before has such a proposal been made.
      b. *He regrets that never before has such a proposal been made.

3.3.2   Prediction 2

Negation in the matrix clause will only block phenomena expressing emphatic agreement from the speaker if it prevents the embedded clause from expressing the perspective of the speaker. This is shown by the contrast in (52).

(52) a.   John says that he'll win it, and I think that win it he will.
      b. *John says that he'll win it, but I don't think that win it he will.

By contrast, in (53), the negation in the matrix clause doesn't prevent the speaker's emphatic expression of the fact that the umbrella was there all along in spite of them not notic-

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[9]This will need to be confirmed by further research.

ing it at the time. The meaning contributed by the VP inversion expresses the speaker's astonishment (or any strong emotion justified by the context).

(53)   I didn't realise that standing in the corner was his black umbrella.
(53)   He didn't say that standing in the corner was his black umbrella.

The perspective of the speaker can only manifest itself in clauses expressing the Main Point of the Utterance (a property instantiated by the complement clause of assertive (52-a) and semi-factive (53) predicates, but not non-assertive predicates (52-b)).[10] An apparent exception to this is (53), where the negation of the assertive matrix predicate should turn it into a non-assertive predicate — hence blocking embedded root phenomena. Not saying doesn't entail not knowing, and in this case doesn't prevent the embedded clause from expressing a fact highlighted as surprising by the speaker.

3.3.3   Prediction 3

Phenomena seeking approval or confirmation from the addressee automatically imply the other active participant in the discourse, i.e. the speaker. They will therefore only be possible if it is the speaker's point of view that is expressed by the root-like clause. This is what happens in tag questions, whose function is *to ask confirmation about the truth of [the] assertion, or to express doubt or uncertainty about [it]* (Hooper & Thompson 1973: 471).

(54)   a.   I suppose acupuncture really works, doesn't it?
         b.   *Gloria supposes acupuncture really works, doesn't it?

This restriction doesn't apply to root phenomena that do not necessarily express the speaker's point of view:

(55)   a.   I thought that on the top shelf stood a large archery trophy.
         b.   Sam thought that on the top shelf stood a large archery trophy.

3.3.4   Prediction 4

Information structure phenomena are predicted to be possible only in clauses with their own truth value (independent from that of the main clause). Some clauses strictly cannot allow this, such as embedded non-finite clauses, which follows from the fact that they are never assertions (Hooper & Thompson 1973: 485).

This predicts that root phenomena should be possible in non-finite clauses only to the extent that they can express the Main Point of the Utterance. The only condition in which this obtains is when they are used as fragments. As shown below for French, dislocated

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[10]Thanks to Kristine Bentzen for drawing my attention to this. See Miyagawa (this volume) for a summary of Hooper & Thompson's (1973) classification of embedding predicates.

topics can ocur in non-finite clauses used as fragments (56), but not in their embedded counterparts (57).[11]

(56)   a.   Elle, promener ton chien ? Ca m'étonnerait.
               her   walk-INF your dog   it me-would-surprise
               'For her to walk your dog? I'd be surprised.'
        b.   Les chicons, les   manger   crus ? Pourquoi pas, après tout.
               the chicory them to-eat:INF raw   why   not after all
               (lit: To eat chicory raw? Ater all, why not.)

(57)   a. *Je lui ai   demandé de   elle, promener ton chien.
             I   to-her have   asked to   her   walk your dog
        b. *J'ai envie de les chicons, les manger crus.
        c. *?Je lui ai demandé, elle, de promener ton chien.
        d. *?J'ai   envie, les chicons, de les   manger crus.
             I-have desire the chicory to them eat   raw

4   Solution 2: Capturing levels of 'rootness'

What remains to be explained is the variable behaviour of some adverbial clauses in terms of root phenomena licensing.

4.1   The effect of event quantification

According to a strictly syntactic analysis of root phenomena, clauses inherently associated with the syntactic properties conferring rootness are expected to always allow root phenomena. The ability of peripheral adverbial clauses to host root phenomena is traditionally attributed to properties inherent to such clauses, and the inability of central adverbial clauses to do so is attributed to their lack of such properties (Hooper & Thompson 1973; Haegeman 2010b).

    However, as pointed out in section 2.2, peripheral adverbial clauses do not always behave as expected, given the above. When sentence-initial (58), they are presupposed, and hence unable to host root phenomena. When sentence-final (59), they are asserted, and hence able to host such phenomena.

(58)   *Because her son, he owns stocks in Xerox, Mildred drives a Mercedes.

(59)   Mildred drives a Mercedes because her son, he owns stocks in Xerox.

Larson & Sawada (this volume) capture the contrast in (58)-(59) as a consequence of event quantification. Sentences containing an adverbial clause are analysed as tripartite structures involving a (covert) quantifier and hence a restriction and a scope. The restriction

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includes presupposed content, and the scope asserted content. Larson & Sawada argue that the lowest event predicate maps to the scope. Final adverbial clauses are attached at VP-level, so they are part of the scope and hence asserted. Initial adverbial clauses are attached at CP-level, so they are part of the restricton, hence presupposed. Root phenomena are therefore possible in sentence-final adverbial clauses, but not in sentence-initial ones, as predicted (but hereto unexplained) by Hooper & Thompson (1973).

4.2   Levels of rootness

Larson & Sawada's analysis has direct information-structural consequences for the account developed here: only those clauses that are not in the restriction of an adverbial of quantification are truth-evaluable, so only those can have a topic-focus articulation independent of that of the main clause, and host root phenomena with an information-structural import.[12] I propose that the other type of root phenomena (i.e. those that indicate speaker involvement) has a double requirement: (i) a truth-evaluable host-clause, and (ii) speaker anchoring/ performativity. The second requirement implies a higher level of involvement from the speaker than mere commitment to the truth of the predication.

This predicts that some clauses will be able to host information-structural root phenomena but not performative ones. Miyagawa (this volume) shows that this is indeed the case. In Japanese, both the politeness marker *-mas-* and the topic marker *-wa* are restricted to root-like clauses (including embedded clauses that allow discourse-related sentential particles). But in clauses selected by verbs such as *believe* and in indirect questions, only *-wa* is possible, and not the politeness marker *-mas-*. This is shown in the contrast between (60) and (61), from Miyagawa (this volume):

(60)   Taroo-ga [Hanako-<u>wa</u> ku-ru to]   sinziteiru (rasii).
Taro-NOM Hanako-TOP come $C_{nonfact}$ believe   apparently
'Taro (apparently) believes that Hanako will come.'

(61)   *Taroo-wa [Hanako-ga   ki-<u>mas</u>-u   to]   sinzitei-mas-u.
Taro-TOP Hanako-NOM come-MAS–PRES $C_{nonfact}$ believe-MAS–PRES
'Taro believes that Hanako will come.'

As shown in Table 3, Miyagawa's typology can be captured by a combination of the two interpretive features of root clauses identified in section 2.3: the information structural properties of clauses, and their performative properties.

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[12]Note also that, by definition, clauses that are part of the restriction cannot express the Main Point of the Utterance, as they merely express restrictions on what is in the scope of the event quantifier.

	performative	indepdent I.S.
P-roots	allow both types of root phenomena	
	✔	✔
'semi-roots'	allow only the information-structural type	
	✗	✔
non-roots	allow neither	
	✗	✗

Table 3: Typology of clauses

The present analysis predicts that information structure independence from the main clause is a necessary condition for all root-like clauses. Therefore, any clause able to host root phenomena with a performative import should also be able to host information-structural phenomena normally restricted to root clauses. The reverse does not hold, however, as indicated by the existence of "semi-roots". Non-presupposition does not automatically entail full performative status. This is further developed in the next section.

5   Solution 3: Disentangling pragmatic Force from syntactic Force

5.1   Accounting for (Japanese) fragments

The Japanese fragments discussed in section 2.3 have been shown not to be amenable to a full-clause analysis (with the core left unpronounced): they are true 'orphans', in the sense of Culicover & Jackendoff (2005). Yet, in spite of not being full clauses, these fragments clearly have pragmatic Force, as they host politeness markers only found in root-like clauses.

This is a clear case where Force is not instantiated in a dedicated clause-peripheral position. Yet, the lack of syntactic Force does not block the availability of pragmatic Force. If this is true for some structures, the availability of pragmatic force in the absence of syntactic encoding should be considered the null hypothesis in all cases, as required by the principle of Occam's Rasor. Force might be best captured by an interface analysis acknowledging the essential contribution of the interpretive component.

5.2   The need for an interface account

Summing up what has been discussed so far, the root phenomena landscape looks as follows.

Two types of root phenomena need to be distinguished: those with epistemic properties only, and those with performative properties (and epistemic properties). Both types of properties apply to the root phenomena themselves as well as their host clause. Mismatch results in marked (or ungrammatical) structures.

Root phenomena with an information structural import require a host clause that is epistemically independent: if embedded, that clause must have its own truth value, independent of that of the main clause. This translates in its ability to have its own topic-focus articulation. Epistemic independence is only possible if the clause expresses the Main Point of the Utterance (which, in most cases, translates in its not being presupposed). If the clause is (part of) the restrictor of an event quantifier, it looses its ability to express the MPU, and cannot be epistemically independent. Reduced structures such as untensed clauses can only express the MPU when they function as fragments (as was shown above in the case of some non-finite clauses in French, and in the case of Japanese fragments).

Information-structural phenomena only require commitment of the speaker to the truth value of the preposition. Root phenomena with a performative import have the added requirement that they should express a stronger involvement of the speaker: either to mark the speaker's point of view, or to express their acknowledgement of the addressee (as with Japanese politeness markers). This predicts a high level of sensitivity of root phenomena to fine-grained semantic properties of their host clause that impact on their ability to express the speaker's point of view.

The extent to which the above can be captured by a strictly syntactic approach remains to be determined. What is clear at this point is that the interpretive component(s) have a substantial role to play in the licensing of root phenomena, and that their distribution cannot be reduced to the syntactic properties of clauses alone.

6   Concluding remarks

In this paper, I have argued that embedded root phenomena can only be captured by an interface approach, to account for (i) their gradience in acceptability, (ii) the variable behaviour of peripheral adverbial clauses, and (iii) the existence of root phenomena in utterances that are not propositional syntactically (and hence without syntactic Force) but nonetheless endowed with pragmatic Force.

Gradience has been shown to result from the interaction of the interpretive properties of root phenomena with the properties of their host clause. Two types of interpretive properties (affecting the root phenomena themselves as well as their host clause) are involved: (i) those that indicate speaker involvement and (ii) epistemic/ information structural properties. All root phenomena have been argued to involve epistemic/ information structural properties; speaker involvement is only required in a subset of cases.

The fact that peripheral adverbial clauses can only host root phenomena if they (the clauses) are sentence-final (not sentence-initial) eludes current syntactic analyses (or any analysis that attempts to capture root phenomena as a purely syntactic property of clauses), but can be captured by the interaction of syntax and the interpretive component (Larson & Sawada 2010).

The existence of root phenomena in non-sentential assertions was demonstrated with original data from Japanese. These consisted in "fragment" utterances that cannot be analysed as full syntactic structures (according to Merchant's 2004, 2008 sluicing account)

and hence lack syntactic Force. Under a stricly syntactic analysis, root phenomena are predicted not to be possible in such fragments, contrary to fact.

Whether these three types of phenomena can be captured by a syntacitc approach remains to be debated. Crucially, as pointed out by Hooper & Thompson (1973: 495):

> Some transformations are sensitive to more than just syntactic configurations. [...] Even if it were possible to define in syntactic terms the conditions under which Root Transformations can apply, this correlation would still require an explanation."

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