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Research Article

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English evidential -*ly* adverbs in the noun phrase from a functional perspective

Abstract: This article addresses the question of how the distribution and role of English evidential -*ly* adverbs in the noun phrase can be accounted for using the framework of Functional Discourse Grammar (FDG). Both adverbs and adjectives occurring in noun phrases are categorized in various ways. The results of the categorization offer insights into the distribution of these adverbs and adjectives. Four generalizations are arrived at concerning the combination of evidential adverbs and adjectives in noun phrases. First, the lower in the FDG hierarchy the category of an adverb, the less frequent the occurrence of that category in the noun phrase. Thus, higher reportative adverbs are very frequent, and lower adverbs of event perception are very infrequent. Second, evidential adverbs do not modify adjectives that express the speaker's subjective evaluation of the referent. Third, the higher-level reportative and inferential adverbs modify adjectives expressing permanent properties, whereas the lower adverbs of deduction and event perception do not. Finally, neither restrictiveness nor the evaluative vs descriptive nature of the adjective appears to solely determine the category of evidential modification of the adjective. We furthermore discuss the pragmatic effects of the evidential adverb in the noun phrase, such as distancing, and the stress shift that may accompany it.

Keywords: evidential adverb, adjective, noun phrase, Functional Discourse Grammar, reference modification, referent modification, permanent property, contingent property, restrictiveness

1 Introduction

This article addresses the question of how the distribution and role of English evidential -*ly* adverbs in the noun phrase can be accounted for. Examples of noun phrases containing an evidential adverb are given in (1)–(4).[1]

(1)   the **visibly** distressed man (17-04-11 GB)
(2)   the **clearly** delighted audience (18-06-18 GB)
(3)   the **seemingly** endless fog (18-02-23 GB)
(4)   the **purportedly** new evidence (17-07-13 GB)

In all these examples, the adverb (in bold) is a modifier within an adjective phrase, which in turn modifies a noun. These are the cases that we will concentrate on in this article. Cases like these are different from corresponding main clause uses of evidential adverbs. Compare, for instance, (4) with (5).

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1 Like all examples in the article, these come from the GB section of the News on the Web (NOW) corpus.

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(5)   ***Purportedly***, the evidence is new.

In (5), the evidential adverb scopes over the entire message *the evidence is new*, which is characterized as deriving from a source other than the speaker. In (4), the evidential adverb scopes over the adjective *new*: it is just the newness that is being attributed to someone else.[2]

     The rather common construction in which an adjective within a noun phrase is modified by an evidential adverb has not received a lot of attention in the literature, exceptions being Van de Velde (2007), Melac (2014, 183), and Olbertz (subm.). It is mentioned in passing in Givón (1993), Tucker (1998), Hengeveld and Mackenzie (2008, 379), Keizer (2015), and Carretero (2019). In light of this situation, the current study aims to contribute to the further understanding of this construction by studying which factors influence its distribution and uses, using the theoretical framework of Functional Discourse Grammar (FDG), which is introduced in Section 2, after which in Section 3 the methods used are explained. A first factor identified as relevant for the distribution of evidential adverbs within noun phrases concerns the type of evidentiality expressed by the adverb. The influence of this factor on the distribution of the adverbs is discussed in Section 4. The second factor studied in this article concerns the type of modification instantiated by the adjective, which is discussed in Section 5. A third factor that is relevant concerns the nature of the adjective that is being modified, a topic that is discussed in Sections 6 and 7. The final factor that we discuss concerns the restrictiveness of the adjective, a topic that is addressed in Section 8. In Section 9, the pragmatic effects that the adverbs bring about are studied. This article is rounded off in Section 10.

2 FDG – general architecture

FDG is a functional model of language, which starts from the assumption that pragmatics and semantics are reflected in formal categories of language. FDG has a Grammatical Component at its core, and a Conceptual Component, an Output Component, and a Contextual Component in its flanks (Hengeveld and Mackenzie 2010, 370). In describing communication, the hierarchically organized Grammatical Component runs from intention to articulation. The highest level of the Grammatical component is the Interpersonal Level (IL), which addresses pragmatics. It governs the next lower Representational Level (RL), which focuses on semantics. Together these levels then govern the Morphosyntactic Level (ML), and the three of them govern the Phonological Level (PL). These relations are shown in Figure 1.
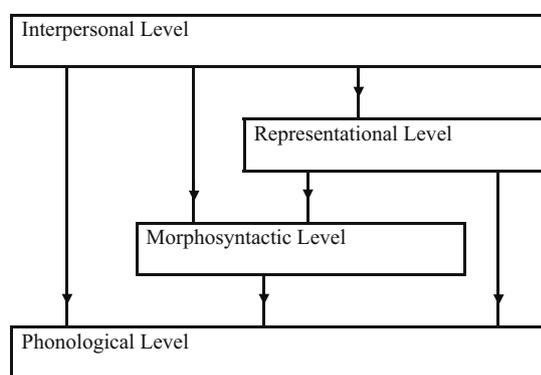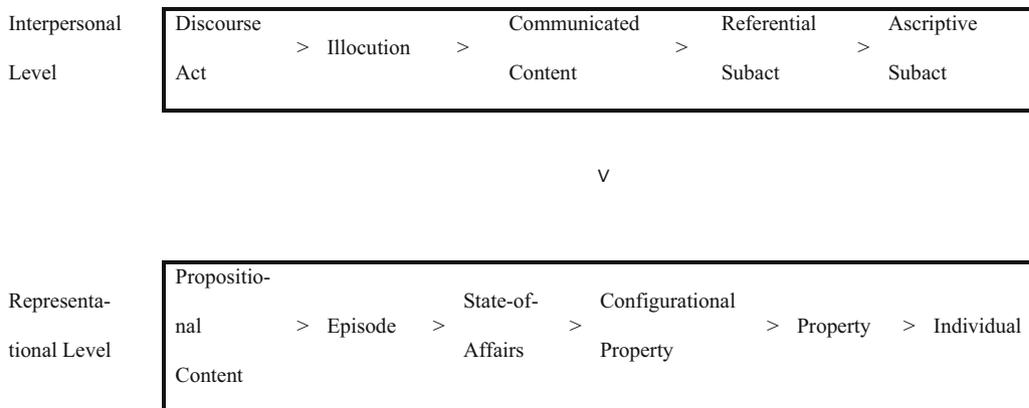

Figure 1: Levels in FDG.

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2 Note that, unlike Morzycki's (2008, 104) "remarkably adverbs," evidential adverbs maintain the same meaning in clause and noun phrase usage. Compare (4) and (5) to (i) and (ii):

(i) a remarkably tall Clyde
(ii) Remarkably, Clyde is tall.

In (i) *remarkably* functions as an adverb of degree, while in (ii) it expresses a speaker attitude.

The two highest levels of this hierarchical architecture cover the Formulation of the message, while the lower two focus on the Encoding of the message into morphosyntactic and phonological representations. It is the two highest levels that we are concerned with in this article. Each of these levels consists of several layers that are also in a hierarchical relationship. The ones that are most relevant for this article are given in Figure 2.

| Interpersonal Level | Discourse Act | > Illocution > | Communicated Content | > | Referential Subact | > | Ascriptive Subact |

∨

| Representa-tional Level | Propositio-nal Content | > Episode > | State-of-Affairs | > | Configurational Property | > Property > Individual |

Figure 2: Hierarchical relations at the IL and RL.

The IL focuses on the representation of units of interaction. The basic unit of analysis is the Discourse Act, which is characterized by the fact that it has its own Illocution, which reflects the speaker's communicative intention. The speaker-bound message transmitted in the Discourse Act is called the Communicated Content (C), which comprises two types of Subact, the Referential one (R) and the Ascriptive one (T). The Referential Subact itself is generally built up from one or more Ascriptive Subacts. The Referential Subact can be accompanied by an operator, for example, marking either specificity (±s) or identifiability (±id), while the Ascriptive Subact can be modified by, for example, adverbs such as *allegedly*, indicating that the property ascribed derives from a source other than the speaker.

The second highest level, the RL, takes care of the designation of an utterance. It comprises four major layers: the Propositional Content (p), the Episode (ep), the State-of Affairs (e), and the Configurational Property (f^c). The highest layer represents a mental construct that is entertained, which may be factual or non-factual and can be accompanied by expressions of propositional attitude regarding certainty or disbelief. The second highest layer of this level, the Episode, represents sets of States-of-Affairs united with respect to time, location, and the participants involved. An episode can be anchored in absolute time, for example by adverbs like *yesterday/tomorrow*, while individual States-of-Affairs in the Episode are situated in relative time, which is not measured from speech time. The next lower layer at the RL is the Configurational Property, which characterizes types of States-of-Affairs, and within which a Property is assigned to entities represented by further layers, such as Individuals (x) or Locations (l).

Every layer can be preceded by a (grammatical) operator (π) or followed by a (lexical) modifier (σ) that expresses semantic or pragmatic information pertaining to the layer at which they apply. Accordingly, an absolute tense marker is an operator at the layer of the Episode, and a manner adverb is a modifier at the layer of the Property.

3 Methods

This study is based on instances drawn from the GB section of the NOW corpus (Davies 2010–now), which exclusively contains UK newspaper articles. Instances of 11 different adverbs were selected, which included the 10 most frequently occurring evidential -*ly* adverbs in current usage according to the OED Online (Oxford English Dictionary) and the Collins Online dictionary. To these *visibly* was added to make sure

an adverb expressing direct event perception would be included in the study. For each adverb, the first 1,000 instances appearing before July 2016 were extracted from the corpus, which led to a total of 11,000 instances,[3] from which the ones in which an evidential adverb occurs within a noun phrase were selected. Excluding cases in which multiple adjectives occur in between the adverb and the noun, we found 346 instances in which an evidential adverb modifies a single adjective within a noun phrase. These form the sample used in the current study.

The different uses of adverbs and adjectives were classified by both authors, where in cases of doubt the wider context in which the adverb or adjective occurred was consulted.

4 Types of evidentiality

4.1 Introduction

This section discusses the influence of the type of evidentiality expressed by the adverb on its distribution within noun phrases. In Section 4.2, we present a classification of evidentiality types found in FDG. Then, in Section 4.3, we show how these types manifest themselves in the corpus and discuss the results.

4.2 Evidentiality in FDG

To analyse the co-occurrence of the adverbs with adjectives, it is necessary to adopt categorization schemes for both parts of speech. We start here with the categorization of the adverbs themselves. Table 1 (Kemp 2018, 759) shows the FDG categorization for the evidential adverbs investigated. As seen in Table 1, there are four evidential categories: reportative, inference, deduction, and event perception (Hengeveld and Hattnher 2015). These are illustrated in the following constructed examples (reflecting instances in Kemp 2018), in which the evidentials are used at the clause level.

(6) He was *reportedly* going to emigrate.
(7) He has *presumably* decided to leave.
(8) He was *perceivably* not feeling too well.
(9) He was *visibly* cross-eyed.

The reportative adverb *reportedly* in (6) indicates that the information modified comes from outside the present situation, from a source other than the speaker. The inferential adverb *presumably* in (7) expresses that the information modified can be inferred from the speaker's existing knowledge. The deductive adverb *perceivably* in (8) indicates that modified properties are not directly observable but are deduced from perceptual observation. Finally, the adverb of event perception *visibly* in (9) expresses that the information modified was obtained through direct perception.

Each type of evidentiality is related to a specific layer within FDG, as indicated in the last row of Table 1. Reportativity is a category at the layer of the Communicated Content, Inference at the layer of the Propositional Content, Deduction at the layer of the Episode, and Event Perception at the layer of the State-of-Affairs. Since these layers are hierarchically related, the categories of evidentiality are as well, as shown in Figure 3.

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3 Note that this same selection of instances formed the basis for Kemp (2018). This will allow for a future comparison between the uses of evidential adverbs in clauses on the one hand and noun phrases on the other.

Table 1: FDG classification of evidential -*ly* adverbs in main clauses

FDG levels:	IL	RL		
Evidential -*ly* adverb	Reportativity	Inference	Deduction	Event perception
reportedly	+			
purportedly	+			
allegedly	+			
supposedly	+			
evidently	+	+		
apparently	+	+	+	
presumably		+		
obviously		+	+	
seemingly		+	+	
clearly		+	+	
visibly			+	+
FDG layer	*Communicated content*	*Propositional content*	*Episode*	*State-of-affairs*

Interpersonal Level

┌───┐
│ Reportative (C) │
└───┘

v

Representa-tional Level

┌───┐
│ Inferential   Deduction   Event Perception │
│   >   > │
│ (p)   (ep)   (e) │
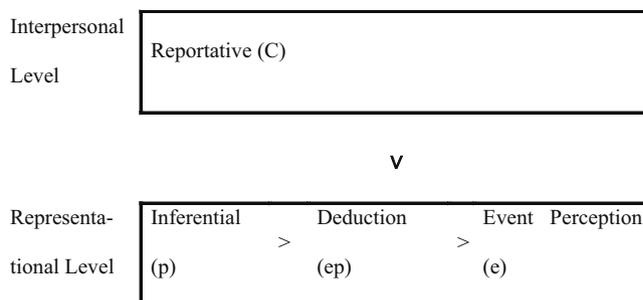└───┘

Figure 3: Hierarchical relations between evidential categories.

Reportative evidentiality is the only type of evidentiality that operates at the IL, while the other three types operate at layers of the RL, with a decreasing scope moving from left to right in Figure 3. Since reportative evidentiality scopes over all other three types, we may formulate the scope hierarchy in (10).

(10)   reportativity ⊂ inference ⊂ deduction ⊂ event perception

     Turning now to noun phrases, it should first be noted that all four types of evidentiality illustrated in (6)–(9) for the clausal level can also occur within noun phrases. The following examples illustrate this.

(11)   two **purportedly** *independent companies* (Reportativity) (17-09-17 GB)
(12)   *a* **presumably** *lower price point* (Inference) (18-06-08 GB)
(13)   *a* **clearly** *racist gesture* (Deduction) (18-06-18 GB)
(14)   *a* **visibly** *red breast* (Event Perception) (17-03-13 GB)

In (11), the reportative adverb *purportedly* expresses that the companies are independent according to a source other than the speaker; in (12), the inferential adverb *presumably* indicates that on the basis of his or her existing knowledge, the price point is likely to be lower; the adverb of deduction *clearly* in (13) expresses that it can be deduced from the perceptual properties of the gesture that it is racist in nature; and the adverb *visibly* in (14) is used to indicate that the redness of the breast was perceived directly.

Not only can all four types of evidentiality listed above be expressed within noun phrases, but also all of the individual adverbs listed in Table 1 are found to modify an adjective within a noun phrase. *Allegedly* is illustrated in (15), *apparently* in (16), *clearly* in (13) above, *evidently* in (17), *obviously* in (18), *presumably* in (12) above, *purportedly* in (11) above, *reportedly* in (19), *seemingly* in (20), *supposedly* in (21), and *visibly* in (14) above.

(15)   ***allegedly*** *sexist remarks* (Reportativity) (18-05-18 GB)
(16)   *an **apparently** slim advantage* (Inference) (18-06-24 GB)
(17)   *an **evidently** proud man* (Deduction) (16-11-19 GB)
(18)   *the **obviously** intentional similarity* (Deduction) (18-06-05 GB)
(19)   *their **reportedly** rocky relationship* (Reportativity) (18-06-30 GB)
(20)   *a **seemingly** technical change* (Inference) (18-04-07 GB)
(21)   *Mr Corbyn's **supposedly** "left wing populist" branch of politics* (Reportativity) (18-04-01 GB)

As shown in Table 1, several evidential adverbs may express more than one meaning at clause level. This is also true of evidential adverbs within noun phrases. This polyfunctionality of adverbs is illustrated here with the following examples from the sample, of the uses of *apparently* and *visibly*, which can each be used in three different ways. *Apparently* is considered here first.

(22)   *an **apparently** animate being* (Deduction) (18-06-20 GB)
(23)   *an **apparently** slim advantage* (Inference) (18-06-24 GB)
(24)   *an **apparently** "populist" government* (Reportativity) (18-05-24 GB)

In (22), the animateness is deduced on the basis of perceptual evidence, whereas in (23) the fact that an advantage is slim cannot be deduced from perceptual evidence, but it may be estimated on the basis of one's existing knowledge. The quotation marks in (24) show that in this case the information presented is from a source other than the speaker.

Turning now to *visibly*, the following examples show a somewhat different spread of functions.

(25)   *a **visibly** red breast* (Event perception) (17-03-13 GB)
(26)   ***visibly** contaminated bits of the carcass* (Deduction) (17-02-19 GB)
(27)   *a **visibly** dysfunctional scheme* (Inference) (17-10-12 GB)

In (25), the redness of the breast is presented as directly perceived by the speaker. The contamination in (26) cannot be directly perceived, but may be deduced from perceptual evidence, such as the colour of bits of the carcass. In (27), finally, the dysfunctionality of an abstract scheme may not be deduced from perceptual evidence, but it may be inferred on the basis of the speaker's existing knowledge concerning the functionality of schemes.

4.3 Types of evidentiality in the sample

Table 2 shows which types of evidentiality are expressed by the different adverbs within noun phrases in the sample. This table shows that some of the uses of adverbs that were attested in main clauses, as listed in Table 1, were not attested in noun phrases in the sample. This concerns the deductive use of *obviously*, the deductive use of *seemingly*, and the inferential use of *clearly*. Conversely, reportative *seemingly*, inferential *visibly*, and deductive *evidently* were not attested in main clauses in Kemp (2018) but were found in the sample of noun phrases.

Table 2: FDG classification of evidential -ly adverbs in noun phrases

FDG levels:	IL	RL		
Evidential -ly adverb	Reportativity	Inference	Deduction	Event perception
reportedly	3			
purportedly	25			
allegedly	19	1		
supposedly	145	3		
evidently	2	5	3	
apparently	14	10	5	
presumably		9		
obviously		5		
seemingly	2	54		
clearly			5	
visibly		2	33	1
FDG layer	Communicated content	Propositional content	Episode	State-of-Affairs

When we turn now to the quantitative distribution of evidential adverbs modifying adjectives in terms of the classification presented above, a striking pattern arises. As shown in Table 3, the number of cases decreases sharply along the scope hierarchy presented in (10).

Table 3: Distribution of types of evidentiality in the sample

Evidentiality type	Reportativity	Inference	Deduction	Event perception
Number of cases	210	89	46	1

The question is how this distribution could be explained. The explanation that we propose has to do with the kind of evidence that is required for different evidentiality types. There is only a limited range of qualities expressed by adjectives that can be directly perceived in event perception: only physical properties of objects can be directly perceived. It is therefore no surprise that the only example in the sample concerns colour:

(28) a **visibly** red breast (17-03-13 GB)

Melac (2014, 185) notes that *visibly* most often indicates an element of deduction, which is what we found in the data as well. Deduction is slightly less restrictive than event perception, as it may modify all properties that can be deduced from perceivable properties, while those properties cannot be directly perceived, as in the following examples:

(29) their **visibly** dangerous riding (17-04-04 GB)
(30) a **clearly** racist gesture (18-06-16 GB)

Danger and racism cannot be directly perceived, but their manifestations, such as high speed or the nature of a gesture, can. The range of properties that can be deduced is therefore higher than that of those that can be directly perceived.

Inference is even less restrictive, as no perception is required to arrive at an inference. The following examples illustrate this:

(31)   ***presumably*** *final chapter* (17-12-18 GB)

(32)   ***seemingly*** *conflicting accounts* (18-06-14 GB)

There is nothing in the physical appearance of a chapter that allows one to deduce that it is final: it is only existing knowledge that may lead to such a conclusion. Similarly, accounts do not have physical properties that can be perceived, so the fact that they are conflicting has to be inferred on the basis of existing knowledge.

Finally, reportativity is least restrictive, as anything someone else has said or written or is generally maintained may be reported. Examples (33)–(34) illustrate this:

(33)   *the* ***supposedly*** *"peaceful" West Bank* (18-05-20 GB)

(34)   *an* ***apparently*** *"populist" government* (18-05-24 GB)

In (33), the speaker is attributing the property *peaceful* to the West Bank, but is not committing him/herself at all to this attribution. To the contrary, by using the evidential *supposedly* to report a view of the West Bank expressed elsewhere, the speaker adds the implicature that the property *peacefulness* is being questioned. Furthermore, the quotation marks mean that all properties may be attributed to someone else, including the non-deductible or non-inferrable ones. Similarly, in (34) the property *populist* is reported rather than inferred.

The layered structure in FDG may be said to represent a scale from more concrete at the lowest layers to more abstract at the highest layers. This is reflected in the combinatorial properties of evidential adverbs pertaining to the different layers, as illustrated above.

5 Types of modification

5.1 Introduction

This section studies the influence of the type of modification that is being executed by the adjective modified by the evidential adverb. In Section 5.2, we first present a classification of modification types in FDG. Section 5.3 then shows how these types manifest themselves in the corpus. In this section, we also discuss these results.

5.2 Types of modification in the noun phrase in FDG

In terms of the formalism presented in Section 2, a noun phrase used referentially is built on the template given in (35) (see Van de Velde 2007, Butler 2008, Hengeveld 2008, Rijkhoff 2008):

(35)   IL: $(R_1: [...] (R_1): \Sigma^R (R_1))$

        RL: $(\alpha_1: (f_i: Lex (f_1): \sigma^f (f_1)) (\alpha_1): \sigma^\alpha (\alpha_1))$

At the IL, the noun phrase corresponds to a Referential Subact (R_1). At the RL, it corresponds to an entity, here represented as (α), which is a variable ranging over different layers. This entity is characterized by a Property (f_1), which corresponds with the head noun of the noun phrase. All three layers mentioned here can be modified by means of grammatical or lexical modifiers, of which only the latter is of interest to us here. The Referential Subact, as a whole, can be modified by the modifier Σ^R. This is called R-modification. Modifiers of this type express subjective evaluations of the referent by the speaker. The entity referred to can also be modified by means of the modifier σ^α, which indicates a second property of the entity, in what is

called α-modification. The Property of the entity can be modified further by means of the modifier σ^f. This modifier provides a second Property of the first Property in so-called f-modification. A constructed example such as (36) can then be represented as in (37), in which the entity type is (x), for Individual.

(36)   my poor (Σ^R) unhappy (σ^x) skillful (σ^f) surgeon (f_i)

(37)   IL: (R_I: [...] (R_I): poor (R_I))

         RL: (x_i: (f_i: surgeon (f_i): (f_j: skillful (f_j)) (f_i)) (x_i): (f_k: unhappy (f_k)) (x_i))

By means of the adjective *poor*, which expresses R-modification, the speaker expresses his/her empathy for the referent of the noun phrase. The adjective *unhappy*, which expresses α-modification, provides a second property of the referent: the referent is both a surgeon and unhappy. The adjective *skillful*, which expresses f-modification, has a more limited scope: the entity referred to is not both a surgeon and a skillful person, the skillfulness is limited to the referent as a surgeon. It is thus the property surgeonhood that is modified by the adjective *skillful*.

Thus, three types of modification can be distinguished in FDG. The latter two, exemplified by *unhappy* and *skillful* above, correspond to what Bolinger (1967) calls "referent modification" and "reference modification," respectively. Referent modification, as defined by Bolinger (1967, 22), is the "product of conjunction." Both the head noun and the adjective contribute to the identification of the referent of the noun phrase. Thus, the person referred to in (36) is both a surgeon and unhappy. In reference modification, on the other hand, the adjective rather depends on the noun for explication (Siegel 1976). For instance, a person who is an experienced carpenter is not necessarily an experienced person in general terms, as he or she may not be an experienced surgeon or baker. Thus, the person referred to in (36) is not both a surgeon and skillful, but rather skillful as a surgeon, not necessarily skillful in any other capacity. These two types of modification, referent modification and reference modification, are therefore also characterized as "intersective" and "subsective," respectively (see e.g. Morzycki 2016). In FDG there is a third type of modification, which is speaker bound, such as that expressed by *poor* in (36) or evidential adjectives such as *alleged* and *purported*, illustrated in (38)–(39) (see also Van de Velde 2007), and also known as "non-subsective" in the literature (Morzycki 2016, 23, García Velasco 2022).

(38)   *the alleged murderer*

(39)   *the purported author*

5.3 Types of modification in the sample

Turning now to the corpus data, Table 4 shows how the various types of modification co-occur with the different types of evidentiality discussed in Section 4.

Table 4 shows, first of all, that in the sample R-modifying adjectives are never modified by evidential adverbs. This makes sense, as R-modifiers are speaker bound: they express a personal assessment of the speaker, which is not based on external evidence but on the speaker's emotions or personal feelings such as empathy expressed in *my poor surgeon fell ill once again*.

Table 4: Types of modification in the sample

	Reportativity	Inference	Deduction	Event perception	Total
R-modification	0	0	0	0	0
α-modification	185 (88.1%)	85 (95.4%)	46 (100%)	1 (100%)	317
f-modification	25 (11.9%)	4 (4.6%)	0 (0%)	0 (0%)	29
Total	210	89	46	1	346

However, when *poor* is preceded by an evidential adverb, as in (40), a property assigning reading is triggered.

(40)   my **visibly/clearly/seemingly/reportedly** *poor surgeon*

A second fact that stands out in Table 4 is that in the sample reportativity and inference combine with reference-modifying adjectives, but deduction and event perception do not. Two examples of reportative evidentials combining with reference-modifying adjectives are given in (41)–(42), and two of inferential evidentials in (43)–(44)

(41)   **supposedly** *political comedians* (18-05-17 GB)
(42)   *the* **supposedly** *pescatarian predators* (18-01-13 GB)
(43)   *the* **seemingly** *prosaic function* (18-06-18 GB)
(44)   *an unorthodox,* **seemingly** *militant movement* (18-03-06 GB)

Note that in the case of reportativity, with four exceptions it is the evidential *supposedly* that combines with an f-modifying adjective. In the case of inference, in three out of four cases it is the adverb *seemingly*.[4]

To further explain the distribution in Table 4, we note that the nature of the evidential adverb must match the properties expressed by the modifying adjective. If properties are inherent and permanent as is the case with the reference-modifying adjectives shown in (41)–(44), those properties are often not as easily perceivable as contingent properties. Given that perception forms the basis for deduction and event perception, the co-occurrence of these adjectives with adverbs of deduction and event perception is often less acceptable, as shown in (45)–(48):

(45)   ?**visibly** *political comedians*
(46)   ?*the* **visibly** *pescatarian predators*.
(47)   ?*the* **visibly** *prosaic function*
(48)   ?*an unorthodox,* **visibly** *militant movement*

Thus, the non-occurrence of adverbs of deduction and event perception with reference-modifying adjectives in the sample seems to follow from the fact that these adjectives generally express permanent properties.[5] We will go into the influence of the permanent and contingent meaning of adjectives in the next section.

6 Permanent and contingent properties

6.1 Introduction

In this section and the next one, we study the influence of the type of adjective that is being modified by the evidential adverb on the distribution of the latter within noun phrases. In this section, we study the influence of the permanent or contingent meaning of the adjective on its combinatorial properties with

[4] The evidential adverbs combining with f-modifying adjectives are *apparently* in its reportative use (1 case), *evidently* in its inferential use (1 case), *purportedly*, which only has a reportative use (3 cases), *seemingly* in its inferential use (3 cases), and *supposedly* in its reportative use (21 cases).
[5] Note that this is a tendency rather than a rule. An anonymous reviewer pointed us to examples such as *visibly gay man* and *visibly religious man* that can be found in the COCA corpus, which contains texts in US English, and *visibly dead tree* and *a visibly old university*, which can be found on the internet.

evidential adverbs. The previous section has shown the relevance of this distinction already, but in this section, we look at this factor in more detail. In Section 6.2, we present the treatment of the opposition between these two adjective classes in FDG, while in Section 6.3 we look at their distribution within the sample and the results.

6.2 Permanent and contingent properties in FDG

In FDG, the distinction between permanent and contingent properties is given special treatment (Hengeveld and Mackenzie 2008, 137). A distinction is made between two types of Property (f), as shown in (49)–(50).

(49) ($^{p}f_1$) permanent Property
(50) ($^{c}f_1$) contingent Property

By means of a subscript preceding the Property variable (f), two subclasses of Property are defined for those languages in which such a distinction is relevant. One such language is Spanish. In this language, the choice of a copular verb with predicative adjectives crucially depends on this distinction. Hengeveld and Mackenzie (2008, 137) provide the following examples:

(51) *La*   *chica*   *es*   *guap-a.*
     DEF.F.SG   girl   COP.PRS.3.SG   pretty-F
     "The girl is pretty."
(52) *La*   *chica*   *está*   *guap-a*
     DEF.F.SG   girl   COP-TMP.PRS.3.SG   pretty-F
     "The girl looks pretty."

With the copula *ser* in (51) the property is presented as permanent, in (52), with the copula *estar*, as contingent.

6.3 Adjectives expressing permanent and contingent properties in the sample

While taking into account the context of use, the adjectives in the sample were classified according to whether they express a permanent or a contingent property. As is clear from the examples from Spanish in (51) and (52), one and the same adjective may be used in different ways, depending on the context. Out of context, the following example is ambiguous:

(53) *the **apparently** good-hearted Frank* (18-05-25 GB)

One of the possible interpretations of (53) is that Frank is good-hearted by nature; the other is that he showed kindness in a particular instance. Taking into account these contextual dependencies, the adjectives in the sample are classified as in Table 5.

Table 5: Adjectives expressing permanent and contingent properties in the sample

	Reportativity	Inference	Deduction	Event perception	Total
Contingent	49 (23%)	28 (31%)	46 (100%)	1 (100%)	124
Permanent	161 (77%)	61 (69%)	0 (0%)	0 (0%)	222
Total	210	89	46	1	346

As shown in Table 5, in our sample, adverbs of deduction and event perception do not combine with adjectives expressing permanent properties. The perceptual process that is the basis for these evidential categories registers change and hence combines more easily with contingent properties, not permanent properties. In the previous section, we already showed this to be the case for many reference-modifying adjectives, which generally express permanent properties. The following examples show that the same holds for referent-modifying adjectives expressing permanent properties.

(54)   my **evidently**/?**visibly** privileged background (18-02-27 GB)
(55)   China's **seemingly**/?**visibly** insatiable desire for commodities (18-02-23 GB)

The adjectives *privileged* and *insatiable* indicate permanent properties in their context of use, in which they are combined with the inferential adverbs *evidently* and *seemingly*. Replacing these adverbs by the adverb of deduction *visibly* seems unnatural, as permanent properties are not easily deduced on a particular occasion. For the same reason, the following constructed example in most circumstances does not make sense:

(56)   ?a **visibly** stone building

We thus find that the permanent nature of adjectives, whether they are reference-modifying (Section 5) or referent-modifying (this section), makes them unlikely candidates to be combined with adverbs used with the meaning of deduction or event perception.

7 Descriptive and evaluative adjectives

7.1 Introduction

This section takes a second perspective on the type of adjective modified by an evidential adverb and the way it influences the distribution of the latter within noun phrases: that of the descriptive or evaluative nature of the adjective. In Section 7.2, we first present a classification of types of adjectives based on Farsi (1968) and relate it to earlier work in FDG. Section 7.3 then shows how these types manifest themselves in the corpus and discuss these results.

7.2 Types of adjectives in FDG

Work on adjective types in FDG has mainly been carried out by Rijkhoff (2002, 2008). In this section, we are interested more specifically in what Rijkhoff calls qualifying adjectives. As Rijkhoff (2008) notes, several classes may be distinguished within the group of qualifying adjectives; he distinguishes between a more objective/permanent class and a more subjective/temporary class. The distinction is relevant for ordering phenomena within the noun phrase as illustrated in the following examples (Rijkhoff 2008, 75):

(57)   Where did you buy that beautiful round table?
(58)   *Where did you buy that round beautiful table?

As these examples show, the objective adjective *round* occurs closer to the head noun than the subjective adjective *beautiful*, and this represents a strong tendency.

A similar distinction is made in Farsi (1968), also referred to in Rijkhoff (2008). Farsi distinguishes between two classes of adjectives in English, an A and a B class, the A class being generally descriptive in nature, the B class generally evaluative. Farsi's B class corresponds to Rijkhoff's subjective class, but his A

class includes both Rijkhoff's objective class of qualifying adjectives and Rijkhoff's classifying class. In this section, we are only interested in qualifying adjectives, and will return to classifying ones below. Farsi uses various tests to show that his descriptive and evaluative classes behave differently in English grammar. Apart from the ordering restrictions illustrated in (57) and (58), the tests concern, first, the form of the adjective when negated. The negative prefix for descriptive adjectives is *non-*, as in *non-verbal*, while evaluative ones may take *un-*, *in-*, or *dis-*as in *unkind*, *inconsistent*, and *disrespectful*. Furthermore, evaluative adjectives can generally be qualified by *very*, as in *very kind*, *very inconsistent*, and *very respectful*, while descriptive ones generally cannot, as shown by ?*very verbal*. We use Farsi's classification here, as it allows for a straightforward classification based on objective criteria. While there are exceptions in both directions when applying this classification, overall Farsi's classification provides a good basis for the distinction between evaluative and descriptive adjectives.

7.3 Types of adjectives in the sample

In this section, we use the criteria provided by Farsi (1968) to classify the adjectives in the sample. As mentioned above, we restrict ourselves to the ones that are qualifying in nature. There are furthermore some adjectives that are not classifiable in either of the two classes defined by Farsi, including adjectives of colour, age, and place. Excluding these adjective tokens, the total number of relevant cases is 332.

In Table 6, we cross-classify Farsi's (1968) adjective classes with the classes of adverbs studied in Section 4.

Table 6: Types of adjectives and evidentiality type

	Reportativity	Inference	Deduction	Event perception	Total
Descriptive (A)	66 (31.7%)	22 (28.6%)	3 (6.4%)	0	91
Evaluative (B)	142 (68.3%)	57 (71.4%)	42 (93.6%)	0	241
Total	208	79	45	0	332

Table 6 shows that the number of evaluative adjectives that is modified by an evidential adverb of deduction is remarkably high. Some representative examples are as follows.

(59)   the **visibly** distressed man (17-04-11 GB)
(60)   the **clearly** delighted audience (18-06-18 GB)
(61)   an **evidently** proud man (16-11-19 GB)

Particularly remarkable is the presence of 24 (out of 42) instances of proper names with an indefinite article and an adjective expressing emotions and feelings of someone other than the speaker/writer, which are modified by an evidential adverb of deduction. An example is (62).

(62)   a **visibly** unhappy Paulo (17-02-23 GB)

The adverb *visibly* used deductively occurs very often in this configuration, but there are also instances with the deductive use of the adverbs *clearly* and *apparently*:

(63)   a **clearly** ecstatic then-Princess Elizabeth (18-06-01 GB)
(64)   an **apparently** shocked Dom (18-05-04 GB)

The B-adjectives that occur with deductive adverbs in the sample are the following: *affected*, *agitated*, *angry*, *awkward*, *contaminated*, *dejected*, *delighted*, *distressed*, *emotional*, *ecstatic*, *favourable*, *frustrated*, *good-hearted*, *happy*, *high*, *hurt*, *intentional*, *irate*, *jolly*, *nervous*, *pained*, *proud*, *shocked*, *sickened*, *stressed*, *stunned*, *supportive*, *uncomfortable*, *unhappy*, *unnerved*, and *upset*. Note that all these adjectives tend to denote temporary states. As shown in the previous section, adverbs of deduction and event perception are not used in our sample with adjectives expressing permanent properties, only with those expressing temporary properties. The larger number of cases of deduction with type B adjectives may thus be a result of this. For event perception, we have no way of verifying this, as there is only one example of this in the entire sample. But note that in this instance, repeated in (65), the adjective expresses a temporary property as well.[6]

(65)   a **visibly** red breast

We would not expect the use of *visibly* in cases in which the redness is a known permanent property, say, of a robin, as in (66).[7]

(66)   ?a visibly red-breasted bird

Cases like (62)–(64), in which the evaluative adjective modifies a proper name, seem to a great extent to be responsible for the larger proportion of combinations of a deductive evidential adverb with an evaluative adjective. Note that when the indefinite article is used with an evaluative adjective and a known proper name as in *an angry Blair* a contrastive state is evoked. The combination of the article together with the evaluative adjective serves to mark an emotion on a particular occasion that contrasts with states of mind at other times. Vandelanotte and Willemse (2002, 18) point out that the indefinite article used in phrases such as *an angry Blair* "designates manifestations or 'images' of a more temporary nature." This fleeting image is supported by the deductive evidential adverb as in *a visibly unhappy Paolo*, which not only ties the description to a moment in time, but also presents a subjective view expressing a conclusion drawn from observation.

Thus, we find once more that the specific behaviour of adverbs of deduction is closely related to the fact that the adjectives involved express contingent properties.

8 Restrictiveness

8.1 Introduction

In this section, we focus on the influence of the restrictiveness of the adjective modified by the evidential adverb. In Section 8.2, we first present a classification of restrictiveness types in FDG. Section 8.3 then shows how these types manifest themselves in the corpus. In this section, we also discuss these results.

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6 *Bliss shared a picture of herself nursing her child on Instagram with a* **visibly** *red breast. "When a good boob goes bad - again,"* *she wrote* (17-03-13 GB).

8.2 Restrictiveness in FDG

The (non-)restrictiveness of adjectives can be illustrated by means of the following examples. Example (68) is taken from Keizer (2019, 2).

(67)   *Only friendly people are welcome here.*
(68)   *Our friendly staff is here to make sure that you have an outstanding experience.*

In (67), the adjective *friendly* restricts the set of people to those who are friendly. In (68), on the other hand, *friendly* does not restrict the set of staff members, which is delimited sufficiently already by the possessive modifier *our*; it just provides an additional attribute to the staff members already identified otherwise. Martin (2014, 38) describes (non-)restrictive modification as follows: "a modifier M restrictively modifies the head H when the contextual set of objects MH denoted by the modified head MH is properly included in the contextual set of objects denoted by H" while "M nonrestrictively modifies H if the contextual set of objects denoted by H equals the contextual set of objects denoted by MH."

   In our FDG-representations so far, adjectives in general terms have been represented as restrictive, as indicated by the colon in the representation of the noun phrase *friendly people* from example (69):

(69) $(x_i: (f_i: \text{people} (f_i)) (x_i): (f_j: \text{friendly} (f_j)) (x_i))$

Keizer (2019) notes that non-restrictive adjectives constitute separate propositional contents, as they are not sensitive to the truth conditions of the main propositional content. The technical details of her analysis are not immediately relevant for our point here (see also García Velasco 2022).

8.3 Restrictiveness in the sample

In Table 7, we cross-classify restrictiveness with the classes of adverbs studied in Section 4. Note that restrictiveness is not a property of the adjective, but rather a property of the use of that adjective in a specific context. Thus, as shown above, the adjective *friendly* is restrictive in (67) and non-restrictive in (68). Example (70), taken from Matthews (2014, 168), shows that out of context an adjective may be ambiguous as to its restrictiveness. Example (70) could refer to all the people of Ruritania or just part of the population.

(70)   *the desperate people of Ruritania*

Table 7: Restrictiveness and evidentiality type

	Reportativity	Inference	Deduction	Event perception
Restrictive	165 (78.6%)	69 (77.5%)	16 (34.8%)	1 (100%)
Non-restrictive	45 (21.4%)	20 (22.5%)	30 (65.2%)	0 (0%)
Total	210	89	46	1

   Two examples of evidential adverbs combining with restrictive adjectives are given in (71)–(72), with non-restrictive adjectives in (73)–(74):

(71)   *their **presumably** favourite rockstar* (18-04-20 GB)

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7 We thank an anonymous reviewer for pointing us to this example.

(72)   *a **purportedly** imperiled culture* (17-08-19 GB)
(73)   *another **supposedly** privileged community* (17-10-25 GB)
(74)   *his **allegedly** shopaholic wife* (18-05-22 GB)

It is immediately clear from Table 7 that there is a high proportion of cases in which an adverb of deduction combines with a non-restrictive adjective. Some relevant cases are given in (75) and (76), where the non-restrictive reading goes hand in hand with the presence of the definite article:

(75)   *the **visibly** distressed woman* (17-03-06 GB)
(76)   *the **clearly** delighted audience* (18-06-18 GB)

The relevant group of examples includes the 24 cases in which a proper name is modified as mentioned in Section 7.3. Two relevant examples are given in (77) and (78), which occur in a non-contrastive context:

(77)   *a **visibly** emotional Emmanuel Macron* (17-12-28 GB)
(78)   *a **clearly** ecstatic then-Princess Elizabeth* (18-06-11 GB)

Thus, it seems that the frequent collocation of an adverb of deduction with an (evaluative) adjective modifying a proper name is again responsible for this distribution. As noted above, the adjectives involved tend to denote temporary properties, so that there is once more a clear connection here between deduction and temporary properties.

9 Pragmatic effects of evidentials in noun phrases

9.1 Introduction

We have shown above that there is considerable interaction between the elements of a noun phrase in terms of their semantics. For example, the nature of subsective adjectives limits the co-occurrence with certain types of evidential meaning (Section 6.3), and in our sample adverbs of deduction and event perception only combine with adjectives expressing a temporary state (Section 7.3). In the present section, we turn to pragmatic aspects, discussing rhetorical strategies involving reportative, inferential, and deductive adverbs. The one example of an adverb of event perception within a noun phrase that we encountered does not reveal any rhetorical usage.

9.2 Reportatives

There are only two cases of *reportedly* in noun phrases in the sample. Two other reportative adverbs, *purportedly* and *supposedly*, are often used to accompany a view held more generally by others, yet called into question by the speaker. This is not the case in the two instances of *reportedly* in the sample, one of which is illustrated in (79). In this case, the irreversibility of Ronaldo's decision is not called into question by the current speaker, but merely reported.

(79)   *Ronaldo, fresh from proving he IS the best player on the planet in Portugal's World Cup thriller against Spain, linked with a sensational return to Manchester United. That's what Italian newspaper Libero is reporting with French giants PSG also lurking after Ronaldo's **reportedly** "irreversible" decision to leave Real Madrid. The report states the 33-year-old will be on the move after the World Cup. Financial fair play rules could rule out the Paris side from making a move and that could open the door for United.* (18-06-18 GB)

In other cases in which the adjective following a reportative adverb is within quotation marks, as is *neutral* in (80), the reportative and the context not only call into question the applicability of the adjective in ascribing the property to the noun, but can also carry an implicature of cynicism. For a similar effect of the reportative in Colombian Spanish, see Olbertz (forthc.) and references therein.

(80)   *Former senior members of our **supposedly** "neutral" Civil Service have been rolled out in recent days to liken Brexit supporters to "snake oil salesmen" simply because we want to restore Britain as a self-governing democracy.* (18-02-08 GB)

As such, the writer does not concur with the adjective's use in this context (Fox 2001). In this cynical use, the adjective *neutral* becomes prosodically prominent. This effect is also seen without the use of quotation marks as in (81), in which *civilized* becomes prosodically prominent.

(81)   *As Stubley may well know, foods are imported from countries where people, including children, are literally starving to death, foods that these starving people need and could eat direct, which are instead fed to food animals in the **supposedly** civilized west, to fatten them up, so that **supposedly** civilized people can then eat them.* (18-04-28 GB)

The reportative can thus be used for creating a rhetorical effect. Consider example (82) from our sample, a letter to a newspaper. The reportative adverb *purportedly* appears to disrupt the fixed nature of the combination of the adjective *United* with the noun *Kingdom*, which then forms a regular adjective noun combination, implying a *divided kingdom*. As such, *united* is used in its regular meaning and the combination of the reportative adverb with this adjective conveys cynicism about the union of the UK nations.

(82)   *The entirely repugnant and offensive remarks by the Great Donald are irrelevant by reason of their nonsense. What is relevant is that he felt able to say such appalling things to the Prime Minister of the **purportedly** United Kingdom. That is where this incompetent Government has dragged us. # Let me be clear. I am a Scot and treasure my European passport.* (17-11-30 GB)

Furthermore, reportative *purportedly* has a focusing effect, which is associated with restrictiveness and a change in stress pattern. Without the modifying adverb, the primary stress of the collocation *United Kingdom* [jʊˌnaɪ.tɪdˈkɪŋ.dəm] falls on [kɪŋ] and secondary stress on [naɪ] (Cambridge Dictionary Online). When preceded by the adverb *purportedly*, the adjective *united* [jʊˈnaɪ.tɪd] receives primary stress, which is a focusing effect. The same focusing effect occurs with collocations that are not proper nouns such as the one in (81).

9.3 Inferentials

Evidential inferential adverbs can also be used to create a rhetorical effect. The adjective can suggest that a particular description holds, while the context can describe a contrasting situation. Melac's (2014) discussion of evidential adverbs in clauses is also applicable to noun phrases. In the case of inferential *seemingly*, the speaker is not necessarily convinced of the meaning of the adjective but uses it to emphasize the discrepancy between an impression and reality (Melac 2014, 273).

Inferential *seemingly* occurs in a film review of the *Den of Thieves* (83). The use of *seemingly impossible* leads the reader to question the word *impossible* and think that maybe the heist was indeed possible. (The review does not reveal whether the heist took place, but in the film, it did.)

(83)   *When the city's most successful group of robbers, led by ruthless ex-soldier and freshly-paroled Ray Merrimen (Pablo Schreiber), start to plan a **seemingly** impossible heist on the supposedly impenetrable Federal Reserve.* (18-02-02 GB)

In contrast, inferential *obviously* strengthens the meaning of the adjective in (84) expressing that, in the opinion of the speaker, the arguments were completely *misleading*. Melac (2014, 279) suggests that, unlike other evidential adverbs, *obviously* carries an inference of full conviction.

(84) *Last week he overstated our negotiating strength in an **obviously** misleading way by claiming that the EU was under pressure to strike a deal.* (18-06-02 GB)

In contrast, inferential *presumably* does not have a rhetorical effect, it simply reflects that the speaker has entertained this thought:

(85) *The **presumably** now-greatly-embarrassed Riggs has portrayed Carl Grimes, son of series lead Rick Grimes (Andrew Lincoln), since he was 11 years old.* (17-12-11 GB)

There are relatively few instances of *presumably* in noun phrases in the data. This could well be because it can be ambiguous. In (86), it could be the writer who is presuming that the future directors will be wealthy ones, but it could also be that the fans reckon that the directors will have this property.

(86) *Yesterday's announcement by King of a share issue provoked groans among many Rangers fans, as they had been seeking new external investment, reckoning that the mysterious departure of directors Paul Murray and Barry Scott would allow new and **presumably** wealthy directors on to the board.* (18-05-07 GB)

As shown in (87), inferential adverbs also have a focusing effect, resulting in a stress shift.

(87) *A male student was taken into custody, a seventeen-year-old officials have described as having an **apparently** clean slate before the massacre.* (18-05-18 GB)

So rather than having the regular primary stress on *slate*, as in [ˌkliːn ˈsleɪt], primary stress shifts to the adjective *clean*, as in [ˈkliːn ˌsleɪt].

9.4 Deductives

In a similar way to the inferential adverb *seemingly*, deductive *seemingly* is used as a rhetorical tool to trigger a contrast to what then proves to be the case. In the description of one of the football goals, Messi's skillfulness is stressed by contrasting a first impression with an alternative state (Melac 2014, 273).

(88) *The first time Lionel Messi stuck the ball through Thibaut Courtois's legs from a **seemingly** impossible angle it was possible to fool yourself that, well, he might have got a little fortunate there.* (18-03-14 GB)

Similarly, in a review of travel to Madeira, we read in (89) that the angles at which vegetable plots are located are *seemingly impossible*. The writer expresses the impression of the impossibility of using such steep plots of land but informs the reader that they are, in fact, used and harvested.

(89) *Their tiny farmhouses cling to the mountain sides, alongside vegetable plots at **seemingly impossible** angles. ... All are harvested by hand; no machinery can operate on plots at near 90-degree angles.* (18-04-05 GB)

In (90), too, *seemingly* is deductive and helps to create a discrepancy between the view of the Wolds, which gives an impression of *peacefulness*, and stories about werewolves, vampires, dragons, and other mysterious creatures roaming in the area.

(90) *The Yorkshire Wolds may be home to rolling green hills, hidden valleys and ancient villages, but this seemingly peaceful stretch of Yorkshire is harbouring a much darker side behind its picture perfect appearance.* (18-02-27 GB)

As with the reportatives and inferentials, there can be a stress shift when a deductive evidential is used before a collocation. In *seemingly drunk driver* in (91) the main stress is on the word *drunk*: [ˈdrʌŋ.k ˌdraɪ.vəʳ] whereas without the adverb, it would be on the first syllable of *driver*.

(91) *The vehicle bounced off the concrete barrier and stopped in the middle of the street. Before the man, identified as 61-year-old Manuel Rodriguez-Rojas, could drive away, Lewis is seen in a Snapchat video hopping out of his car to confront the **seemingly** drunk driver.* (18-03-02 GB)

10 Conclusions

This article has explored the distribution and use of evidential *-ly* adverbs in English noun phrases, using FDG as a descriptive framework. Evidential adverbs are unlike other adverbs used within noun phrases in that they display the same meaning within the clause and the noun phrase. We have shown that there is a robust effect of the FDG evidentiality hierarchy on the distribution of evidential adverbs within noun phrases. Reportative adverbs, at the highest end of the hierarchy, are most frequently found modifying adjectives in noun phrases, inferential adverbs are the next highest in frequency, followed by adverbs of deduction and event perception, the latter being used very infrequently in noun phrases. A second generalization that follows from our study is that adjectives that express the speaker's subjective evaluation are never modified by evidential adverbs. Third, and importantly, we have shown that adjectives expressing permanent properties tend not to be modified by adverbs of deduction and event perception, while they are modified by reportative and inferential adverbs. This has an indirect effect on the distribution of adverbs with restrictive versus non-restrictive adjectives and with evaluative versus descriptive adjectives. The latter two parameters do not seem to be of independent importance in understanding the distribution of evidential adverbs in noun phrases, as in both cases their distribution can also be explained from the influence of the adjective expressing a permanent or contingent property. Finally, we have shown that the use of evidential adverbs in noun phrases often has the rhetorical function of cynicism and possible disbelief, that is, there is a contrast between the reported, inferred, and deduced information and the stance of the current speaker. In certain cases, this may also lead to a shift in stress. In all, our results point especially to the relevance of the hierarchical organization of evidential modification in FDG, both as regards the (quantitative) distribution of evidential adverbs within noun phrases and as regards the distribution of evidential adverbs across adjectives of different hierarchical types.

Data availability statement: The datasets generated during and/or analysed during the current study are available in the *Corpus of News on the Web* (*NOW corpus*) repository, https://www.english-corpora.org/now/.

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