

Intensionality and extraction as reflexes of syntactic structure

Carlos de Cuba and Tomoko Kawamura

In the sententialist view of intensionality, intensionality arises only in bi-clausal contexts. However, not all bi-clausal contexts give rise to intensionality, and the level of intensionality can vary. Non-factives display full intensional properties, factives are only partially intensional, and temporal adverbial constructions have no intensional properties. We argue that these three levels of intensionality are associated with different syntactic structures. Extraction data provide support for this three way syntactic division. We argue that three levels of intensionality are present at the DP level as well.

1. Introduction

In the sententialist view of intensionality, all intensionality phenomena are associated with bi-clausal structures (McCawley 1974; Ross 1976; den Dikken, Larson and Ludlow 1996). However, not all bi-clausal structures result in intensionality. One test for intensionality is that non-denoting objects need not induce falsity in intensional environments. This is shown in (1), where non-denoting *a unicorn* induces falsity in a mono-clausal structure (1a), but does not necessarily induce falsity in the bi-clausal structure in (1b).

- (1) a. # Mary hit *a unicorn*. *False*
b. Tom thinks [that Mary hit *a unicorn*]. *True/False*

While the bi-clausal structure with ‘fully intensional’ *think* passes the non-denoting object test in (1b), a similar sentence with ‘partially intensional’ *regret* bi-clausal construction in (2) does not (Larson 2002).¹ This suggests that bi-clausality alone cannot fully explain all intensional behavior.

- (2) # John regrets [that Mary hit *a unicorn*]. *False/Presupposition failure*

¹ The ‘partial’ intensionality behavior of factive verbs like *regret* will be described in more detail in section 2.

In addition to the full and partial intensional cases above, there are bi-clausal constructions that exhibit no intensionality. Non-denoting *a unicorn* in the bi-clausal Temporal Adverbial Construction (TAC) in (3) also induces falsity, just as in partially intensional (2).

- (3) # John left [when Mary hit *a unicorn*]. *False/Presupposition failure*

In this paper we examine the three levels of intensionality mentioned above (full, partial and non-intensionality) and argue that each of these three semantic levels corresponds to a different syntactic configuration. We show that the three types of intensional behavior shown by three classic tests for intensionality are actually independent phenomena, and propose the behaviors tested for are derived from the differences in syntactic structures we propose. Evidence for the three syntactic configurations comes from extraction data. We show that in addition to the three levels of intensionality we note, there are three different extraction patterns associated with the three different structures we propose. We also examine intensionality patterns at the DP level, and conclude that the syntactic differences found at the sentential level exist at the DP level, as well.

The paper is organized as follows. In section 2, we present the three classic tests of intensionality, and show that non-factive constructions, factive constructions, and TACs pattern differently in their intensional behavior. Non-factives are fully intensional, factives are partially intensional, and TACs show no intensionality. In section 3, we propose that the three intensionality patterns are mirrored by three different syntactic structures. Non-factives are argued to have a more articulated complement clause structure than factives, and the difference in intensional behavior between them is explained by the presence of a semantic operator, which is present under non-factives but not under factives. TACs differ from non-factives and factives in being adjunction structures as opposed to complements. The lack of any intensionality in TACs is a result of the lack of a head-complement syntactic configuration. In section 4, we present extraction data in support of our proposed syntactic differences. We show that non-factive constructions, factive constructions, and TACs pattern differently in their extraction possibilities. Non-factives freely allow extraction of arguments and adjuncts from their complements, while factives are weak islands (no adjunct extraction) and TACs are strong islands (no adjunct or argument extraction). These differences in extraction possibilities are shown to result from the syntactic structures we propose. In section 5, we show that the same three levels of intensionality displayed at the CP level are present at the DP level. Non-factive nominals are fully intensional, factive nominals are partially intensional, and relative clauses show no intensionality. We argue that there is also a three way syntactic distinction at the DP level. However, extraction is not possible from any of these constructions. We appeal to the phase-hood of DP to account for this lack of extraction.

2. Three levels of intensionality

In the literature, there are three traditional tests for intensionality (den Dikken, Larson and Ludlow 1996; Larson 2002; among others). These are given in (4).

- (4) a. **The non-denoting element test:** Non-denoting objects (*a unicorn*) need not induce false/presupposition failure in intensional environments.

- b. **The substitution test:** Substitution of co-referring terms (*Boris Karloff* and *Bill Pratt*, who are in fact the same person) need not preserve truth in intensional environments.
- c. **The specific/non-specific reading test:** An indefinite (*a Swede*) can be read non-specifically in intensional environments.

Non-factive constructions pass all three tests of intensionality. A non-denoting element does not induce falsity/presupposition failure (5), the substitution of co-referring terms does not preserve truth (6), and an indefinite can have a specific or non-specific reading (7).

- (5) John believes that **a unicorn** died. *No falsity/presupposition failure*
- (6) a. John believes that **Boris Karloff** died. *Truth not preserved*
b. John believes that **Bill Pratt** died.
- (7) John believes that **a Swede** died. *Non-specific reading available*

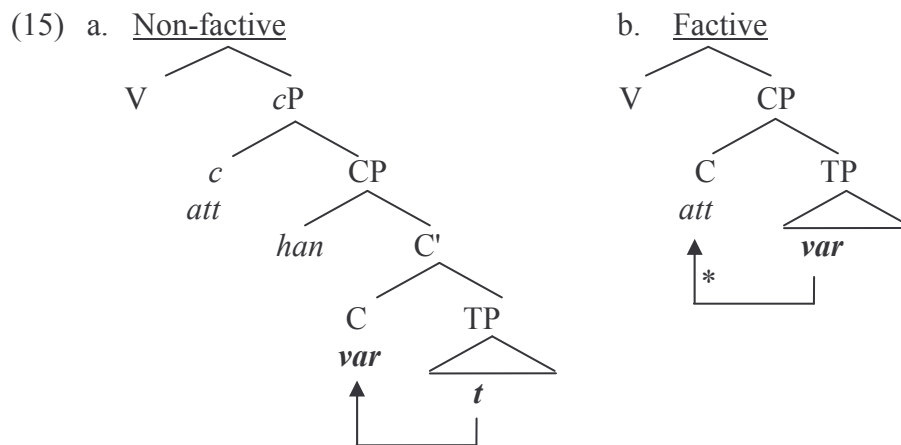
The sentence in (5) can be evaluated as true, regardless of the existence of unicorns. The sentences in (6a) and (6b) may have different truth-values, since John may not know that Boris Karloff and Bill Pratt refer to the same person. Finally, *a Swede* in (7) can be specific or non-specific. These facts indicate that non-factive constructions are fully intensional.

Factive constructions show a different pattern. A non-denoting object does induce falsity/presupposition failure (8), so factives are not fully intensional. However, factives do pass the other two tests of intensionality. Substitution of co-referring terms does not preserve truth (9) and an indefinite can be specific or non-specific (10). This is why we refer to factives as ‘partially intensional’.

- (8) # John regrets that **a unicorn** died. *Falsity/presupposition failure*
- (9) a. John regrets that **Boris Karloff** died. *Truth not preserved*
b. John regrets that **Bill Pratt** died.
- (10) John regrets that **a Swede** died. *Non-specific reading available*

TACs have bi-clausal structures, but unlike non-factives and factives, they fail all three tests of intensionality. The non-denoting object *a unicorn* (11) induces falsity/presupposition failure, truth is preserved in (12a) and (12b) (even if John does not know that Boris Karloff and Bill Pratt refer to the same person), and the non-specific reading of *a Swede* is unavailable in (13). This shows that TACs have no intensional properties.

- (11) # John left the party when **a unicorn** died. *Falsity/presupposition failure*
- (12) a. John left the party when **Boris Karloff** died. *Truth preserved*
b. John left the party when **Bill Pratt** died.
- (13) John left the party when **a Swede** died. *Only specific reading available*



Non-factive constructions have a *cP* layer, and the *c*-head may contain the complementizer *att*. Since C-head is open, the embedded predicate *var* may target this C-head for movement. In factive constructions, the complementizer *att* must appear in the C-head, as there is no *cP* layer. Movement of the embedded predicate *var* to this already filled C-head is thus blocked.²

More evidence for an extra layer of structure associated with non-factives comes from Hungarian. In Hungarian, the pronominal *azt*, which refers to the embedded clause, appears in non-factive constructions (16a), but not in factive constructions (16b).

- (16) a. Péter azt **hiszi** [hogy Mari beteg]. *non-factive*
 Peter it-acc believes comp Mary sick
 ‘Peter believes that Mary is sick.’
- b. Péter (*azt) **sajnálja** [hogy Mari beteg]. *factive*
 Peter it-acc regrets comp Mary sick
 ‘Peter regrets that Mary is sick.’

de Cuba (2006b) argues that *azt* is base-generated in *cP* spec as in (17).

² A reviewer points out that German has a similar contrast to Swedish, in that EV2 is acceptable in sentences embedded by non-factives like ‘say’ (i) but ungrammatical under factive predicates (ii).

- (i) Richard sagt er war nicht zu Hause.
 Richard says he was not at home
 ‘Richard says that he was not home’
- (ii) *Richard bedauert er war nicht zu Hause.
 Richard regrets he was not at home
 ‘Richard regrets that he was not home’

However, V2 and the complementizer *dass* are in complementary distribution under non-factive predicates. In (iii) EV2 is not allowed in the presence of *dass*, and in (iv) *dass* is obligatory in a V-final sentence.

- (iii) *Richard sagt dass er war nicht zu Hause.
 Richard says that he was not at home
 ‘Richard says that he was not home’
- (iv) Richard sagt *(dass) er nicht zu Hause war.
 Richard says that he not at home was
 ‘Richard says that he was not home’

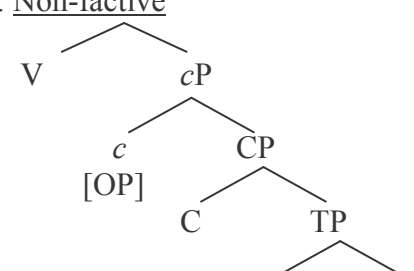
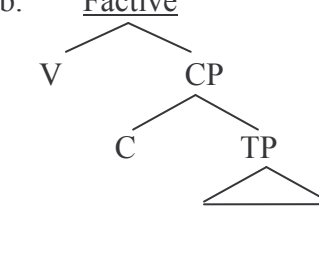
This complementary pattern in (iii) and (iv) is not predicted by the analysis presented here. We leave an explanation of the German facts to future research.

- (17) Péter azt hiszi [_{CP} t_{azt} [_{CP} hogy Mari beteg].

Since only non-factives select *cP* as its complement, *azt* may appear only in non-factive constructions, not in factive constructions. Interestingly, when *azt* is not present with a non-factive, a factive reading results, as in (18).

- (18) a. **Azt** mondta Péter, hogy későn kezdődik a meccs.
that-ACC said Péter Comp late begins the match
 ‘Péter said that the match will begin late’ (but we don’t know if this is true)
- b. Mondta Péter, hogy későn kezdődik a meccs.
said Péter Comp late begins the match
 ‘Péter told (me) that the match will begin late’ (and in fact it will)

We argue that the asymmetric syntactic behavior of non-factive vs. factive constructions in this section arises from the syntactic difference between non-factives and factives illustrated in (15). Non-factives select *cP*, which in turn selects *CP*, while factives directly select *CP*. On the semantic side, we claim that the full intensional behavior of non-factives also arises from the *cP* structure. Following de Cuba (2006a, 2006b, to appear), we propose that a semantic operator [OP] appears in *c* (19a), and that this operator is responsible for allowing non-denoting terms as in (20a). The lack of this operator in (19b) yields falsity/presupposition failure in (20b).

- (19) a. Non-factive
- 
- b. Factive
- 

- (20) a. John believes [_{cP} **OP** [_{CP} that **a unicorn** died]].
 b. # John regrets [_{CP} that **a unicorn** died].

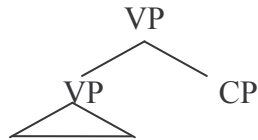
The operator in (20a) removes the speaker from responsibility for the truth-content of the embedded clause. This allows the presence of non-denoting elements like *a unicorn*. Since there is no operator in the factive case (20b), the speaker remains responsible for the truth-content of the embedded clause, just as is the case with a matrix predicate like (21).

- (21) #**A unicorn** died.

The idea that there is an operator that is associated with non-factive contexts is not new. Other analyses that postulate such an operator include Progovac (1994) and Nichols (2001). However, neither Progovac nor Nichols associates the operator with extra syntactic structure. Given the evidence in this section from Swedish and Hungarian though, proposing a syntactic projection associated with the operator seems quite natural. This extra structure will also turn out to be useful in explaining extraction asymmetries between non-factives and factives in section 5.

3.2. *Non-factives and factives vs. temporal adverbial constructions (TAC)*

Semantically, TACs show no intensional behavior, unlike non-factives (pass all 3 tests) and factives (pass 2 of 3 tests). Syntactically, we have analyzed both non-factive (19a) and factive (19b) constructions as involving complementation. In contrast, we analyze TACs as involving adjunction, as in (22).

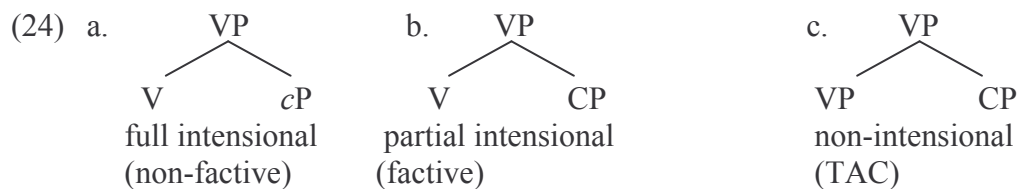
(22) Temporal Adverbial Construction (TAC)

Let's take the non-denoting element test first. TACs do not allow non-denoting elements, as shown in (23).

(23) # John left the party [_{CP} when **a unicorn** died].

Only non-factive complements allow non-denoting elements. Following our claim that non-denoting elements can only appear in the presence of the operator (19a), it is clear why TACs do not allow them. There is no *cP* available in the structure in (22) to house the operator.

Next, let's look at the other two tests of intensionality, the substitution test and the specific/non-specific reading test. Both non-factives and factives pass these two tests, while TACs do not. Looking at the proposed structures for each class of constructions in (24), we see the similarity between the non-factive (24a) and factive (24b) complementation structures vs. the TAC adjunction structure (24c).



We claim that intensional properties of substitution failure and the availability of specific/non-specific readings can only arise in head-complement structures like (24a) and (24b), and not with adjunction structures like (24c). This gives us a clear connection between syntactic structures and semantic interpretation. The correlations we have found between the three types of intensionality and the three syntactic configurations are summarized in Table 2.

	Full	Partial	Non
<i>Syn.</i> Presence of <i>cP</i>	Yes	No	No
<i>Sem.</i> Non-denoting element	Yes	No	No
<i>Syn.</i> Selected by a head	Yes	Yes	No
<i>Sem.</i> Substitution Failure	Yes	Yes	No
<i>Sem.</i> Specific/non-specific reading	Yes	Yes	No
-----	non-factives	factives	TAC

Table 2: Syntactic-semantic correlations

In the next section we show that the three syntactic configurations we have proposed correspond to three different patterns of extraction. We exploit these syntactic differences to account for the extraction facts.

4. Extraction

Thus far, we have shown that three levels of intensionality correspond to a three way syntactic division. Full intensionality is found when there is a head-complement structure and *cP*, partial intensionality is found when there is a head-complement structure but no *cP*, and no intensionality is found when there is no head-complement structure and no *cP*. There are three patterns of extraction that correlate with these three structures. Non-factive complements allow extraction of both arguments and adjuncts (25), factive complements allow extraction arguments but not adjuncts (26), and TACs allow extraction of neither arguments nor adjuncts (27).

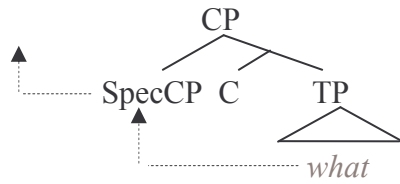
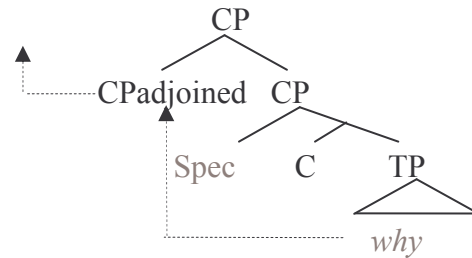
- (25) a. **What** did John believe [_{CP} [_{CP} that Mary ate *t*]]? *non-factives*
 b. **Why** did John believe [_{CP} [_{CP} that Mary ate the apple *t*]]?
- (26) a. **What** did John regret [_{CP} that Mary ate *t*]? *factives*
 b. ***Why** did John regret [_{CP} that Mary ate the apple *t*]]?
- (27) a. ***What** did John leave the party [_{CP} when Mary ate *t*]? *TAC*
 b. ***Why** did John leave the party [_{CP} when Mary ate apples *t*]]?

We first examine the difference between non-factives (25) and factives (26), and then move on to the difference between non-factives and factives vs. TACs (27).

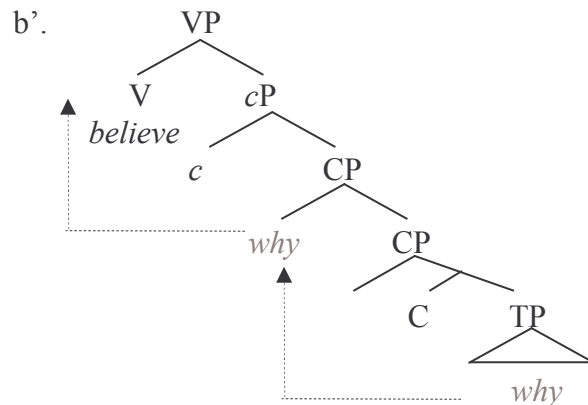
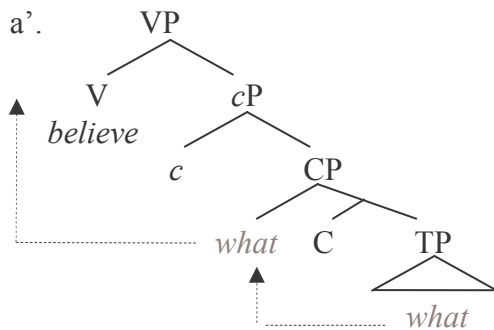
Following de Cuba (2006a), we claim that the difference between (25) and (26) can be explained by the presence or absence of *cP*. McCloskey (2005), following Chomsky (1986), proposes the Adjunction Prohibition.

- (28) **The Adjunction Prohibition:** Adjunction to a phrase which is s-selected by a lexical (open-class) head is ungrammatical.

de Cuba (2006a) adds to this the proposal that movement of arguments proceeds through SpecCP (29a), while movement of adjuncts proceeds through adjunction to CP (29b).

(29) a. movement of an argument phraseb. movement of an adjunct phrase

Non-factive argument extraction is shown in (30a'), and non-factive adjunct extraction in (30b').

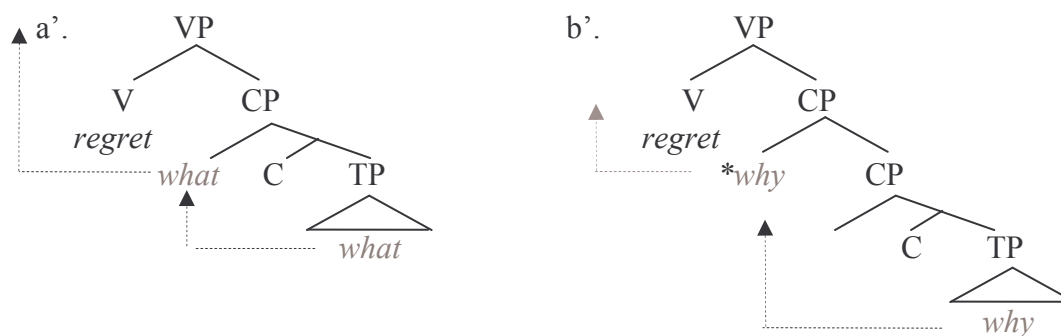
(30) a. **What** did John believe [_{CP} [_{CP} that Mary ate *t*]]?b. **Why** did John believe [_{CP} [_{CP} that Mary ate the apple *t*]]?

The argument *wh*-phrase moves through SpecCP, as is standardly assumed. However, the adjunct *wh*-phrase *why* adjoins to CP to move out of the embedded clause. The CP in (30b') is not s-selected by an open-class lexical head (it is selected by the functional head *c*), so adjunction to CP in this case does not violate the Adjunction Prohibition condition. This allows *why* to reach the edge of the phase for extraction to the matrix clause.³

Factive constructions, in contrast, receive the structures in (31). Factive argument extraction is shown in (31a'), and the unavailability of Factive adjunct extraction is represented in (31b').

(31) a. **What** did John regret [_{CP} that Mary ate *t*]?b. ***Why** did John regret [_{CP} that Mary ate the apple *t*]?

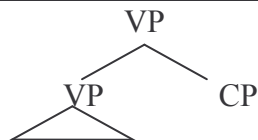
³ de Cuba (2006a) assumes that *cP* extends the CP phase, and that CP remains part of the edge, still active for syntactic operations.



Just as the non-factive cases in (30a'), the argument *wh*-phrase in factive (31a') moves through SpecCP. However, the adjunct *why* is unable to adjoin to the embedded CP in (31b') due to the Adjunction Prohibition. The factive predicate *regret* does not select for *cP*, but directly select CP. Since *regret* is an open-class lexical head, adjunction to its complement is ruled out. The adjunct *why* is thus unable to reach the edge of the phase, so it cannot be extracted.

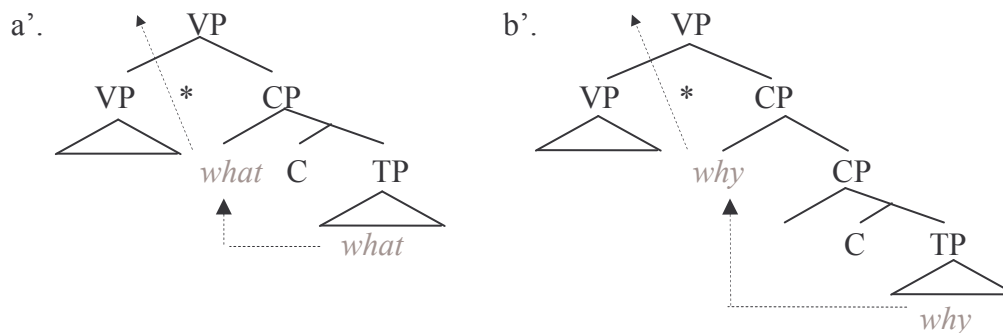
Having provided an account for the adjunct/argument extraction asymmetry for non-factives vs. factives, we now compare these two with TACs. When we look at argument extraction, we notice that both non-factives (25a) and factives (26a) allow it, while TACs (27a) do not. We again argue that this difference in extraction possibilities arises from their differing syntactic configurations. In TACs, the CP adjoins to the phrase of main clause, as in (32) ((22) repeated).

(32) Temporal Adverbial Construction (TAC)



Following Huang's (1982) Condition on Extraction Domains (CED), extraction out of any adjoined phrase is disallowed. Thus, both argument and adjunct extraction out of CP is ruled out in a structure like (32). In non-factive (30) and factive (31) constructions, the embedded clause is selected by the main predicate, and it is a complement of the main predicate, so argument extraction is not blocked. In contrast, in TAC constructions both arguments (33a') and adjuncts (33b') are stranded.

- (33) a. ***What** did John leave the party [_{CP} when Mary ate *t*]?
 b. ***Why** did John leave the party [_{CP} when Mary ate apples *t*]?



The syntactic-semantic correlations and extraction facts we have covered to this point are summarized in the Table 3. The constructions with a *cP* allow adjunct extraction and non-denoting elements. When the main predicate selects the embedded clause, argument extraction is allowed and substitution failure is observed. Furthermore, the sentence allows non-specific readings of indefinites. In adjunction structures, no extraction is allowed and no intentional behavior is observed.

	Full	Partial	Non
<i>Syn.</i> Presence of <i>cP</i>	Yes	No	No
<i>Syn.</i> Adjunct Extraction	Yes	No	No
<i>Sem.</i> Non-denoting element	Yes	No	No
<i>Syn.</i> Selected by a head	Yes	Yes	No
<i>Syn.</i> Argument Extraction	Yes	Yes	No
<i>Sem.</i> Substitution Failure	Yes	Yes	No
<i>Sem.</i> Specific/non-specific reading	Yes	Yes	No
	non-factives	factives	TAC

Table 3: Syntactic-semantic correlations and extraction facts

In the next section we find familiar intensional behavior, this time at the DP level. We provide a similar account for this semantic behavior, while also accounting for a different pattern of extraction at the DP level as opposed to the VP level.

5. DP internal intensionality

5.1. Three levels of DP intensionality

The three levels of intensionality discussed so far in this paper can also be observed DP internally. Full intensionality is found in the noun-complement construction with a non-factive noun.

(34) John has [_{DP} the belief [that a **unicorn** died]]. *True/False*

(35) a. John has [_{DP} the belief [that **Boris Karloff** died]]. *Truth not preserved*
 b. John has [_{DP} the belief [that **Bill Pratt** died]].

(36) John has [_{DP} the belief [that a **Swede** died]]. *Non-specific reading available*

In examples (34) through (36), the non-factive noun *belief* takes an embedded clause as its complement. Despite the fact unicorns don't exist, (34) may be evaluated as true, as long as *John* holds that belief. Truth is not preserved in (35) in the case that *John* does not know that Boris Karloff and Bill Pratt refer to the same person. Finally, in (36), the indefinite *a Swede* may be specific or non-specific.

When the non-factive noun *belief* is replaced with the factive noun *realization*, as in (37) through (39), partially intensionality is observed.

(37) # John came to [_{DP} the realization [that a **unicorn** died]]. *Presupposition failure*

(38) a. John came to [_{DP} the realization [that **Boris Karloff** died]]. *Truth not preserved*
 b. John came to [_{DP} the realization [that **Bill Pratt** died]].

(39) John came to [_{DP} the realization [that a **Swede** died]]. *Non-specific reading available*

Regardless of John's beliefs, (37) induces presupposition failure, failing the non-denoting test of intensionality. As observed with factive verbs, factive nominals pass the other two intensionality tests. The sentences in (38a) and (38b) may have different truth-values, and *a Swede* in (39) may be specific or non-specific.

Finally, relative clause constructions show no intensional behavior, as illustrated in (40) through (42).

(40) # John saw [_{DP} the man [that killed a **unicorn**]]. *Presupposition failure*

(41) a. John saw [_{DP} the man [that killed **Boris Karloff**]]. *Truth preserved*
 b. John saw [_{DP} the man [that killed **Bill Pratt**]].

(42) John saw [_{DP} the man [that killed a **Swede**]]. *Only specific reading available*

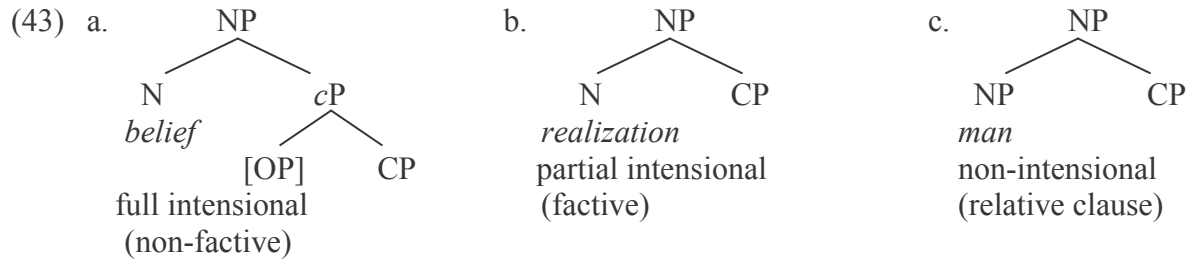
Regardless of what John believes, (40) always induces presupposition failure, (41a) and (41b) always have the same truth-values, and in (42), *a Swede* has only the specific reading. The three patterns of intensionality in DPs are summarized in Table 4.

	Full	Partial	Non
Non-denoting element	Yes	No	No
Substitution Failure	Yes	Yes	No
Specific/non-specific reading	Yes	Yes	No
	N-complement non-factive <i>belief</i>	N-complement factive <i>realization</i>	Relative clause

Table 4: Three levels of DP intensionality

5.2. Three syntactic structures

Noun-complement constructions are fully intensional when the head noun is non-factive, and partially intensional when the head noun is factive. Relative clauses are not intensional. We give these three constructions the structures in (43a), (43b), and (43c) respectively.



Non-factive nouns select a *cP* complement, while factive nouns select a *CP* complement. Following Chomsky and Lasnik (1977), Stowell (1981) and McCawley (1981), among others, we claim that relative clause constructions involve adjunction, not complementation. In these constructions, *CP* adjoins to *NP*.

Note that the *NP* (or *DP*) structures in (43) mirror the *VP* structures in (24). Just as was the case with non-factive verbs, non-factive nouns select *cP*, headed by the operator (43a). Since non-denoting elements are allowed in the presence of the operator, noun-complement constructions with a non-factive noun can have the non-denoting element *a unicorn* (34). Neither the factive noun-complement structure in (43b) nor the relative clause construction in (43c) has *cP*, so they do not allow non-denoting elements (37, 40).

In the *VP* cases discussed above, we claimed that the other two intensional behaviors (substitution failure, non-specific reading availability) can only arise in a head-complement structure. Both the non-factive (43a) and factive (43b) structures above fulfill this requirement. So it is no surprise that they both pass the substitution test (35, 38) and the specific/non-specific reading test (36, 39) of intensionality. The relative clause structure in (43c) is not a head-complement structure, but an adjunction. This structure does not satisfy the syntactic configurational requirement for intensionality, so as expected, relative clauses fail the substitution test (41) and the specific/non-specific reading test (42).

5.3. *DP* extraction

Unlike the verbal cases in section 4, where at least some kinds of extraction were allowed, all kinds of extraction out of *DP* structures are blocked. Extraction of both arguments and adjuncts is possible from non-factive verb complements (25), and argument extraction is allowed from factive verb complements (26a). However, the corresponding non-factive (44) and factive (45) nominals block all extraction.

- (44) a. ?***What** did John have [_{DP} the belief [that Mary ate *t*]]? *non-factive*
 b. ***Why** did John have [_{DP} the belief [that Mary ate the apple *t*]]?
- (45) a. ?***What** did John come to [_{DP} the realization [that Mary ate *t*]]? *factive*
 b. ***Why** did John come to [_{DP} the realization [that Mary ate the apple *t*]]?

To account for the difference in extraction between the verbal and nominal cases, we appeal to the familiar Complex Noun Phrase Constraint of Ross (1967). Extraction from a complex NP is ruled out, ruling out extraction in (44) and (45). Translated to current syntactic terms, we can say that the *wh*-phrases in (44) and (45) are spelled out when the DP phase closes, leaving them unavailable for movement.

The relative clause examples in (46) receive the same analysis as the TACs in (33). Both cases involve adjunction structures, so we again appeal to the CED of Huang (1982). Extraction out of any adjoined phrase is disallowed. Thus, both argument and adjunct extraction out of CP is ruled out in (46), given the structure in (43c).

- (46) a. ***What** did John see [_{DP} the man [that ate *t*]]? *relative cl.*
 b. ***Why** did John see [_{DP} the man [that ate the apple *t*]]?

6. Speculations on the triggers of intensional effects

In this section we briefly speculate on what triggers the three types of intensional behaviors shown by the tests in (4). We first consider the non-denoting element test, which only non-factive constructions pass. In section 3, we proposed that non-factives select cP, which contains a semantic operator that allows for non-denoting elements. We hypothesize that the function of this operator is to eliminate the actual world from the evaluation set of worlds for the embedded CP. Since the actual world is not evaluated, non-denoting elements do not necessarily induce falsity/presupposition failure. In the absence of the operator (as with factives and TACs), the actual world is not eliminated from the evaluation set, so non-denoting elements do induce falsity/presupposition failure.

As for the substitution test and the specific/non-specific reading tests, we tread more lightly. It is clear that propositional attitude reporting predicates (non-factives and factives) that pass these tests are responsible for intensional behavior. In the non-intensional adjunction cases (TACs and relative clauses) there is no trigger of intensionality (despite biclausal structure), so the complementation structure is key. For substitution failure, we speculate that propositional attitude reporting predicates add the belief world of the matrix subject to the evaluation set for the embedded CP. This belief world can differ from the actual world, leaving open the possibility that substitution of identicals will lead to different truth-values: one value for the belief world, and another for the actual world.

Finally, we speculate that the availability of non-specific readings under propositional attitude reporting predicates may also be due to the complementation structure. We hypothesize that a non-specific reading is available in the scope of a propositional attitude-reporting predicate, while the definite reading can occur if the indefinite phrase raises above the predicate through QR.

If we are on the right track with these speculations, then what have traditionally been seen as three tests of intensionality, are actually decomposed into three somewhat independent phenomena. These speculations are preliminary, but we hope to test the viability of this line of thinking in future research.

7. Summary

In this paper, we have shown that there are three levels of intensionality, full intensionality, partial intensionality, and non-intensionality. We have argued that full and partial

intensionality arise in bi-clausal head-complement structures, and that full intensionality arises only in the presence of *cP*. In a sentence with a bi-clausal adjunction structure, no intensionality is found. We have shown that three extraction patterns correlate with the three levels of intensionality. Full and partial intensionality structures both allow for argument extraction, while only full intensional structures allow adjunction extraction. Non-intensional structures are islands for both argument and adjunct extraction. These extraction facts fall out from the syntactic structures we have proposed. Finally, we have shown that these three levels of intensionality are also present at the DP-level, and they receive a parallel syntactic analysis to the VP-level correlates.

Acknowledgements

Thanks to the audiences at ConSOLE XV in Brussels and at the 8th SUNY/CUNY/NYU Miniconference at Stony Brook University, and to an anonymous reviewer for helpful comments and suggestions. Thanks also to ConSOLE and the ConSOLE XV organizers for their generous travel support.

Carlos de Cuba
Department of Linguistics
Stony Brook University
lin200cdc@hotmail.com

Tomoko Kawamura
Department of Linguistics
Stony Brook University
tkawamur@hotmail.com

References

- Chomsky, N. & H. Lasnik (1977). Filters and control. *Linguistic Inquiry* 8, pp. 425-504.
- Chomsky, N. (1986). *Barriers*. The MIT Press, Cambridge, Mass.
- de Cuba, C. (2002). A phase-derivational analysis of limited embedded V2 in Mainland Scandinavian. Ms. Stony Brook University.
- de Cuba, C. (2006a). The Adjunction Prohibition and Extraction from Non-Factive CPs. In D. Baumer, D. Montero and M. Scanlon (eds.), *Proceedings of the 25th West Coast Conference on Formal Linguistics*. Cascadilla Proceedings Project, Somerville, MA, pp. 123-131. www.lingref.com, document #1440
- de Cuba, C. (2006b). Embedded Verb-Second in Swedish, *cP* and Intensionality. T. Kawamura, Y. Suh & R. Larson (eds.), *Stony Brook Occasional Papers in Linguistics: Intensionality and Sentential Complementation*. Linguistics Department, Stony Brook University, Vol , pp. 2-21. Available online at: <http://www.linguistics.stonybrook.edu/sbopl/>
- de Cuba, C. (to appear). Negative polarity licensing, factivity, and the CP field. *The ASJU-International Journal of Basque Linguistics and Philosophy*. Expected in 2007.
- de Cuba, C. and B. Ürögdi. (2001). The role of factivity in the syntax and semantics of embedded clauses. Ms. Stony Brook University Department of Linguistics. Unpublished manuscript: Stony Brook University, NY. Paper presented at the 2nd SUNY/CUNY/NYU Mini-conference, SUNY Stony Brook, Spring 2001.
- den Dikken, M., Larson, R., & P. Ludlow. (1996). Intensional transitive verbs and concealed complement clauses. *Rivista di Linguistica* 8, pp. 29-46.
- Haegeman, L. (2006). Conditionals, factives and the left periphery. *Lingua* 116, pp. 1651-1669.
- Huang, C.-T.J. (1982). *Logical relations in Chinese and the theory of grammar*. Ph.D. dissertation, MIT.
- Kiparsky, P. & Carol Kiparsky. (1971). Fact. D. D. Steinberg and L. A. Jakobovits (eds.), *Semantics. An Interdisciplinary Reader in Philosophy, Linguistics and Psychology*. Cambridge University Press, Cambridge, pp. 345-369.
- Larson, R. (2002). The grammar of intensionality. Preyer, G. & G. Peter (eds.), *Logical form and language*, Clarendon Press, Oxford.
- McCawley, J. (1974). On identifying the remains of deceased clauses. McCawley J. (ed.), *Adverbs, vowels, and other objects of wonder*. University of Chicago Press, pp. 74-85.

- McCawley, J. (1981). Syntax and semantics of English relative clauses, *Lingua* 53, pp. 99-149.
- McCloskey, J. (2005). Questions and questioning in a local English. R. Zanuttini, H. Campos, E. Herburger, & P.H. Portner (eds.), *Cross-linguistic research in syntax and semantics: negation, tense and clausal architecture*. Georgetown University Press.
- Nichols, L. (2001). The syntax and morphosyntax of propositional attitude complementation. Ms. Harvard University.
- Progovac, L. (1994). *Negative and positive polarity: a binding approach*. Cambridge University Press.
- Ross, J. R. (1967). *Constraints on variables in syntax*. Ph.D. dissertation, MIT.
- Ross, J. R. (1976). To have *have* and to not have *have*. M. Jazayery, E. Polom & W. Winter (eds.), *Linguistics and literary studies in honor of Archibald Hill*. de Ridder, Lisse, Holland, pp. 263-270.
- Stowell, T. (1981). *Origins of phrase structure*. Ph.D. dissertation, MIT, Cambridge.