

Probing silence

Syntactic elliptical constructions, probe/goal relations and the nature of Case

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Abstract

We propose a strictly narrowly syntactic approach to semantic recovery of post-auxiliary ellipsis and sluicing based on a novel notion of syntactic identity between the antecedent and ellipsis site: we assume that the syntactic material present in the ellipsis site is built recursively by the copying of Agree and structural Case licensing relations. This accounts for the following phenomena: the relative acceptability of verbal ellipsis with nominal antecedents, voice alternations under ellipsis, differential islands repairing properties, complementary distribution between sluicing and local binding of pronouns as well as the surprising behavior of elliptical constructions in Maliseet, Frisian and spoken French. We derive our model from standard minimalist assumptions and interfaces effects and hence retrieve known syntactic properties (such as J.Merchant’s generalization about preposition stranding under sluicing or S.Chung’s characterization of the syntactic identity under sluicing) from first principles.

1 Introduction

1.1 Motivation

An obvious, but as is often the case puzzling, fact about the English VP ellipsis construction is that a strict identity of meaning seems at first glance to obtain between the ellipsis site and the antecedent site. For a bookish example, consider:

- (1) [T]he bookbinder’s Quarto volume in its dimensioned form does not preserve the shape of the Folio volume, but the Octavo volume does.¹

An English speaker, even one who doesn’t know what a folio is or who has never read *Moby-Dick*, will recognize that the only possible interpretation of (1) is that the Octavo volume preserves the shape of the Folio volume. When the ellipsis site is in such close parallel with the antecedent site, any number of theory can be posited to account for this property, the most natural ones being presumably that the ellipsis site is an unpronounced copy of the syntactic or semantic material of the antecedent site. Consider however the slightly less literary example:

- (2) “You’re meeting Hermione Granger? Today?”
“Yeah. Well, she asked me to, so I thought I would.”²

If the first ellipsis site were to host an identical copy of the syntactic content of the putative antecedent site, then spelling it out should yield

- (3) *Well, she_i asked me to meeting Hermione Granger_i.

which is doubly faulty because of the aspectual mismatch and because of the local binding of the referential expression *Hermione Granger* by the pronoun *she*. Crude accounts based on the copy of the semantic material would conversely have trouble explaining why the second ellipsis site of (2) is fine whereas (4) below is ungrammatical (see [Lasnik, 1995]) though the semantic contents of (2) and of (4) are virtually identical.

¹From chapter XXXII of *Moby-Dick* by H.Melville.

²From chapter XXV of *Harry Potter and the Order of the Phoenix* by JK.Rowling.

- (4) “You will meet Hermione Granger? Today?”
*“Yeah. Well, she asked me to, so I thought I would be.”

These observations hint at the mysterious properties of English post-auxiliary ellipsis (henceforth PAE; I will also use the more common but slightly misleading term of VPE) and English elliptical constructions generally. To mention a few examples, English PAE tolerates (some) aspectual and voice mismatches between the antecedent and the ellipsis sites but cannot target an antecedent clause containing an island whereas elliptic interrogative sentences (usually known as sluices after [Ross, 1969]) show complementary properties: they typically disallow argument structure mismatches but are sometimes licit when the counterpart non elliptic sentence would be ungrammatical because of an island effect. In addition to this internal diversity, these elliptical constructions display a remarkable amount of cross-linguistic variability. For instance, English and French sluiced constructions usually cannot target both the subject and the direct object of a transitive construction (and are certainly unable to do so if the subject and the object belong to the same animacy class) whereas German, Japanese and Bengali sluiced constructions typically can. English VPE can target any lexical verbs whereas Welsh VPE cannot target verbs of cognition (see [Rouveret, 2012, Section 2.1]) and Maliseet VPE can target a transitive verb only if its direct object is classified as inanimate (Maliseet is an endangered dialect of the Algonquian language; all Maliseet examples and explanations are from [Richards, 2008]). Frisian sluiced constructions are obligatorily followed by a determiner (see [van Craenenbroeck, 2004, Section 5]) and a comparable phenomenon sometimes surfaces in some variants of spoken French though this is normatively judged very degraded by the standards of written educated French.

1.2 Aim of the manuscript

Outline of our model As English PAE is a rather rare phenomenon cross-linguistically, investigations of its linguistic properties should preferably not rely on specific properties of the English language, lest we were to postulate that English speakers process syntactic and semantic contents in fundamentally unique ways. Or to put it more succinctly, there should be no specific theory of English VP ellipsis. Besides, familiar issues of maximization of explanatory power, language acquisition and general epistemological parsimony suggest that we should seek unified principled explanations for all the phenomena alluded to above and thus that we should promote our slogan further: there should ideally be no specific theory of meaning recovery and syntactic licensing of elliptical constructions. A much bolder methodological step championed famously in [Chomsky, 1995] would be to stick to what is presumably the null hypothesis when dealing with human natural language unless compelled not to by strong empirical evidence: that linguistics phenomena stem from the interactions of the core computational properties of language with interface conditions. In this manuscript, I describe an attempt to explain the mechanisms involved in recovery of meaning in VP ellipsis and elliptical interrogative sentences in strict adherence to this null hypothesis.

In the formulation first given in section 3.1, our proposal relies on the somewhat pre-theoretical notion of *links*. Two functional heads are in a linking relations either if the uninterpretable features of the first have been valued by the second in an Agree operation or if the first has licensed the second. In situations with specific and language dependent given pragmatics and discourse related properties, insertion of vocabulary items fully specified for ϕ -features at functional heads (which, following [Halle and Marantz, 1993], I take to be late) can be replaced by insertion of underspecified elements; the prototypical examples being the use of pro-forms, clitic pronouns and the situation we have in mind: unpronounced elements. In those cases, we assume that the semantic interpretation of the underspecified elements is provided for by recursive reading of the records kept on functional heads of the links, that is to say Agree and licensing relation, formed in narrow syntax. If no links were formed or if all the linking relations formed lead to a crash at LF, then the derivation crashes; which in the case of elliptical constructions typically leads to a failure of recovery of meaning. Two basic assumptions of the derivation by phases incarnation of minimalist syntax are that probes are merged at designated phase heads and possibly inherited to lower functional heads and that determiner phrases need licensing by Case. These two principles, when properly integrated in our mechanism, impose strong necessary conditions on the ellipsis site and entail precise empirical predictions discussed in section 3.2.

Minimalist reformulation In section 4, we reduce further this mechanism to general computational requirements of narrow syntax and interface conditions. The idea, in a nutshell, is as follows. Under the assumption that functional heads are first merged as bundle of features, the quantity of accessible information they carry is extremely impoverished. Determiner phrases, most especially, belong to a very small number of distinguishable classes. Nevertheless, narrow syntax has to produce arborescent structures legible by the interfaces. The phonological interface imposes the strong requirement that the sub-tree it receives be unambiguously linearizable (the *Linear Correspondence Axiom* of [Kayne, 1994]) and the logical interface probably imposes the requirement that the linking relations formed in narrow syntax respect the θ -grid of the semantic element involved. Hence, the formation of syntactic objects has to resort to means to distinguish functional heads with indistinct formal features and in similar structural positions. We assume that this fundamental role is played by the operation Agree (typically coupled with copying and chain reduction, hence movement, so that the record of the operation is kept beyond narrow syntax). Our fundamental observation is that when two undistinguishable sets of formal features in indistinct positions are being probed by a functional head, the Agree operation with one of them marks both with unique traits. This is obvious for the one which has entered the Agree relation, as its formal features have now moved up the structure, but it is also crucially true of the other one because it is now the only functional head of its kind unambiguously placed in its structural position. We assume that the information sent by a phase head to the interfaces at the point of interfacing of its complement is precisely the information encapsulated by the dual records of the Agree relations functional heads in the phasal domain (including of course itself) have entered in as well as the records of the Agree relations functional heads could have entered in but did not. When one of the functional head is a DP, we take the latter to be nothing but structural Case licensing (this claim is briefly substantiated in section 4.2.2; it is also conceptually close to the definition of DP licensing argued for in [Marantz, 2000, Statement (18)]).

Under these rather minimalist assumptions (both in the usual sense and in the sense of [Chomsky, 1995]), we propose the following mechanism of ellipsis interpretation. We argue that the antecedent initial head is located because it bears a focus feature which is probed by a focus probe merged at the head licensing the ellipsis site and that the syntactic structure of the ellipsis site is then provided by the *recursive* reading on functional heads of the Agree relations they have entered in or could have entered in but did not. Because we take this to be our major theoretical innovation, we restate this point: we do not assume that the ellipsis site contains a strict copy of part of the syntactic structure of the antecedent site but rather that the syntactic material of the ellipsis site is recursively built using the records of probe/goal relations (Agree relations) and topological configurations suitable for the interfaces (hence involving only distinguishable heads; what we called in our pre-theoretic outline licensing relations).

Comparison with other models Compared to other formalization of ellipsis assuming the existence of syntactic material in the ellipsis site, the advantage of our approach is that we are not committed to assume that the syntactic material is a defined sub-tree of the antecedent clause. In one influential such formalization for instance, the lexical theory of ellipsis of [Merchant, 2001] as refined in [Aelbrecht, 2010] by the incorporation of an Agree relation between the licensing head and the E-feature, the syntactic material of the ellipsis site is taken to be a strict copy of the sister of the node where the E-feature triggering ellipsis is merged. By varying the height of the position of this E-feature, this approach can account among other things for the differential voice alternations properties of different elliptical constructions (see [Merchant, 2013]). However, because it requires a strict copy of a sub-tree, it also runs into serious difficulties in trying to account for some aspectual mismatches. For instance, as pointed out in [Aelbrecht and Harwood, 2012], the normal syntactic ordering of aspects in English suggests that the head encoding progressive aspect is higher than the head encoding voice. Because English VP ellipsis requires progressive aspect in the antecedent clause if it purports to elide a clause in the progressive aspect, under this approach there is no choice but to assume that the E-feature is merged strictly above the head encoding voice. But under the assumption that the sister of the E-feature is a strict copy of the antecedent site, this would seem to entail that voice alternations are impossible in VP ellipses contrary to facts. Perhaps more problematically, when the ellipsis site seems to involve *wh*-extraction out of a syntactic island, this extraction has taken place from a full-fledged syntactic tree in the ellipsis site independently of whether this ellipsis site is licensed by a PAE or by a sluiced constructions. However, sluicing and VP ellipsis behave differently in that respect: the

former tolerates *wh*-extraction out of islands while the latter does not (see [Chung et al., 1995] and [Merchant, 2001]). As explained in section 3.2.9 and 4.2.3, because our model relies solely on the reconstruction of the part of the syntactic tree accessible from the licensing head through Agree relations or the lack thereof, it predicts these phenomena: crucially, the reconstruction operation need not reconstruct any specific sub-tree of the antecedent clause and does not start at the same point for a VP ellipsis and a sluiced constructions.

Crucial features of our model A manifest property of the model we have outlined above is that it is narrowly syntactic. Writing about the possibility of such a model to account for the properties of sluicing, S.Chung concludes pessimistically in [Chung, 2013] that “[a]n expanded syntactic identity condition would have to negotiate the difference between well-formed morphological mismatches[...], and illicit mismatches[...]. At this point, two things become clear. First, it might not be possible to formulate a working version of an expanded syntactic identity condition. Second, even if a working condition could be formulated, it would be doing both substantially less and substantially more than one would expect of an identity condition that was purely syntactic.” This statement defines the minimum challenge our model has to face. It has to be able to accommodate, and in fact give empirically superior explanations for, the prominent facts contradicting purely syntactic accounts of ellipsis: aspectual and morphological mismatches, sometimes extreme, and sensitivity to delicate semantic properties (especially in the interpretation of *pro*-form and in the conditions licensing ellipsis). In order to justify our claim that this is possible, we reiterate what we take to be the most important theoretical innovation of our model and the key to several puzzles. Our formalization postulates a built-in asymmetry in the two types of relations involved in the reconstructing of the syntactic material in the ellipsis site: one is positive (the Agree relation) whereas the other is negative (the unambiguous location of a head by lack of Agree relation). This entails strong theoretical predictions on the nature of the isomorphism between the ellipsis and antecedent site (see in that respect section 4.2.3) as well as precise empirical predictions; the simplest one being that whereas positive relations absent from the antecedent clause may be provided by the antecedent head, negative relations cannot be so provided. We claim that this distinction captures the tolerated aspectual mismatches.

The empirical phenomena discussed in this manuscript have been the object of considerable scrutiny and most of the theoretical steps of our model have been proposed elsewhere in the literature. For instance, the role of structural Case in sluicing constructions is the object of [Chung, 2013]: in fact, one of the main theoretical achievement of this manuscript is to recover the two principles of syntactic identity of [Chung, 2013] from core properties of the narrow syntax. Likewise, the articulation of probe/goal relations, chains and semantic recovery in English PAE is discussed in [Aoun and Nunes, 2007]. Nevertheless, our analysis sheds light on some facts which were apparently unnoticed as far as this author knows.³ The attention to the empirically-minded reader is thus particularly drawn to the complementary distribution our model predicts between sluicing and local binding of pronouns (see section 3.2.4), our analysis of Maliseet VP ellipsis (see section 3.2.3) and our explanation of the differential behavior of sluicing and VPE targeting syntactic islands (see section 3.2.9).

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³Which is admittedly not very far.

2 Core data

2.1 Empirical phenomena discussed

The core phenomena we wish to discuss in this manuscript are the following.

- (1) Locality phenomena in antecedent selection.
- (2) Strict identity of meaning between the ellipsis and antecedent site.
- (3) Relative acceptability of PAE with non-verbal antecedent.
- (4) Relative acceptability of sluiced constructions with no overt antecedent.
- (5) Voice and aspectual alternations in PAE and sluiced constructions.
- (6) Differential island repairing properties.

A common trait of several of these phenomena is that they resist being classified as primarily syntactic, semantic or pragmatic in nature: syntactic accounts face, as we mentioned above, the challenge of the immense variation allowed between antecedent and ellipsis site but it is also often the case that sentences with virtually identical semantic content differ sharply in acceptability or that pragmatically natural readings are seemingly automatically barred. Though these phenomena have been the object of enormous interest both in the classical study of the English language and in linguistics itself, we recall in the following the most crucial empirical facts for our account. For an introductory bibliography to the general topic of elliptical constructions and discussions and analyses of the topics of interest in this manuscript, we refer (among many others) to [Chomsky, 1965], [Ross, 1969], [Hankammer and Sag, 1976], [Sag, 1980], [Darllymple et al., 1991], [Rooth, 1992], [Hardt, 1993], [Fiengo and May, 1994],[Chung et al., 1995], [Chomsky and Lasnik, 1995], [Lobeck, 1995], [Lappin et al., 1999], [Ginzburg and Sag, 2000], [Merchant, 2001], [Huddleston and Pullum, 2002], [Kehler, 2002], [Johnson, 2003], [McShane, 2005], [Arregui et al., 2006], [Chung, 2006], [Frazier and Clifton, 2006], [Johnson, 2008], [Kertz, 2008], [Aelbrecht, 2010], [AnderBois, 2011], [Miller, 2011], [Merchant and Simpson, 2012], [Merchant, 2013], [Chung, 2013] and the references cited therein.

2.2 Locality in antecedent selection

English PAE displays an interesting behavior with respect to antecedent selection. In unproblematic cases, it targets the closest tensed verb in the antecedent clause. Hence, the PAE in

- (5) They feel responsible when America b-blow up Vietnamese villages. [· · ·] B-but you don't, and neither does Mother.⁴

necessarily targets *feel* and not the embedded *blows*. However, this general rule is subject to many qualifications. First, as argued (among others) in [Kertz, 2008], [Miller, 2011] and [Miller and Pullum, 2012], PAE are felicitous only either when the target predicate of the ellipsis is potentially subject to a contrastive change in tense, modality, aspect or polarity (the latter being overwhelmingly the most common case in the corpus study of [Miller, 2011]), in which case either the subject of the ellipsis site is identical to the subject of the antecedent site and the auxiliary licensing the ellipsis is usually stressed, or when it contains an open proposition in which case the function of the ellipsis is to provide an alternate referent for this proposition and the subject of the auxiliary is usually stressed (these two cases are respectively called auxiliary focus ellipsis and argument focus ellipsis in [Kertz, 2008] and Aux Focus and Subject Focus in [Miller and Pullum, 2012, Statement (10)] which provides additional formal distinctions). Hence, in (6a) below, the closest predicate cannot be the target of the ellipsis in an unmarked reading, though it presumably can be under heavy stress on the auxiliary as in (6b). Conversely, it must be when the subject of the ellipsis site differs from the subject of the antecedent clause, as in (6c).

- (6) (a) He no doubt thought he knew a good deal about the true religion, but he actually didn't [*think he knew a good deal/know a good deal...].⁵

⁴From *American Pastoral* by P.Roth.

⁵Examples adapted from Chapter XVII of *Moby-Dick* by H.Melville.

- (b) A: He no doubt thought he knew a good deal about the true religion. B: He *didn't!* [think he knew a good deal.../?know a good deal...].
- (c) He no doubt thought he knew a good deal about the true religion, but I didn't [think I knew.../*know...].

Beside, the choice of the antecedent predicate is sensitive both to ϕ -features and to the nature of the auxiliary. For instance, outside of voice alternation, a predication relation mediated by *be* can only be the target of the auxiliary *be* whereas the auxiliary *do* can target any lexical verb. Hence, in (7a) below, the ellipsis target the second tensed verb in descending order of locality because the first predicate relation is ascertained so is not amenable to a switch in polarity, it targets the third in (7b) because of the supplementary condition imposed by auxiliary selection and it targets the third in (7c) because of the condition imposed in addition by ϕ -features compatibility between the antecedent and ellipsis sites.⁶

- (7) (a) He [is]_i said [to be]_j exceedingly proud of his father [ensuring]_k that his brother would [finish]_l college. Yet [he isn't]_{*i/j/*k/*l}, actually.
- (b) He [is]_i said [to be]_j exceedingly proud of his father [ensuring]_k that his brother would [finish]_l college. Yet [he didn't]_{*i/*j/*k/*l}, actually.
- (c) He [is]_i said [to be]_j exceedingly proud of [his mother]_k ensuring that his brother would [finish]_l college. Yet [he didn't]_{*i/*j/*k/*l}, actually.

We also record here the curious fact that PAE can target appositive clauses as in (8) but that sluiced constructions cannot.

- (8) (a) Mary, who doesn't help her sister, told Jane to instead.⁷
- (b) *Joe, who once killed a man in cold blood, doesn't even remember who.

2.3 Strict identity of meaning between the antecedent and ellipsis site

A remarkable feature of the recovery mechanism employed by English VP ellipsis and by sluicing constructions, as in (9a) and (9b) below, is that it seems at first to entail strict identity of meaning.

- (9) (a) Structural Case will play a role in this manuscript though I first doubted it could.
- (b) I believe that structural Case will play a role in this manuscript. Guess which?

Indeed (9a) can only receive interpretation *x* below, to the exclusion of any other interpretation *y*.

- (10) Structural Case will [play a role in this manuscript]_x though I first doubted it could *x*/**y*.

This observation seems to be minimally cross-linguistically robust among languages allowing PAE.

- (11) (a) (Welsh) Prynodd Siôn y llyfr hwn a gwnaeth Mair hefyd.
Bought Siôn the book this and did Mair too.
Siôn bought this book and Mair did [buy a book/*buy a newspaper] too.
- (b) (Maliseet) Skinuhsis ' - kisi- sunhom-on ponapsq; nil-ote -na n-kis -ehtu-n.
Boy 3-PERF paint INAN rock I EMPH 1 PERF TI INAN.
The boy painted a rock, and I did too [paint a rock/*paint a canoe].

Contrary to VP ellipsis, sluicing constructions are common cross-linguistically, see [Merchant, 2001] and [Merchant and Simpson, 2012] (the enunciative situation at least seems universal). For them as well, strict identity of meaning is the norm.

⁶An interpretation of the ellipsis targeting *i* in (7a) is presumably possible in a situation where the first predication could be construed as uncertain; for instance with change of speakers, or marginally across sentences within the same speaker boundary (in both cases with a heavy stress on the auxiliary and with the intent of correcting a mistake).

⁷Examples from [AnderBois, 2011, Examples (34)-(35)].

- (12) (a) (French) Quelqu'un est venu jouer chez nous tout à l'heure. Devine qui [est venu jouer/*est là].
Someone is come played at home earlier. Guess who.
Someone came to our home earlier to play. Guess who [came to play/*is there].
- (b) (Bengali) Jyoti kichu likhechilen, kintu ki [Jyoti likhechilen/*Jyoti kinechilen /*Arijit likhechilen] amar mone nei.
Jyoti something has been writing, but what in my mind is not.
Jyoti wrote something, but I don't remember what [Jyoti wrote/*Jyoti bought /*Arijit wrote.].
- (c) (Japanese) Dare-ka ga kita kedo dare-ka ha [kita/*hashitta] oboeteinai.⁸
Someone came but who remember-PROG-NEG.
Someone came but I don't remember who [came/*ran].

2.4 Verbal ellipsis with non-verbal antecedent

English PAE tolerates non-verbal or even, though in restricted situation, non-linguistically realized antecedents.⁹

- (13) (a) Seeing Alcor with the naked eye in urban area is very hard but Aiden did.¹⁰
- (b) The Boston Zoo cheetah's survival is unclear, but even if it does, it won't be as magnificent as it once was.¹¹
- (c) Annie is a great laugher, and when she does, it's infectious.¹²
- (d) Visiting my brother was part of our plan but in the end we didn't.
- (e) Blucher's timely arrival is held to have been the crucial factor in Napoléon's defeat by many of his admirers. In fact, probably not much much would have changed if he hadn't.
- (f) Controlling yourself under situation of stress is hard even if you have been trained to.
- (g) Him denying the facts surprised me, but he did, so we'll have to present material evidence.
- (h) Obama probably didn't expect Romney's campaign self-annihilating over his remarks at a fund-raiser dinner, but he must have been very happy when it did.

However, a sharp decline in acceptability (or outright ungrammaticality) obtains for close semantic counterparts of these examples.

- (14) (a) *Seeings of Alcor in urban area are very rare but Aiden did.
- (b) *The visit of my brother was part of our plan but in the end we didn't.
- (c) *Self-control under situation of stress is hard even if you have been trained to.
- (d) *His denying of the facts surprised me, but he did, so we'll have to present material evidence.

Sluiced constructions also exhibit sensitivity to nominalization. Hence the sentences

- (15) (a) (French) Je suis en train de rédiger quelque chose, mais je ne sais pas encore quoi.
I am in redact-PROG something, but I know not yet what.
I am writing something but I don't yet know what.
- (b) (Spanish) Estoy redactando algo, pero no sé qué.
Being redact-PROG something, but not know what.
I am writing something but I don't yet know what.

are fine whereas their nominalized counterparts are ill-formed if a preposition is omitted.

⁸[Merchant, 1998] argues convincingly against the identification of Japanese apparent sluices with sluicing. The relevance of Japanese examples is explained in section 4.2. Until then, the reader can safely ignore them.

⁹See [Miller and Pullum, 2012] for examples of the latter.

¹⁰Adapted from [Arregui et al., 2006, Example (9)].

¹¹Adapted from [Miller and Pullum, 2012, Example (8)]

¹²Adapted from *You'll never eat lunch in this town again* as quoted in [Hardt, 1993, Example (111)].

- (16) (a) (French) Je suis en plein dans la rédaction de quelque chose, mais je ne sais pas encore *(de) quoi.
I am in the middle in the redaction of something but I know not yet what.
- (b) (Spanish) Estoy en la redacción de algo, pero todavía no sé *(de) qué.
Being in the redaction of something, but yet not know what.

Both variants are fine in English.

- (17) (a) I am writing something but I don't yet know what.
(b) I am immersed in the writing of something but I don't yet know what.

2.5 Sluicing without overt antecedent

This section is in some sense the counterpart for sluicing of the previous one for verbal ellipsis. In some situations, sluicing can very well tolerate a complete absence of overt antecedent. Consider:

- (18) (a) They found a car but they wouldn't say whose.
(b) (Russian) Natacha vidit avtomobil no ia ne znau tchey.
Natacha sees car but I not know who-GEN.
Natacha sees a car but I don't know whose.
(c) Naïm played all afternoon. Guess who with?
(d) (French) Nathanaël a réussi à ouvrir la boîte. Je me demande comment.
Nathanaël has managed to open the box. I me ask how.
Nathanaël has managed to open the box. I wonder how.
(e) He didn't know why, but they made him uneasy.¹³
(f) She's reading but I don't know what.¹⁴

2.6 Aspectual mismatch

As is well-known, the verbal aspects of the antecedent and ellipsis site do not have to match, though the exact extent of the possible variation is somewhat hard to ascertain.

- (19) (a) "I swear, the things she says, she's going to drive me crazy." "Maybe she has already."¹⁵
(b) "I swear, the things she says, she's driving me crazy." "Maybe she has already."
(c) *"I swear, the things she says, she's driven me crazy." "Maybe she is right now."
- (20) (a) "You're meeting Hermione Granger? Today?"
"Yeah. Well, she asked me to, so I thought I would."
(b) *"You will meet Hermione Granger? Today?" "Yeah. I thought I would be."

As (19) and (20) (repeated from (2)) indicate, PAE can very well accommodate shifts from lexical verbs or progressive form to past participial form as well as progressive form to lexical verb yet it does not tolerate shifts from a non-progressive form to progressive form. Of course, it tolerates perfectly well the progressive form in the ellipsis site provided it is present in the antecedent clause. Likewise, sluicing constructions tolerate some aspectual mismatches but not other.¹⁶

- (21) (a) Decorating for the holidays is easy if you know how.
(b) I remember meeting him, but I don't remember when.
(c) *Having to compromise is inevitable, but they have no idea who.
(d) *The message said to show up in the square at midnight, but it didn't say who.

¹³From chapter I of *Harry Potter and the Philosopher's Stone* by JK.Rowling.

¹⁴From [Chung, 2013, Example (85)].

¹⁵From *You've been warned* by J.Patterson and H.Roughan.

¹⁶Examples quoted from [Chung, 2013, Examples (55) and (56)] where some are attributed to J.Merchant.

2.7 Voice mismatch

Voice mismatch refers to a mismatch between the voice of the antecedent site and the putative voice of the ellipsis site. Restricting ourselves to English for the moment, the three elliptic constructions we consider (auxiliary focused PAE, subject focused PAE and sluicing) and the two potential directions of mismatch (active or passive antecedent clause) give rise to a six-way typology.

Voice mismatch is possible in a large array of situations for auxiliary focused PAE. Sentences (22a) and (22b) below are examples of active antecedent with passive ellipsis site and passive antecedent with active ellipsis site respectively.

- (22) (a) We also use the xpdf package in our examples, so you may want to install that now if it isn't already.¹⁷
(b) This problem obviously had never been solved properly before and yet somehow we did.¹⁸

Voice mismatch for subject focused PAE leads to ungrammaticality.

- (23) (a) *Jackson denied the charges but they weren't by Olivia.¹⁹
(b) *This problem was looked into by Sophia, and then Emma did.²⁰

Active to passive mismatches in sluicing are cross-linguistically impossible (see [Merchant, 2001], [Merchant, 2013] and [Chung, 2013] and the references therein), as shown for instance in (24) below.

- (24) (a) Someone ate all the chocolate cake, but we don't know (*by) who.
(b) (French) Quelqu'un a rédigé cet article mais je ne sais pas (*par) qui.
Someone has written this article but I not know (*by) who.
Someone has written this article but I don't know (*by) who.
(c) (German) *Erika hat jemanden ermordet, aber sie wissen nicht, wer.²¹
Erika has someone murdered but they know not who-NOM.
(Intended) Erika murdered someone, but they don't know who.

Passive to active mismatches seem at first glance possible in English, but only if an overt *by*-phrase is present.

- (25) (a) I think he was killed *(by someone), but I don't know who or why.²²
(b) There is a collection of applets at <http://www.stat.duke.edu/sites/java.html> that have been compiled *(by someone), but I don't know who.²³
(c) The "See Spot Run" books that people of several generations grew up with are owned *(by someone), but I don't know who.²⁴

In French, the grammatical judgment is delicate. As in English, the presence of an overt *by*-phrase is a necessary condition for grammaticality.

- (26) (French) Cet article a été écrit *(par quelqu'un) mais je sais plus qui.
This article has been written *(by someone) but I know not anymore who.
This article has been written *(by someone) but I don't know anymore who.

However, even if this condition is met, not all native speakers consider (26) grammatical, with the variant

- (27) (French) Cet article a été écrit par quelqu'un mais je sais plus par qui.
This article has been written by someone but I know not anymore by who.
This article has been written by someone but I don't know anymore by who.

¹⁷Example from [Merchant, 2013, Example (1j)] where it is credited to J.McCloskey.

¹⁸Adapted from [Merchant, 2013, Example (2e)].

¹⁹Adapted from [Sag, 1980, Example (17)].

²⁰Adapted from [Merchant, 2013, Example (2e)].

²¹From [Merchant, 2013, Example (6)]

²²From *Mother Jones* December 1976 *The Professor Who Went Out In The Cold*.

²³From <http://www.uvm.edu/~dhowell/SanAntonio/BestPracticesFinal.html> accessed 12/03/2012.

²⁴From <http://www.fanfiction.net/s/1678901/1/See-Spike> accessed 12/10/2012.

considered much better. Among the 9 native speakers I surveyed, 7 considered (27) as perfectly acceptable, among which 5 considered (26) as a grammatical spoken utterance at least. One judged both (26) and (27) equally marginally acceptable and one even preferred (26) to (27). Because of this heterogenous judgment, I will refer to the variant of French seemingly tolerating mismatch as spoken French and to the other as written French or simply as French.

Written French then pairs with German or Spanish in rejecting passive to active alternations even in the presence of an overt *by*-phrase, as purported literal translations of (25) show.

- (28) (a) (German) *Er wurde von jemandem ermordet aber ich weiss nicht wer oder warum.
 (b) (Spanish) Hay una colección de applets en <http://www.stat.duke.edu/sites/java.html> que ha sido recopilada por alguien, pero no sé *(por) quién.
 (c) (French) Les livres “See Spot Run” avec lesquels des gens de plusieurs générations ont grandi sont possédés par quelqu’un mais je ne sais pas *(par) qui.

2.8 Island repair

In [Ross, 1969], it was noted that sluiced constructions can sometimes *wh*-extract out of what would be an island in a non-elliptical sentence (see [Chung et al., 1995] and [Merchant, 2001] for extensive discussions).²⁵

- (29) (a) *Which language do they want to hire [someone who speaks]?
 (b) *They want to hire someone who speaks a Balkan language but I don’t know which Balkan language they want to hire someone who speaks.
 (c) They want to hire someone who speaks a Balkan language but I don’t know which.

This phenomenon is at least minimally robust cross-linguistically, as the French and German counterparts of (29) show.

- (30) (a) *Quelle langue veulent-ils recruter quelqu’un qui parle ?
 (b) *Ils veulent recruter quelqu’un qui parle une langue balkanique mais je ne sais pas quelle langue balkanique ils veulent recruter quelqu’un qui parle.
 (c) Ils veulent recruter quelqu’un qui parle une langue balkanique mais je ne sais pas laquelle.
- (31) (a) (German) *Welche balkanische Sprache wollen sie jemanden anstellen, der spricht.
 (b) (German) *Sie wollen jemanden anstellen, der eine balkanische Sprache spricht, aber jetzt erinnere ich mich nicht welche balkanische Sprache wollen sie jemanden anstellen, der spricht.
 (c) (German) Sie wollen jemanden anstellen, der eine balkanische Sprache spricht, aber jetzt erinnere ich mich nicht welche.

Interestingly, the antecedent-locating mechanism discussed in 2.2 is sensitive to the putative presence of an island in the ellipsis site. Absent any obstacle, we should expect the PAE in (32) to target the closest tensed verb *hire* but contrary to expectations it targets *speaks*.

- (32) They want to hire someone who speaks a Balkan language but I don’t know which Ben does [speak/*want to hire someone who speaks].

Perhaps surprisingly, Japanese sluiced constructions are sensitive to islands; a fact which is taken to be a major argument against classifying them as genuine sluicing in [Merchant, 1998].

- (33) (a) (Japanese) *Taroo-ga Hanako-ga nanika-o katta kara okotteiru rasii ga, watashi-wa nani ka shiranai.
 Taroo-NOM Hanako-NOM something-ACC bought because is-angry seems but I-TOP what Q know-NEG.
 (Intended) It seems that Taroo is angry because Hanako bought something, but I don’t know what.

²⁵All examples in this subsection are from J.Merchant.

- (b) (Japanese) *Hanako-ga Taroo-ni nanika-o ageta hito-ni atta sooda ga, watashi-wa nani ka shiranai.
 Hanako-NOM Taroo-DAT something-ACC gave person-DAT met is said but, I-TOP what Q know.not.
 (Intended) I heard that Hanako met a person who gave Taroo something, but I don't know what.
- (c) (Japanese) Taroo-ga Hanako-ga nanika-o katta toyuu uwasa-o sinjiteiru ga watashi-wa nani ka shiranai.
 Taroo-NOM Hanako-NOM something-ACC bought C rumor-ACC believe but I-TOP what Q know-NEG.
 (Intended) *Taroo believes the rumor that Hanako bought something, but I don't know what.

3 A minimalist framework of inquiries

3.1 Fundamental assumptions

In this section, we outline a formal model for semantic recovery of syntactic elliptical constructions.²⁶ For reasons of conceptual clarity, we chose to present in details a theoretical implementations of this model within strict minimalist theory, though it is presumably amenable to various theoretical implementations. The reader more interested in its concrete specifications and its empirical predictions is therefore advised to proceed directly to section 3.1.2 and to come back to section 3.1.1 only if necessary.

3.1.1 Standard minimalist assumptions

Within a minimalist perspective, admissible syntactic explanations of the facts discussed in section 2 are in fact quite limited in number and nature, as syntactic dependencies between syntactic objects are limited to the applications of Merge (internal and external), and Agree. Besides, natural consideration of empirical efficiency and parsimony require that explanations be based on independently motivated mechanisms; the appeal to properties specific to ellipsis being on the contrary ideally reduced to the bare minimum. We propose a reduction of the properties of semantic recovery in verbal ellipses based on the following principles, all independently motivated.

- (34) Syntactic objects are built using only the operations external Merge, internal Merge and Agree.
- (35) Functional heads are assumed to be first merged as bundle of formal features and to undergo late vocabulary insertion.
- (36) Functional heads with unvalued features (probes) trigger the action of the operation Agree, which is taken to be the copying of the valued features of a lower head (goal) subject to standard locality conditions. The two copies of the formal features are referred to as a chain.
- (37) Movement is the combination of Agree and internal Merge (possibly followed by chain-reduction at the interfaces).

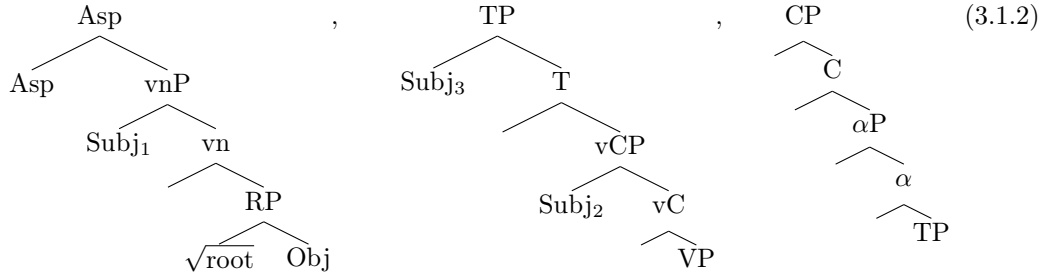
These assumptions are standardly held to be at the core of the derivation by phases incarnation of the minimalist program. See [Chomsky, 1999, Chomsky, 2001, Chomsky, 2008] for assumption (34); [Halle and Marantz, 1993] for assumption (35) and [Nunes, 2004, Miyagawa, 2009] for assumptions (36) and (37). Of course, these assumptions remain rather useless if they aren't supplemented with a description of the architecture of a sentence specifying which functional heads are probes and for which features.

- (38) The formal structure of a simple active transitive sentence is taken to be as follows:

$$[_{CP}[_{\alpha P}[_{TP}[_{vCP}[_{AspP}[_{vnP} \text{ Subject } [_{RP} \text{ Root Object}]]]]]]]]] \quad (3.1.1)$$

²⁶We add the word syntactic because we surely don't want to assume that the whole range of elliptical constructions in all human languages proceed along these lines. In first approximation, those which do so probably correspond to the constructions called surface anaphora in [Hankammer and Sag, 1976].

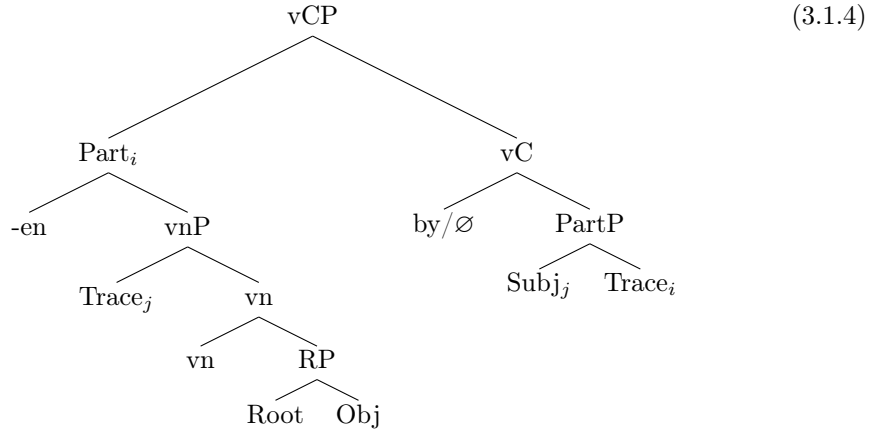
In particular, the arborescent structures of the complement VP of vC (before the subject raises to the specifier of Asp), of the tensed phrase TP (where the $Subj_j$ indicate the landing sites of the subject in a normal SVO order) and of the part of the left periphery relevant to our purpose are respectively as in (3.1.2) below.



- (39) The formal structure of an English passive sentence is taken to be achieved from (3.1.3) by remnant movement of Obj to the specifier of T.

$$[TP[vCP[Part -en [vnP Trace_j [RP Root Object]]]]_i [by/\emptyset [PartP Subj_j Trace_i]]] \quad (3.1.3)$$

The corresponding arborescent structure before merging T and remnant movement of Obj is (3.1.4).



- (40) The formal features intervening are taken to be ϕ -features and focus. The former minimally contains person, number, gender or class and animacy while the latter might be limited to a bivalent \pm focus feature.
- (41) The functional heads C and vC are assumed to be phase-heads and to be first merged with ϕ -features probes. In addition, the C head is first merged with focus probes.
- (42) Subject to parametric variation, lower heads can inherit probes from C and vC. We assume that this is standardly the case for T and vn.
- (43) Prepositional phrases can optionally be a phase (subject to parametric variation).

The presence of a functional head vn bearing a ϕ -feature probe first merged before the subject and that of an aspectual head between vC and vn are probably our most non-standard hypothesis. The framework outlined in 3.1.2 does not depend on it so it can be safely ignored or replaced by the reader favorite format for the v phase. However, it turns out to be crucial for the reduction of our proposal to interfaces effect in section 4.2.2. We borrowed the notation from [Rouveret, 2012, Statement (19)] where it is postulated for Celtic languages for largely independent reasons. That there exists a head bearing ϕ -features below the first merging site of the external argument is also postulated in [Béjar and Rezac, 2009] (see especially the remark after (16)) in order to explain Agreement displacement phenomena. I also take this to be the position of [Roberts, 2010], as the external argument is assumed there to be merged above the head triggering direct object cliticization in Romance and because it is coherent with the general logic of this book: as direct object may cliticize to verb-noun in Welsh, the theory of cliticization developed in [Roberts, 2010]

implies that verb-nouns bear ϕ -features probes. The cautious reader may also wish to consider our format for the first phase as a simplifying abstraction: it seems for instance likely to us that there might be several non-lexical heads between *vn* and *vC*, one of them aspectual and another applicative but as nothing in our proposal depends on this, we abstract away from this finer distinction. The derivation of the passive clause is modeled on the smuggling derivation of [Collins, 2005] (we note that [Den Dikken, 2006, Section 2.7.1] apparently independently outlines a formally equivalent derivation up to terminology).

In this second set of assumptions, we still mostly follow standard minimalism formalism, the most noteworthy differences being in what we do *not* assume. In particular, we do not postulate that movement can be triggered by Extended Projection Principle satisfaction in the absence of an Agree relation and we do not assume an unvalued Case (or tense, in the formalism of [Pesetsky and Torrego, 2004]) feature on DP. Though the fact that we are not assuming this turns out to be crucial in 4.2, for the moment, the reader is advised to do *as if* we had assumed in addition the following:

- (44) DP are first merged with an unvalued Case feature. The valuation of this Case feature by T, *vC* is called structural Case assignment. Case assignment by PP is called prepositional Case assignment.

3.1.2 Links

In this section, we introduce the core notion underlying our proposed mechanism for semantic recovery. We say that two functional heads in a derivation are linked if one has raised (overtly or covertly) or incorporated to the other in the course of the derivation or if one has licensed the other. Two functional heads are in a linking relation if there exists a series of links between them. Hence, in (44) (all versions) below, the functional heads *Zéphyr* is linked to the T head *-s* or *-eut* because the latter has licensed the former by assigning it nominative structural Case. The T head itself is linked to the *vC* head by the covert movement of *v* to T in (44a) and overt movement in (44b), which is linked to the infinitival *to give* or *donner*, which is linked to *doll* or *poupée* by structural accusative Case assignment and to the PP *to Anouk* or *à Anouk* because it has licensed it. The DP *Anouk* in (44a) is in a linking relation with the DP *Zephyrvia* <Zephyr,-s,want,to give,a puppet,to,Anouk>.

- (44) (a) Zephyr wants to give a doll to Anouk.
 (b) (French) Zéphyr veut donner une poupée à Anouk.

Note that the existence of a link between two functional heads presupposes that movement from one to the other or licensing of one by the other has taken place. Hence, linking relations obey the standard locality constraint on movement and Case assignment. We assume that links are formed in the narrow syntax, and so crucially before lexical insertion at functional heads, and that when an elliptical utterance licensed by a head *h* and with antecedent head *a* is encountered, the linking domain of *a* is copied on *h*. At the point of vocabulary insertion, the semantic recovery of the ellipsis site is provided for by the lexical items inserted at the links of the linking domain being copied.

Consider first the case of English PAE. The head *h* licensing the ellipsis site is then a tensed auxiliary or *to*. What is the antecedent head being probed? At first glance, it would seem natural to assume that this is also a tensed verb, hence a T, but the existence of the temporal and aspectual mismatches of section 2.7 as well as the much striking phenomenon of non-verbal antecedent as in section 2.4 precludes this choice. On the other hand, the close identity of meaning between the antecedent and the ellipsis site certainly extends to identity of direct or indirect objects as in (9a) (and likewise for (11a) and (11b)). If our fundamental mechanism is sound, this implies that one of the links being copied on the licensing head is the links formed in narrow syntax between a transitive verb and its direct object or between a prepositional verb and its indirect object. Hence, the antecedent of a PAE targeting a transitive verb must be strictly below T and above *vC*. We thus take the antecedent head to be *vC* in this situation. Unergative and unaccusative verbal clause might lack a *vC* head. Consequently, we tentatively assume that PAE targeting unergative or unaccusative verbs select a *vn* as antecedent head. Finally, we treat as a matter of stipulation that PAE licensed by *be* target in priority the auxiliary *be* but may target a *vC* if no auxiliary *be* is to be found. A question that remains unanswered in the preceding discussion is how exactly the licensing head locates the antecedent head. We defer

our discussion of this important point to section 4.1 and satisfy ourselves for the moment with reiterating the observation of section 2.2: the antecedent head is the closest available one.

In the case of a sluiced construction, the licensing head is a *wh*-word and the antecedent is typically an underspecified (or indefinite) DP though the discussion of section 2.5 implies that it could be any underspecified functional head. Again, we refer to section 4.1 for a specific proposal in how the antecedent is located.

As discussed below, the fact that in both cases the head licensing the ellipsis site has to be able to enter a linking relation whose first link is the antecedent head for the construction to obtain a semantic interpretation imposes strong necessary conditions on the licensing head. In the next section, we discuss the empirical and theoretical predictions these mechanisms entail. For a speculative further reduction to core computational properties and interface conditions, see section 4.2 below.

3.2 Empirical predictions

3.2.1 Basic cases

We check that the mechanism of section 3.1 makes the correct judgment of grammaticality for fundamental examples. Sentences (45) below are straightforward application of the theory to VP ellipsis whereas sentences (46) cover the basic cases of sluices.

- (45) (a) [T]he bookbinder's Quarto volume in its dimensioned form does not preserve the shape of the Folio volume, but the Octavo volume does.
 (b) (Welsh) Prynodd Siôn y llyfr hwn a gwnaeth Mair hefyd
 Bought Siôn a book this and did Mair too.
 (c) (Maliseet) Skinuhsis ' - kisi- sunhom-on ponapsq; nil-ote -na n-kis -ehtu-n.
 Boy 3 PERF paintTI NAN rock EMPH also 1 PERF TI INAN

In each case, the auxiliary licensing the ellipsis site is non-distinct from the auxiliary licensing an active transitive verb, so one is searched in the antecedent clause. The antecedent verb bears the recording of having assigned structural Case to a direct object, so the link $\langle vC, Obj \rangle$ is copied on the T on the licensing head, yielding the correct interpretation.

- (46) (a) I believe that structural Case will play a role in this manuscript. Guess which?
 (b) (French) Quelqu'un est venu jouer chez nous tout à l'heure. Devine qui.
 Someone-NOM came at our home earlier. Guess who.
 (c) (Bengali) Jyoti kichu likhechilen, kintu ki amar mone nei.
 Jyoti something-ACC wrote, but what in my mind is not.
 (d) (Japanese) Dare-ka ga kita de mo dare-ka ga oboteinai.
 Someone-NOM came but who-NOM I don't remember.

In each case, the *wh*-word looks for an underspecified antecedent *a* in the antecedent clause. For the licensing *wh*-word to form a link with a functional head linked to *a*, it is necessary that it has been assigned non-distinct structural Case. In that case, the antecedent is the tail of a linking relation $\langle vC, Obj \rangle$ or $\langle T, Subj \rangle$ which may be copied on the *wh*-word, yielding the correct interpretation.

3.2.2 Non-verbal antecedent

Setting aside covert movement and incorporation, the fundamental claim made in section 3.1 is that a linking relation can be formed only when each of its items licenses or is licensed by the previous one. The ellipsis site of the VP ellipsis of a transitive verb can thus contain a direct object only if the head licensing it records a copy of a link $\langle vC, Obj \rangle$ and thus only if one was built in the antecedent clause. This in turn is possible only if structural Case was assigned to a direct object in the antecedent clause. Likewise, because the *wh*-word introducing a recoverable sluiced construction has to be a link, sluice constructions require the existence of a non-distinct link in the antecedent clause. This gives an independently motivated account for the (un)grammaticality of (13f) to (16b) repeated here.

- (47) (a) Controlling yourself under situation of stress is hard even if you have been trained to.

- (b) Visiting my brother was part of our plan but in the end we didn't.
- (c) (French) Je suis en train de rédiger quelque chose, mais je ne sais pas encore quoi.
- (d) (Spanish) Estoy redactando algo, pero no sé qué.
- (e) *Self-control under situation of stress is hard even if you have been trained to.
- (f) *The visit of the Empire State Building is highly recommended, yet we didn't.
- (g) (French) *Je suis en plein dans la rédaction de quelque chose, mais je ne sais pas encore quoi.
- (h) (Spanish) *Estoy en la redacción de algo pero todavía no sé qué.

Pair of verbs whose nominalized forms have similar morphological appearance provide good empirical test to distinguish between link-based and morphology-based explanations of licit VP ellipses with non-verbal antecedent.

- (48) (a) Him denying the facts surprised me, but he did, so we'll have to present material evidence.
- (b) *His denial of the facts surprised me, but he did, so we'll have to present material evidence.
- (c) The Boston Zoo cheetah's survival is quite surprising. I feared it wouldn't.
- (d) Blucher's timely arrival is held to have been the crucial factor in Napoléon's defeat by many of his admirers. In fact, probably not much much would have changed if he hadn't.
- (e) Loathing yourself won't do you any good, so don't.
- (f) *Self-loathing won't do you any good, so don't.
- (g) Obama probably didn't expect Romney's campaign self-annihilating over his remarks at a fund-raiser dinner, but he must have been very happy when it did.

Despite their similar morphology, (48b), (48c) and (48d) differ sharply in acceptability due to the fact that *survive* and *arrive* do not assign structural Case, so that no link is required to interpret the ellipsis, whereas *deny* does. A link is thus required to recover the meaning of (48b) but none is to be found in the antecedent site. Likewise, the crucial distinction between (48e) and (48f) is that Case is assigned in the antecedent clause of the former while it is not in the antecedent clause of the latter. Finally, in (48g), no link is required for recoverability of the ellipsis because the relevant verb is *self-annihilate*, which, in contrast with *loathe*, is intransitive despite its meaning and morphology. So no link is required in the antecedent clause either.

3.2.3 Structural versus inherent Case

Link formation reflects structural, not inherent, Case assignment so we should expect sluiced construction to exhibit a degree of sensitivity to this distinction. This is borne out, as the two empirical phenomena below indicate.

Maliseet displays a surprising asymmetry in the kind of PAE it allows which follows from the role of Case assignment properties in our model. Transitive verbs in Maliseet can be constructed in two different ways depending on whether their direct object is animate or not. In the first case, the direct object is assigned structural Case whereas in the second, structural Case is apparently not assigned, as can be seen from the appearance of the particle *-l* and the suffix *-ol* glossed as OBV below.

- (49) (a) (Maliseet) Skinuhsis ' - kisi- sunhom-on ponapsq.
Boy 3 PERF paint TI INAN rock.
The boy painted a rock.
- (b) (Maliseet) Skinuhsis ' - kisi- sunh -a -l amsqocephkan -ol.
Boy 3 PERF paint TA DIR OBV doll OBV.
The boy painted a doll.

Consequently, no link can be formed when the direct object is animate and so no VP ellipsis should be able to target animate direct object. This prediction is apparently borne out, as Maliseet seems to allow for ellipsis when the object of the transitive verb is classified as inanimate, as in (11b) repeated as (50) below

- (50) (Maliseet) Skinuhsis ' - kisi- sunhom-on ponapsq; nil-ote -na n-kis -ehtu-n.
The boy painted a rock, and I did too.

but not when the object is classified as animate, as in (51) below.

- (51) (Maliseet) *Skinuhsis ' - kisi- sunh -a -l amsqocephkan -ol; nil-ote -na n- kis- ehl -a.
The boy painted a doll, and I did too.

Likewise, in a language where T does not assign structural Case to the grammatical subject, sluicing of the subject should be impossible (and presumably local binding of pronouns should be possible, see section 3.2.4 below). This can happen for instance when the grammatical subject is probed by a head higher than T which does not assign Case. Kinande would be an interesting language to study from that point of view. According to [Miyagawa, 2009, Section 4.2], sentences in Kinande may sport a head α P higher than T which does not assign Case and may inherit a focus probe and ϕ -feature probe from C, and thus may attract any element provided it is in focus. When this head occurs, verbal agreement is with the DP occupying its specifier. When this head does not occur, T inherits the ϕ -feature probe so T probes the grammatical subject which raises to its specifier, triggers verbal agreement and is assigned structural Case. These two possibilities are illustrated below by (52a) and (52b) respectively, whereas (52c) shows that in the absence of α P, agreement has to be with the grammatical subject.

- (52) (a) (Kinande) Esyongoko si-kagula bakali.
Women AGR(chickens)-buy AUG-chickens.
Women buy chickens.
(b) (Kinande) Iyondi yo u-kandigula esyongoko?
Who AGR(women)-will buy AUG-chickens?
Who will buy chickens?
(c) (Kinande) *Iyondi yo si-kandigula esyongoko?
Who AGR(chickens)-will buy (AUG-)chickens?
Who will buy chickens?

From the point of view of link-formation, these two situations are extremely different, so sluicing constructions are also predicted to differ sharply; the simplest prediction being that the grammatical subject can be sluiced only when it raises to T and so only when α P does not appear. This prediction would seem to be borne out (if tautologically), since the element triggering verbal agreement necessary receives a definite interpretation when it raises to the specifier of α P (it also necessarily has to sport the so-called augment vowel glossed as AUG above in that case). As no underspecified element can occur as specifier of α P, no specifier of an α P construction can enter a sluice construction, as predicted. Conversely, in the absence of α P, an underspecified DP can trigger verbal agreement and receive structural Case, as in (53) below.

- (53) (a) (Kinande) Omulongo ogo bakali bakagulako esyongoko.
Village where women AGR(women)-buy AUG-chickens.
The village where women buy chickens.
(b) (Kinande) Omulongo ogo ngoko sikagulako bakali.
Village where women AGR(chickens)-buy AUG-chickens.
The village where women buy chickens.

Our framework predicts that such relative constructions could enter in sluice-like constructions. However, due to my lack of further knowledge and data about Kinande, I am unable to assess this prediction.

3.2.4 Complementary distribution with pronoun binding

Because the link formation mechanism considered is conceptually very close to the one considered in [Reuland, 2011] to account for the binding of pronouns and anaphoras and because binding of a pronoun is not possible when a link is formed, a complementary distribution between grammatical binding and recoverability of ellipsis should obtain. This prediction is borne out.

- (54) (a) Alan Greenspan_i often speaks about him_{*i} in a flattering way.
 (b) He often speaks about someone but I don't know who.
- (55) (a) (French) Alain Delon_i parle souvent de lui_i de manière flatteuse.
 Alain Delon speaks often of him of manner flattering.
 Alain Delon often speaks about himself in a flattering way.
 (b) (French) Il parle souvent de quelqu'un mais je ne sais pas *(de) qui.²⁷
 He speaks often about someone but I know not (of) who.

The contrast between the unacceptable (54a) and the acceptable (55a) implies that a link $\langle vC, PP \rangle$ but no linking relation $\langle vC, PP, Obj \rangle$ is formed between the vC of the intransitive verb *parle* and the indirect object *lui* whereas a linking relation $\langle vC, PP, Obj \rangle$ is formed between the vC of the intransitive verb *speak* and the indirect object *him*; a fact that can independently be predicted from section 4.2 once remembered that PP is a phase in French but not in English. When the *wh*-word *qui* looks for an antecedent in (55b) in the absence of the preposition *de*, it has to look for one sporting nominative or accusative case, as *qui* itself is licensed by one or the other, so it looks for an underspecified DP having been assigned Case by a T or a vC . But the link on T leads to an interpretation of *qui* as questioning the subject and so to a crash at LF since the subject is a specified referential expression while vC heads no link as the vC in *parle* does not assign structural Case. Because no other link is formed, no other derivation is possible and the sentence crashes. When the *wh*-word *who* looks for an antecedent in (54b), the first derivation crashes for the same reason but an alternative derivation relying on the link $\langle speak, PP, Obj \rangle$ is possible, which produces the correct interpretation. Finally, in (55b) in the presence of the preposition *de*, *qui* bears the record of having its uninterpretable tense feature being checked by the preposition *de*, so the antecedent-searching mechanism restricts its search to an underspecified DP whose uninterpretable features have been checked by an identical PP (and bearing non-distinct ϕ -features).

Conversely, the sluicing of the direct object of a transitive verb should not be possible when no link is formed between the direct object and vC on the verb, this is to say when vC does not assign structural accusative Case. This fact can be independently established by the possibility of local binding of pronouns: the acceptability of the local binding of a pronoun in a transitive sentence should imply the impossibility of the corresponding sluiced sentence. Hence, from the acceptability of

- (56) (Frisian) Willem_i wasket him_i.
 Willem washes him.
 Willem washes himself.

in Frisian, the unacceptability of the Frisian equivalent to

- (57) Willem washed someone but I don't know who.

is predicted. This prediction seems to be borne out, as sluicing constructions in Frisian are actually analogous to cleft constructions (see [van Craenenbroeck, 2004]); therefore, firstly, lacking accusative Case and, secondly, requiring the extra demonstrative *dat* (the second property following from the first one within our framework if recoverability is to be maintained).

- (58) (Frisian) Ik haw in boek fan Jan liend. Hokker boek (*dat)?²⁸
 I have a book from John borrowed. Which book *(that)?
 I have borrowed a book of John. Which book *(that was)?

3.2.5 Argument structure alternations in sluicing

This topic is extensively discussed in [Merchant, 2013] and [Chung, 2013]; the latter work concluding as in this manuscript that Case plays a crucial role in the specification of the syntactic identity requirement allowing sluicing. We refer the reader to these works for general investigation of the topic and concentrate in this section on the interactions of the core facts with

²⁷The grammatical judgment reported here is that of written French. See section 3.2.8 for a refined analysis which lends further empirical confirmation to our proposal.

²⁸Example from [van Craenenbroeck, 2004, Example (151c)].

our framework. The basic tenet of section 3.1 is that the links required for interpretation of the ellipsis site are formed by copy of similar links in the antecedent site. This entails a strong form of syntactic identity in the sluice of homophonous verbs with distinct argument structures. Consider the following sentences.²⁹

- (58) (a) (French) *Roméo a passé la soirée d’hier à draguer sous mes yeux, mais je n’ai pas pu voir qui.
Romeo has passed the night of yesterday to court under my eyes but I have not seen who.
- (b) (French) Roméo a passé la soirée d’hier à draguer quelqu’un sous mes yeux, mais je n’ai pas pu voir qui.
Romeo has passed the night of yesterday to court someone under my eyes but I have not seen who.
Romeo spent yesterday’s night flirting before my own eyes but I couldn’t see who.
- (c) *Romeo has been flirting all night before my very eyes, but I couldn’t see who(m).
- (d) Romeo has been flirting all night before my very eyes, but I couldn’t see with who(m).

In the unacceptable (58a) and (58c), the verbs *draguer* and *flirt* have not assigned Case to a direct (or indirect) object so no link was formed in the antecedent site. Hence, no link can be formed in the ellipsis site and recovery is impossible. From this point of view, the acceptability of (58d) might seem surprising, as might more generally be the acceptability of sluiced constructions with no overt antecedent as in (18) repeated below as (59).

- (59) (a) They found a car but they wouldn’t say whose.
- (b) (Russian) Natacha vidit avtomobil no ia ne znau tchey.
Natacha sees car but I not know who-GEN.
Natacha sees a car but I don’t know whose.
- (c) Naïm played all afternoon. Guess who with?
- (d) (French) Nathanaël a réussi à ouvrir la boîte. Je me demande comment.
Nathanaël has managed to open the box. I me ask how.
Nathanaël has managed to open the box. I wonder how.
- (e) He didn’t know why, but they made him uneasy.

How can the *wh*-word licensing the sluiced construction enter a link, as required by our formalism, in the absence of an antecedent? In fact, it should be remembered that according to assumption (35), links are formed in narrow syntax so crucially before vocabulary insertion at functional heads. In a cartographic approach (see for instance [Cinque, 2002, Rizzi, 2004]), at the point of link formation, there is thus no difference between a syntactically realized but ultimately empty functional head and a functional head which will be overtly filled. Hence, we expect that sluicing constructions could in principle target the empty functional heads described in the cartographic approach, and indeed they can do so. But from this perspective, it is not anymore the acceptability of (59) which is surprising, but rather again the fact that

- (60) (a) *Romeo has been flirting all night before my very eyes, but I couldn’t see who(m).
- (b) (French) Ils ont trouvé une voiture mais ils n’ont pas dit celle de qui/*de qui/*qui.
They have found a car but they not have said that of who/*of who/*who.
They have found a car but they wouldn’t say whose.

is not. Why should the *wh*-word be forced to rely on the overt *with* or *celle de* to enter a chain instead of being able to enter one with the empty functional head of the antecedent by itself? Of course, we could decree, for instance in a refined form of assumption (44), that structural Case allows a *wh*-word to enter a link in itself whereas prepositional Case requires in addition an overt Case assigning preposition but this would be purely assuming the problem away. We thus defer this discussion to section 4.2.

²⁹Presumably uttered by Rosaline.

3.2.6 Sluicing with multiple remnants

The recovery mechanism we consider also imposes necessary conditions on sluices with multiple remnants: in order for the meaning to be unambiguously recoverable, it is necessary that a single link be copied on the *wh*-word introducing the sluice and so it is necessary that there be a single indefinite antecedent having been assigned non-distinct structural Case. Because neither English nor French distinguish between accusative and nominative structural Case on *wh*-words, transitive clause with object and subject both underspecified lead to the formation of the two indistinct links <Subj,T> and <vC,Obj>. If one of them is required, as in (61), the resulting sentence is syntactically very ambiguous but might be deemed acceptable depending on pragmatic factors. If both are required, as in (62), the sentence is not recoverable and leads to a crash.

- (61) (a) ?Someone is describing someone but I don't know who.
 (b) (French) ?Quelqu'un décrit quelqu'un mais je ne sais pas qui.
- (62) (a) *Someone is describing someone but I don't know who who.
 (b) (French) *Quelqu'un décrit quelqu'un mais je ne sais pas qui qui.

If there is an overt stipulation of the which heads has assigned structural Case to the *wh*-words, the sentences become perfect again.

- (63) (a) Someone is describing someone but I don't know who is describing who(m).
 (b) (French) Quelqu'un décrit quelqu'un mais je ne sais pas qui décrit qui.

Languages like German or Bengali which unambiguously Case marked the *wh*-words should escape this requirement, as they indeed do. For instance, each remnants in (64a) to (64c) can enter in exactly one link and so these sentences are all perfectly recoverable with the intended respective meanings.

- (64) (a) (Bengali) Keu karoke bornona korche, kintu ke ami jani na.
 Someone-NOM someone-ACC description doing, but who-NOM I know not.
 Someone is describing someone, but I don't know who [is doing the describing].
- (b) (Bengali) Keu karoke bornona korche, kintu kake ami jani na.
 Someone-NOM someone-ACC description doing, but who-ACC I know not.
 Someone is describing someone, but I don't know who [is being described].
- (c) (Bengali) Keu karoke bornona korche, kintu ke kake ami jani na.
 Someone-NOM someone-ACC description doing, but who-NOM who-ACC I know not.
 Someone is describing someone, but I don't know who [is describing] who(m).

Japanese provides natural empirical testes, as it allows many seemingly close pairs which differ in grammaticality.³⁰

- (65) (a) (Japanese) Sensei-o hihanshita gakusei-ga koko-ni oozei iru kedo dare-ga dare-o oboeteinai.
 Teacher-ACC criticized student-NOM here-P crowd is but who-NOM who-ACC remember not.
 Many students here criticized many teachers but I don't remember who [criticized] who.
- (b) (Japanese) *Sensei-ga suki-na gakusei-ga koko-ni oozei iru kedo dare-ga dare-ga suki-ka oboeteinai.
 Teacher-NOM liked student-NOM here-P crowd is but who-NOM who-NOM remember not.
 Many students here like many teacher but I don't remember who who.
- (c) (Japanese) *Sensei no koto-ga suki-na gakusei-ga koko-ni oozei iru kedo dono gakusei-ga dono sensei no koto-ga ka oboeteinai.
 Teacher of side-NOM liked student-NOM here-P crowd is but which student-NOM which teacher of side-NOM remember not.
 (Intended) There are here many students who show appreciation towards their teachers but I don't remember which towards which.

³⁰The examples (65) and (68b) are from [Richards, 2010].

In (65a), but crucially neither in (65b) nor in (65c) even though the latter is actually semantically non ambiguous, the two *wh*-words *dare* are differentially marked by Case. The first one bears nominative case so can only enter the link <Subj,T> whereas the second bears accusative case so can only enter the link <vC,Obj>. The ellipsis is thus recoverable. Interestingly, Y.Kito-Neubronner spontaneously offered

- (66) Sensei-ga suki-na gakusei-ga koko-ni oozei iru kedo dare-ga dare-o suki-ka oboeteinai.
 Teacher-NOM liked student-NOM here-P crowd is but who-NOM who-ACC remember not.
 Many students here like many teacher but I don't remember who whom.

as a technically ungrammatical but marginally acceptable (and with attested closed counterparts) spoken alternative to (65b), indicating that native speakers apparently could tolerate incorrect case assignment if this allows for meaning recovery.

When several competing links can be formed, distinctness of ϕ -features may sometimes be used to select one. Compare (67a) in which the sentence is very ambiguous between three possible readings with (67b) which exploits the overt manifestation of ϕ -features on French interrogative pronouns to allow for an unambiguous reading as well as (65b) or (68a) with (68b) which exploits the fact that Japanese distinguishes between animate and inanimate in *wh*- words.

- (67) (a) ?One of my colleagues_i said that one of the student_j did not read some of the books_k assigned in the curriculum. Guess which_{i/j/k}.
 (b) (French) Une de mes collègues_i m'a dit que l'un des étudiants_j n'avait pas lu certains des livres_k au programme. Devine laquelle_{i/*s}/lequel_{j/*s}/lesquels_{k/*s}.
 One-FEM-SING of my colleagues me has told that one-MALE-SING of the students has not read some-MALE-PLUR of the books of the curriculum. Guess which-FEM-SING/which-MALE-SING/which-MALE-PLUR.
 One of my colleague said that one of the student did not read some of the books assigned in the curriculum. Guess which.
- (68) (a) *Many people here like animals but I don't know which which.
 (b) (Japanese) Dobutsu-ga suki-na gakusei-ga koko-ni oozei iru kedo dare-ga nani-ga sir-anai.
 Animals-NOM like students-NOM here-P crowd is but who-AN-NOM what-INAN-NOM doesn't know.
 Many people here like animals but I don't know which which.

3.2.7 Voice alternations

This has been considered one of the outstanding problem for both syntactic and semantic accounts of ellipsis. Since active and passive sentence are virtually semantically identical but syntactically extremely different, semantic accounts should predict voice alternations to be freely possible whereas syntactic accounts should predict them to be severely restricted, if not impossible. As we have seen in section 2.7, the empirical facts do not unambiguously separate the two approach. Our formalism makes clear predictions for three of the six logical possibilities (active/passive antecedent, aux focus/subject focus/slucose).

The impossibility of voice alternations in any direction in sluicing constructions follows from the core properties of our framework: the *wh*-word can be linked by a link on a DP in the antecedent clause only if this DP and the *wh*-word have non-distinct Case-assignment properties. Under assumption (44) at least, as the *by*-phrase functions as prepositional Case assigner for the agent, a link on the *wh*-word may start with a *by*-phrase if and only if the corresponding link in the antecedent clause contains a (possibly phonetically unrealized) syntactic position licensed by a *by*-phrase. Hence the voice of the antecedent clause has to be identical with the putative voice of the sluiced construction. But how then can we explain (25) repeated below as (69)?

- (69) (a) I think he was killed by someone, but I don't know who or why.
 (b) There is a collection of applets at <http://www.stat.duke.edu/sites/java.html> that have been compiled by someone, but I don't know who.
 (c) The "See Spot Run" books that people of several generations grew up with are owned by someone, but I don't know who.

In fact, it seems to me that, in all likelihood, no voice alternations is taking place in (69) but simply the sluicing of a passive clause with stranding of the preposition *by*. This is predicted to be possible under our formalism under the two following conditions: first, the language should allow preposition stranding; second, there is an overt *by*-phrase licensing an underspecified DP (otherwise no link can be formed to the verb). Indeed, we have seen in section 2.7 that both conditions have to be met. Consequently, the attested examples (69) are in fact in no contradiction with our framework (nor with the findings of [Merchant, 2013]).

From the point of view of semantic recovery, as passive clauses have no direct object and as VP ellipses of passive clauses are licensed by tensed auxiliaries (hence have an overt subject), the only necessary condition our formalism imposes for an active/passive PAE alternation to be semantically recoverable is that the antecedent searching mechanism be able to locate a vC. Anticipating on section 4.1 below, we note that the empirical findings of [Kertz, 2008] clearly point in the direction of focus as the mechanism allowing this. We defer to 4.1 a more precise discussion of the precise role of focus and in particular an explanation of why subject focussed PAE typically do not license voice alternations. Apart from this focus condition, the broad acceptability of voice alternations in auxiliary focused PAE we noted in section 2.7 is thus expected.

The situation is much more delicate in the last logical alternative: auxiliary focused PAE with passive antecedent clause and active ellipsis site. In that case, a link $\langle vC, Obj \rangle$ is required for the interpretation of the ellipsis site while the antecedent clause had no direct object. The only possibility for this to be explained in our framework is to posit that before getting assigned nominative structural Case by T, the grammatical subject of a passive clause has been assigned accusative structural Case by vC in the course of the derivation. If this true, we should expect to find independent empirical evidence for it. In [Marantz, 2000], it is pointed out that expletive-lead sentence like (108a) in English, and arguably more clearly in French, could qualify.

- (70) (a) It struck me that the two of us could run.³¹
 (b) (French) [Il] est dit beaucoup de bonnes choses sur moi et sur ma chère fille mariée.³²
 It is said many good things about me and about my dear daughter married.
 Many good things are said about me and about my dear married daughter.
 (c) (French) [Il] est venu un homme dans la chambre de ma soeur.³³
 It is come a man in the room of my sister.
 A man entered my sister's room.

Furthermore, it is more clearly confirmed in Japanese passives, as in (71) below, in which subjects may surface with accusative case.

- (71) (Japanese) Hanako-ga doroboo-ni kuruma-o torareta.
 Hanako-NOM thief-BY car-ACC steal-PASS-PAST.
 The car was stolen by the thief from Hanako.

We return to this important issue in section 4.2.2 below. Under this assumption of generalized accusative structural Case assignment, our mechanism proceeds as follows. When a passive antecedent clause with active ellipsis site is encountered, the antecedent-searching mechanism can establish a link $\langle Subj, T \rangle$ as well as a link $\langle vC, Subj \rangle$. Typically, the auxiliary licensing the ellipsis site selects for a lexical verb or the ϕ -feature composition of its subject precludes it to be identified with the subject of the antecedent clause. This unambiguously distinguishes between the two links and so the ellipsis is recoverable. In the presumably rare situation where the two links are available, the locality constraint on the antecedent-searching mechanism discussed in section 2.2 (and justified in section 4.1 below) predicts that the link $\langle Subj, T \rangle$ obtains. This prediction is apparently borne out, though the fact that the subject and the auxiliary have to differ for a voice alternation to be possible degrades the acceptability of the ellipsis anyway.

- (72) (a) Brunehilde hasn't been betrayed by Hagen. Siegfried did [betray Brunehilde].
 (b) Brunehilde hasn't been betrayed by Hagen. Siegfried has [been betrayed/*betrayed Brunehilde].

³¹From the song *Run* by *Vampire Weekend*

³²From *Le pot d'or* by E.T.A Hoffmann in the translation of Émile de la Bédollière.

³³From *Le malade imaginaire* by Molière, Act II scene 8

- (73) (a) Potential modularity theorems had never been rigorously proven. Base-change techniques did [prove rigorously potential modularity results].³⁴
 (b) Potential modularity results had never been proven rigorously. Base-change techniques have [been proven rigorously/*?proved potential modularity results rigorously].

In (73a), the auxiliary *did* forces the antecedent-searching mechanism to look for a vC so it finds *prove*. Conversely, in (73b), no constraint eliminates the T *have* as the head of the link, so the link <Subj,T> is formed and apparently used to the exclusion of the other.

Though it allows a passive/active alternation under our assumption of accusative structural Case assignment, our mechanism requires the formation of a link between vC and the semantic object of a passive clause. Hence, it excludes the possibility of an inchoative/transitive alternation as an inchoative verb is never in the position to license or assign structural Case to the grammatical subject in the derivation. This prediction seems to be borne out, as the contrast between (74a) and (74b) indicates.

- (74) (a) This can be frozen. Please do.³⁵
 (b) *This can freeze. Please do.

In the derivation of the inchoative antecedent clause of (74b), the verb *freeze* is never in the position to license or assign structural Case to *this* and hence no link is formed between them.

3.2.8 Case assignment in some spoken variant of French

In section 2.7, we have noted that many French speakers accept (26) repeated below as (75) at least as a colloquial utterance.

- (75) (spoken French) Cet article a été écrit par quelqu'un mais je sais plus qui.
 This article has been written by someone but I know not anymore who.
 This article has been written by someone but I don't know anymore who.

Likewise, many French speakers tolerate perfectly well both

- (76) (a) (spoken French) Il parle souvent de quelqu'un mais je ne sais pas qui
 He often speaks about someone but I don't know who.
 (b) (spoken French) Il parle souvent de quelqu'un mais je ne sais pas de qui.
 He often speaks about someone but I don't know who.

though we ruled out (76a) in 3.2.4 based on the absence of a <vC,PP,IndObj> link in French, and ultimately on the fact that PP is a phase in French. A move towards or away from acceptability of (76a) can moreover be induced by marking the sentence as more or less formal. For instance, though a majority of my informants considered (76a) at least no worse than (76b) as an informal utterance, none accepted

- (77) (French) *Le président parle souvent en bien de quelqu'un mais, à l'heure actuelle, nous ne nous souvenons plus qui.
 The president speaks often highly about someone, but at present, we are unable to recall who.
 (Intended) The president often speaks highly about someone but I am at present unable to recall who.

which is marked as formal by the lexical choices and, crucially for our analysis below, the use of the now rather rare pronoun *nous* and the explicit lexical realization of the negation. These seemingly puzzling facts follow from our framework once it is understood that, in at least some common spoken variant of dialectal French, structural Case assignment behaves very differently from normatively defined French. We briefly review here some evidence for that claim. Firstly, overt phonological realization of tense and person agreement on the verb is rare; verbs of the first group are markedly preferred and tense (passé and future simple) or person (first person

³⁴Some semantic elaboration of these examples might be required: potential modularity theorems are strong recent mathematical theorems. The theory of base change is a mathematical theory whose techniques played a crucial role in the first proofs of these theorems.

³⁵From [Johnson, 2004, Example (22)-(23)].

plural) with complex morphological paradigms are vanishingly rare. Secondly, the standard SVO order is often replaced with the topicalized subject or object undergoing left or right dislocation and the usual subject and object positions being filled with cliticized pronouns which are often phonologically incorporated with the verb (as in *chais* for *je sais*, *chuis* for *je suis*, *té* for *tu es*, *izont* for *ils ont*) or with the pronoun subject (as in *jle* for *je le*). The SOV order with double dislocation and double cliticization is also well attested:

- (78) (Spoken French) *Stouffe, il l'a déjà rendu tout à l'heure, la caisse.*
 Stouffe, he it PAST already give earlier, the car.
 Stouffe already brought back the car earlier.

Thirdly, *wh*-questions *in situ* is preferred.

- (79) (Spoken French) *Yanis, il a mangé quoi à midi?*
 Yanis, he has eaten what at lunch?
 What did Yanis eat at lunch?

Finally, possessive pronouns normally showing person agreements are avoided. Note for instance this attested sentence which exhibits a double left-dislocation, lack of person agreement, morphological fusion of pronominal subject and inflected verb forms (once understood that *kizon* is to be understood as *qu'ils ont*), avoidance of the inflected pronoun *leurs* as well as the stranding of *avec*.³⁶

- (80) (spoken French) *Les gens de notre génération, c'est toujours les pères, kizon du mal à communiquer avec.*
 People of our generation, it's always fathers, that they have trouble communicating with.
 It is always with their fathers that people of our generation have trouble communicating.

If this analysis is correct, then T and vC do not assign structural Case anymore in (this variant of) spoken French, and hence sluicing of subject and direct object should become impossible. This prediction seems to be verified: as clitic pronouns and left or right dislocated DP are necessarily definite in Romance, they cannot be the target of sluiced constructions. The comparison with Frisian suggests a simple evolution: genuine sluices should be replaced with cleft-like constructions. Indeed, though they are much rarer in written form because they are severely stigmatized as reflecting a lower class origin, well attested spoken variants of French having all the properties discussed above often phonetically realize the demonstrative, indicating that the link formation mechanism being put to use by these speakers is quite markedly different from the one postulated for standard French. Consider for example the attested:

- (81) (a) (Spoken French) *Mais quelqu'un a disliké mais je sais pas c'est qui alors.*
 But someone downvoted but I don't know that is who then.
 Someone voted down but I don't know who.
 (b) (Spoken French) *C'est un ketru mais chais pas c'est quoi.*
 That's something but I don't know that is what.
 That's something but I don't know what it is.

We are therefore led to consider (75) as an example of pseudosluicing with silent copula rather than as a real case of sluicing. We note the remarkable fact that the spoken variant of French under discussion seems thus to exhibit within Romance a number of feature characteristic of discourse-configurational language (see [de Cat, 2007] for further arguments in that direction) as well as the fact that our analysis of the impossibility of real sluice in this variant of French is parallel to our prediction that real sluice could not occur for subject bearing augment vowel in Kinande. We return to these facts in section 4.1.

3.2.9 Some cases of islands repair

Let us consider again the crucial facts about islands discussed in section 2.8: sluicing can repair them whereas PAE, though obviously sensitive to them, cannot.

³⁶Depending on social origin, generation and normative proclivity, native speakers of French can judge (80) horrendously ungrammatical on several counts or quite unexceptional. It passed without comments but mine in the context I heard it uttered, an informal gathering of educated native speakers of French in their thirties, and was considered unremarkable even after I pointed out its specificities.

- (82) (a) *They want to hire someone who speaks a Balkan language but I don't know which Balkan language they want to hire someone who speaks.
 (b) They want to hire someone who speaks a Balkan language but I don't know which.
 (c) They want to hire someone who speaks a Balkan language but I don't know which Ben does [speak/*want to hire someone who speaks].

These facts follow directly from the inner workings of our mechanism. The putative interpretation of (32) yielding *which Ben does want to hire someone who speaks* would have to proceed in the following steps: *does* is linked to *want* which is linked to *to hire* which is linked to its direct object *someone who speaks a balkan language*. This last syntactic object enters no further linking relation so the *wh*-word *which* is not licensed for the exact same reason as in (82a). Hence the derivation crashes, the antecedent searching mechanism searches again and finds the tensed clause *speaks* so the derivation proceeds using the linking relation $\langle -s, \text{ speak, a balkan language} \rangle$. As the last item in the chain is underspecified, the *wh*-word *which* is licensed. However, the interpretation of (82b) proceeds in reverse order through the following steps: *which* is linked the vC in *speak* which is linked to T in *speaks* which is linked to *someone who* which is linked to vC in *to hire* which is linked to the tensed clause *They want* (abstracting away from irrelevant steps) yielding the linking relation $\langle \text{ Obj, vC, T, Subj, vC, T, Subj} \rangle$ whose interpretation presumably is *which language speaks someone who they want to hire*; so the sentence is fine. The crucial difference between the two derivations is that the links used for sluices of direct object start with the direct object and then climb up the derivation by a series of licensing relations all obeying standard locality constraints whereas the chains used for VP ellipsis of verb with direct or indirect objects first go down the derivation and then have to climb up again to allow the extraction of a *wh*-word, imposing on them supplementary conditions. Anticipating on the language of section 4.2.3, the fundamental distinction stems from the differing order of reconstruction of the syntactic material in the ellipsis site itself implied by the differing structural position of the antecedent head.

Can this approach say anything about the Japanese islands in (33) repeated below as (83)?

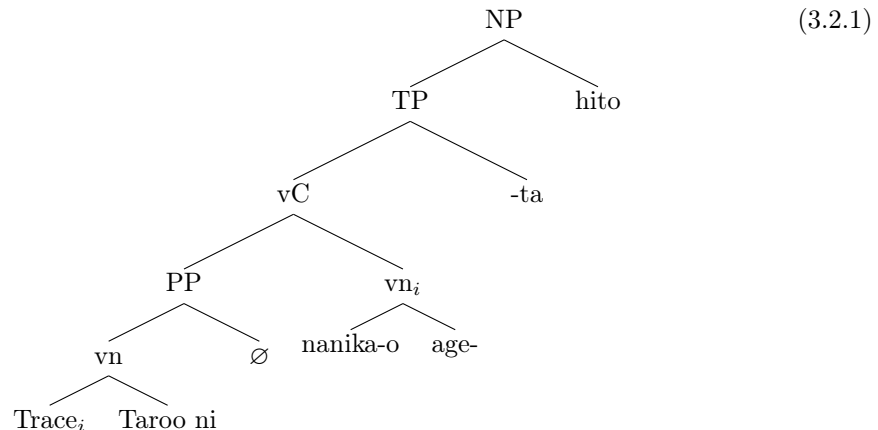
- (83) (a) (Japanese) *Taroo-ga Hanako-ga nanika-o katta kara okotteiru rasii ga, watashi-wa nani ka shiranai.
 Taroo-NOM Hanako-NOM something-ACC bought because is-angry seems but I-TOP what Q know-NEG.
 (Intended) It seems that Taroo is angry because Hanako bought something, but I don't know what.
 (b) (Japanese) *Hanako-ga Taroo-ni nanika-o ageta hito-ni atta sooda ga, watashi-wa nani ka shiranai.
 Hanako-NOM Taroo-DAT something-ACC gave person-DAT met is said but, I-TOP what Q know.not.
 (Intended) I heard that Hanako met a person who gave Taroo something, but I don't know what.
 (c) (Japanese) *Taroo-ga Hanako-ga nanika-o katta toyuu uwasa-o sinjiteiru ga watashi-wa nani ka shiranai.
 Taroo-NOM Hanako-NOM something-ACC bought C rumor-ACC believe but I-TOP what Q know-NEG.
 (Intended) Taroo believes the rumor that Hanako bought something, but I don't know what.

Let us consider the putative chains which would have to be used to allow semantic recovery. In (83b), the *wh*-word finds *nanika* which is in structural Case relation with the vC in *ageta* which is linked to T in *ageta* yielding the linking relation $\langle \text{ nanika, age-, -ta} \rangle$. However, there are good empirical and theoretical reasons to suspect that no linking relation exists between *-ta* and *hito*. On the empirical side, notice that the reflexive anaphor *zibun* cannot be bound by an antecedent in a noun complement phrase, indicating that no linking relation exists according to section 3.2.4.

- (84) (Japanese) *Tatsuki_i-ga totta zibun_i no shashin.³⁷
 Tatsuki-NOM take-PAST himself-GEN picture.
 (Intended) The picture of himself that Tatsuki took.

³⁷Example adapted from [Hoji, 1985].

As for why this might be so, according to the derivation of a Japanese noun complement phrase given in [Fukui and Takano, 2000], the N node *hito* immediately dominates the TP as in the structure below due to the lack of the functional head D in Japanese.



Hence, *hito* does not *c*-command *-ta*. In contrast with the case of its English counterpart thus, the T *-ta* is not licensed by a pronoun which is licensed by the DP *a person*. No linking relation is thus formed in (83b) between *nanika* and *Hanako* through *hito* and *atta*. The situation is exactly similar in (83c) and, I assume, in (83a) though the situation there is less clear because of the presence of *kara*.

3.2.10 Some cases of vehicle-change

As pointed out in the introduction, (2) repeated as (85) below is apparently an exception to the principle of strict identity of meaning in VP ellipsis since a crude repetition of the antecedent sentence would be ungrammatical due to a violation of principle C of binding theory.

- (85) “You’re meeting Hermione Granger? Today?”
 “Yeah. Well, she asked me to, so I thought I would.”

Another example of semantic variation is given by the famous phenomenon of sloppy identity reading, as in (86)

- (86) Adrien is very concerned about his career, but Solal isn’t.

in which both the readings that Solal is not very concerned about Adrien’s and his own career are possible.³⁸ Keeping in mind that DPs undergo late insertion, we see that the resolution of the first ellipsis site of (85) uses the link $\langle vC, DP \rangle$. Hence, there is no need to postulate a referential expression in the ellipsis site: on the contrary, it is the fact that none exists which triggers the use of linking relations. The resolution of (86) involves the copying on the T of *isn’t* of the linking relations $\langle vC, PP, DP \rangle$. But the DP *his career* at the tail of these links is itself possibly underspecified. When it is, it in turns receives its interpretation through the linking relation $\langle \text{Subj}, T, vC, PP, DP \rangle$. Hence, the linking relation copied on *isn’t* is actually composed of the links $\langle vC, PP, \langle \text{Subj}, T, vC, PP, DP \rangle \rangle$. As there are two DPs bearing nominative case, the ambiguity characteristic of sloppy readings ensues. When *his* is not underspecified, for instance because it receives an antecedent pragmatically as in

- (87) I am worried about the career prospects of Thomas_i. Adrien is very concerned about HIS_i career, but Solal isn’t [very concerned about Thomas’ career/*Solal’s career].

a strict reading is preferred as the conceptual-intentional system as a way to disambiguate between the two alternatives. When no linking relations were formed in the antecedent clause because forming one would lead to a crash at LF, so typically when forming one would lead to a pronoun being locally bound, no link is copied in the ellipsis site and a sloppy identity reading seems to be barred.

- (88) Adrien_i is very concerned about him_{*i/j}, but Solal isn’t [*very concerned about himself/very concerned about him_j].

We remark that a conceptually very close argument is made in [Aoun and Nunes, 2007].

³⁸And in which both are actually probably true, in the context of *Belle du Seigneur*.

3.2.11 Problematic facts

We note that some reported empirical data do not fit well within our analysis. The following sentence is quoted in [Hardt, 1993] and is attested.

- (89) Today there is very little official harassment of lesbians and gays by the national government, although autonomous government might.

This is predicted to be unacceptable because no vC exists in the antecedent clause and hence no linking relations between the verb *harass* and its direct object. Put more concretely, *harassment* does not assign structural Case, but Case should have been required to provide a recoverable object to *harass*. Likewise, our theory predicts that

- (90) The comet was nearly unseeable, but John did.

should be unacceptable whereas [Arregui et al., 2006] reports an empirical acceptability rate of 17,1%. Even more problematically, [Arregui et al., 2006] reports an acceptability rate of 36,3% for (91) below.

- (91) Tomorrow night's singing of the aria will be difficult but Maria will.

Even though this is far below the 56,2% acceptability rate found for

- (92) Singing the aria tomorrow will be difficult but Maria will.

our framework predicts (91) to be unacceptable.

4 Theoretical questions

In this section, we give a formal description of the mechanism outlined in section 3.1.2 in terms of strictly minimalist operations.

4.1 Antecedent searching mechanism

4.1.1 Post-auxiliary ellipsis

A commonly held assumption is that the location of the antecedent by a PAE or a sluiced construction relies on the same mechanism that the resolution of other anaphoric elements and pro-forms. If the mechanisms we propose are on the right track however, the links allowing semantic recovery are formed in the narrow syntax and start with the antecedent (or more precisely with a specific head in the antecedent clause) so its location has to be achieved in the narrow syntax as well and hence, under assumption (35), without the help of vocabulary insertion (the alternative, that all links are formed in the narrow syntax and that the antecedent is located afterwards, is theoretical conceivable but probably to be ruled out for reasons of economy of computation). This in turn entails that the antecedent searching mechanism is blindly syntactic and hence has to rely (if our ongoing minimalist assumptions are correct) strictly on probe/goal relations. That this might be true was suggested by the observation in section 2.2 that the auxiliary licensing a PAE searches its antecedent in strictly descending order of locality and by the fact that (65c) is unacceptable despite being semantically non-ambiguous.

Which probe/goal relations, then, could account for the location of the antecedent? Obviously, no ϕ -feature probe could do so. In conformity with assumption (40), we thus have no choice but to hypothesize that the antecedent is located by a focus probe. Let us assume then that the head of an auxiliary focused PAE sports an uninterpretable focus probe. This probe blindly probes in descending order of locality for a vC or *be* bearing focus. In [Rullman and Beck, 1998], it is observed that for x to be in focus, the possibility of $\neg x$ being true, and thus the possibility for x to enter a polar alternative and/or undergo change of modality, is necessary. Hence, the inner workings of our purely syntactic mechanism retrieves the crucial observation of [Kertz, 2008] and [Miller, 2011] that auxiliary focused PAE require the existence of a salient alternative. In the case of subject focussed PAE, the usual stress patterns of the antecedent and elliptic clause indicate that the focus probe is on the subject. If this is indeed correct, then the first link being copied is $\langle \text{Subj}, T \rangle$, that is to say the licensing relation between T and the subject, and hence there should be a copying on the tensed auxiliary licensing the ellipsis site of the properties of T.

This would seem at first glance to forbid change of tense, aspect or modality in subject focussed PAE, and thus to make too restrictive predictions, as it would incorrectly forbid (93) below.

(93) Helena takes long naps every afternoon. Nathan should too.

Note though that because the auxiliary licensing the ellipsis site is not part of the ellipsis site, though the link <Subj,T> should be copied on the T licensing the ellipsis site according to our model, it doesn't have to be used for semantic recovery: the ϕ -feature probe on the auxiliary licensing the ellipsis site has already achieved probe/goal union with the subject of the ellipsis site, hence there is no need to rely on a chain to value the unvalued ϕ -feature on T. Perhaps what we should expect is thus the following: when the T licensing the ellipsis site differs in tense or modality from the antecedent T, the ellipsis is perhaps reassessed as an auxiliary focussed ellipsis, allowing for sentences like (93). If this correct, then three predictions ensue. The first one is that the processing of subject focussed PAE with non-matching T properties require two iterations of the searching mechanism and thus should be slower than processing of subject focussed PAE with matching T properties and than auxiliary focussed PAE with matching auxiliary categories; perhaps measurably so.

The second is that even though constructions like (93) qualify as grammatical, they should be rarer than subject focussed PAE with shared T properties. That second prediction is close to what the corpus findings of [Miller, 2011] establish: subject focussed PAE heavily favor shared modality with examples like (93) in fact quite rare.

The third, and more general, prediction is that rather than a strict polar alternative, PAE with voice mismatch should rather find themselves in a continuous spectrum with at the high-end of acceptability auxiliary focussed PAE with active antecedent and strong change of polarity (the only syntactic computation required is the location of the antecedent, and the change of polarity makes this easy), at the low-end of acceptability subject focussed PAE with passive antecedent clause and no salient alternative (these require two iterations of the antecedent-searching mechanism and the second one, the location of the vC, is difficult because of the absence of a focus-feature in the antecedent clause) and in between PAE with non-matching grammatical subject and non-matching polarity (the non-matching subject might initially focuses the ellipsis on the subject, inducing a second iteration of the antecedent-searching mechanism, but this iteration is possible thanks to the non-matching polarity), in which case, the stronger the polarity inversion and the weaker the contrast between subjects, the more acceptable the ellipsis. Though the judgment is presumably quite delicate and very sensitive to pragmatic factors, this prediction seems on the right track, with (94a) at the high end of acceptability, (94b) probably acceptable thanks to the change of polarity and the closer identity presupposed between subjects and (94c) and (94d) verging on the ungrammatical.

- (94) (a) The janitor must remove the trash whenever it is apparent that it should be.³⁹
(b) Curacao wasn't smitten by hurricane Hazel, but hurricane Oscar did.⁴⁰
(c) */?Curacao was smitten by Hazel in 1954, and then Oscar did.
(d) *The material was skipped by the instructors and the TA's did too.⁴¹

4.1.2 Sluicing

Sluicing is at first glance highly amenable to a focus-based analysis of the antecedent location. If, as in [Miyagawa, 2009, Section 5.3], we posit that *wh*-word bear a focus probe, then it is natural to assume that this focus probe is responsible for the location the underspecified antecedent. The observation is nevertheless far from trivial and naturally raises two questions. First, if there is a probe on the head licensing a sluice, why doesn't it trigger *wh*-movement (at least in languages which allow it)? That is, why are sluiced constructions possible at all? Second, we have observed that in Kinande and spoken French, the DPs which raise to a position higher than T due to focus effect cannot be the target of sluiced constructions. Until now, this has been treated as a stipulation: because they have raised higher than T, they have not received nominative structural Case and thus cannot enter a link. However, this answer is doubly faulty when considered from

³⁹From [Merchant, 2013, Example (1a)].

⁴⁰Adapted from [Merchant, 2013, Example (2c)] and from <http://en.wikipedia.org/wiki/Curaçao> accessed on 01/22/2013.

⁴¹From [Kertz, 2008, Example (1)]

the finer perspective of our theoretical framework. Not only does it assume (44), something which we are emphatically not doing, in singling out structural Case as specific among all probe/goal relations but it also presupposes that DPs raising higher than T do not receive nominative Case, which would introduce a dubious distinction between what we have assumed for accusative structural Case assignment (accusative Case is assigned even to the subject before the latter raises to T) and what we now assume for nominative Case assignment (at least if the DP passes through the specifier of TP before raising to a higher head, it should then receive nominative Case). In order to answer these questions, let us first note that the semantics of underspecified elements is that of an existential quantifier scoping over a general class. Accordingly, radically underspecified elements are often formed by fusion of an indefinite existential or *wh*-marked word (in italics) and a pro-form as in the English *someone*, French *quelqu'un*, German *etwas* (from the Old Germanic root *edd*, any), Chinese *Mou Ren*, Bengali *keu*, or Japanese *dareka*. Because we follow [Miyagawa, 2009, Chapter 5] in assuming only one single type of focus probe, we posit that both constructions syntactically proceed in the same way: both the *wh*-feature and the focus feature on the underspecified element are licensed in narrow syntax by an Agree relation with a focus probe first merged at C. As in the case of PAE, this purely syntactic formulation has an impact on semantics: because focus features are extremely coarse (being limited to \pm focus), their semantic effects are limited to expressing a certain salience compared to their absence, and hence the semantics of indefinite objects is predicted to be close to that of polar alternatives.

If focus features are responsible for the location of the antecedent in sluiced constructions, we should expect sluicing to be sensible to intervention effects in the sense of [Kim, 2002]. As we see below, this prediction is borne out and entails in particular a principled explanation of why sluiced constructions cannot target elements which have moved to the left periphery. Underspecified elements are typically incompatible with articles and possessors as far as I can tell.

- (95) (a) *The/*A/*Aiden's something.
 (b) (French) *Le/*Trois quelque chose *(d'Élisa).⁴²
 (c) (Japanese) *Ayumi no nani-ka

Hence, it is reasonable to assume that the *wh*-feature which attaches to them does so high in the structure of DPs described in [Longobardi, 2003, Section 4.2.1], presumably in the uppermost available position; an assumption independently suggested by their morphology. But this then makes the *wh*-marked or focus-marked position in the DP of an underspecified element an intervener (in the sense of [Miyagawa, 2009, Section 5.4]) for the focus probe.

- (96) [C_{focus} [x ... [*wh* Wh_{focus} [y Y]]]]

Conversely, if an element *x* has moved in the region of C, this is necessarily because it has been probed by a focus probe. Hence, no focus goal can intervene between C and *x* and hence no focussed existential quantifier can occur. The element *x* is thus necessarily specific. In further support for this analysis, notice that the Japanese focus-bearing particle *mo* cannot attach to an underspecified term.

- (97) (Japanese) *Nani-ka/Dare-ka mo ochita.
 Something/Someone else fall-PAST.
 (Intended) In addition to something/someone, something/someone else fell.

If this proposal is correct, there is thus in fact no special role of structural Case assignment, that is to say of the head T and vC, compared to C in licensing sluicing. It is just that the ϕ -probes involved in the Agree relations presiding to structural Case assignment, contrary to the focus probes, are unaffected by the presence of a *wh*-feature on underspecified DPs.⁴³

⁴²With the intended meaning *something belonging to Élisa* in opposition to the idiomatic meaning *something recalling Élisa*.

⁴³Note that conversely, we should expect focus probes to be unaffected by heads sporting ϕ -features while they might induce intervention effect for the ϕ -probes. I would speculate that, due to the presence of ϕ -features on it, vC might be such an intervener for probes inherited from C. This might explain why only the grammatical subject can raise in the absence of the head α P in Kinande (see [Baker, 2003] and [Miyagawa, 2009, Section 4.2]): in the absence of the focus probe, the ϕ -probe is doing the probing, so vC becomes an intervener and thus restricts the searching domain.

In [Beck, 2006], it is remarked that cross-linguistically, the strongest intervention effects are triggered by negative quantifiers, as *only* or *no one* so we should expect them to play a role in the syntactic licensing of sluiced constructions, and indeed they do so: as noted and discussed in [AnderBois, 2011], indefinites within the scope of a double negation are not licit antecedent for sluicing.

(98) *It's not the case that Shani didn't meet with a friend, but I still wonder who.⁴⁴

As we noted in section 2.2, indefinites in appositive clauses as in (8b) repeated below as (99) are also not licit even though semantically close PAE are fine.

(99) *Joe, who once killed a man in cold blood, doesn't even remember who.

Within our formalism, this should follow from an intervention effect on the focus probe on the licensing head of a sluiced construction from which the focus probe of the PAE would presumably be immune as it probes for predication relations, not DPs. Pragmatically, appositive constructions like (99) are certainly associated with focus but in order to account for this effect within our framework, we need to argue for a narrowly syntactic relation. First, appositive constructions trigger intervention effects for *wh*-questions *in situ*.

(100) (Japanese) *Henna tomodachi_i ga iru Ayumi ha nani o katta_i ka shiranai.
Strange friend-NOM is Ayumi-TOP what-ACC bought Q not know.
(Intended) Ayumi, who has strange friends_i, doesn't know what they_i bought.

As we have seen in (79), spoken French tolerates (in fact prefers) *wh*-questions *in situ*. Nevertheless, a sentence like (101) below seems impossible to me with the relevant interpretation whereas the *i/j* reading could be fine with appropriate context.⁴⁵

(101) (spoken French) Bob, qui a [de sacrés lascars]_i comme ami, sait pas ils_{*i/j} ont acheté quoi.
Bob, who has damned crooks as friends, knows not they have bought what.
(Intended) Bob, who has damned crooks as friends, doesn't know what these friends bought.

Second, appositive constructions in Old Japanese are overtly marked with a focus particle which triggers a special form of agreement of the main verb. Anticipating on section 4.2, we take this to be a sign that an Agree relation has been established between the appositive clause and C, and thus that the appositive clause are marked with a focus feature probed at C.

(102) (Old Japanese) Ikito shi ikeru mono, izure ka uta-o yomazarikeru.⁴⁶
All living thing, which FOC poem-ACC compose-FOC/AGR.
Every living creature sings.

Consequently, we conclude that appositive constructions do display a focus feature which intervenes in the location of the antecedent of a sluiced constructions.

More generally, the need for the licensing head to locate an antecedent by way of a focus probe might explain why sluicing cross-linguistically require a *+wh*-feature on the introducing *wh*-word: other complementizers might not be able to enter in an Agree relation with C and thus are invisible in narrow syntax. I thus take the contrast between the radical unacceptability of (103a) despite its clear semantic content and the acceptability of (103b) (which indicates that no intervention effect is triggered by *whether*) to be a potentially strong factor in favor of a narrowly syntactic account of antecedent location.

(103) (a) *Naïm asked whether he could invite Léa. He had no idea whether.
(b) Naïm asked whether he should give Léa something. He had no idea what.

4.2 Interfacing, Agree and links

4.2.1 Agree as distinctness mechanism

Our account relies on the mechanism of link formations, but we have until now resisted explaining how probe/goal relations form links and why, or even what links are exactly. Besides,

⁴⁴Example from [AnderBois, 2011, Example (2)].

⁴⁵Admittedly, the grammatical judgment is delicate as these kind of spoken French constructions independently sounds degraded to me regardless of the *wh*-question.

⁴⁶Example and explanation from [Miyagawa, 2009, Section 5.3].

our terminological choice evokes the usual *chains*, which usually refers to the link existing between a syntactic object x and its copies created by internal Merge (see [Chomsky, 1995] and [Nunes, 2004, Section 3.2]), whereas we have been employing links rather loosely to refer to a licensing relation between very different syntactic objects. In this subsection, we propose a speculative reduction of the mechanism of linking relations to interface conditions and justify our terminological identification of two seemingly different syntactic operations. In (35), we have assumed that DPs are merged as bundle of features and that they undergo lexical insertion only when sent to the interfaces at the closure of each phases (an operation which we henceforth call *interfacing*). This entails that in the narrow syntax, a DP like *la table* is represented as

$$\begin{array}{c} \{\phi_1, \dots, \phi_n\} \\ \swarrow \quad \searrow \\ \{\phi_1, \dots, \phi_n\} \quad \{\} \end{array} \quad (4.2.1)$$

where $\{\phi_1, \dots, \phi_n\}$ is a set of formal features rather than any of the structures (4.2.2).

$$\begin{array}{c} \text{DP} \quad , \quad \text{la} \\ \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ \text{D} \quad \text{NP} \quad \text{la} \quad \{\} \\ | \quad | \\ \text{la} \quad \text{N} \\ | \\ \text{table} \end{array} \quad (4.2.2)$$

The reason to distinguish the formal features representation (4.2.1) even from the second bare structure of (4.2.2) is that some formal features of a functional head may be overtly expressed in the lexical representation (4.2.2) and semantically non-vacuous but nevertheless computationally inaccessible to the narrow syntax under certain circumstances. This for instance seems to be the case for the gender feature of the French determiners with respect to verbal agreement (but not with respect to object cliticization, hence the qualification). In order to make explicit this distinction, we use the symbol \simeq to indicate objects which cannot be distinguished in narrow syntax in the relevant context and reserve $=$ to true cases of equality. If this formalization of bare phrase structure is on the right track, then it follows that two indistinguishable set of formal features can never be in non-distinct position before being sent to the interfaces, as the interfaces could then not properly interact with them. This prohibits structures of the form

$$\begin{array}{c} \phi_x \quad \phi_y \\ \swarrow \quad \searrow \\ \phi_x \quad \phi_y \quad \dots \end{array} \quad (4.2.3)$$

with $\phi_x \simeq \phi_y$. The idea that the need of the phonological interface to linearize arborescent structures is a fundamental component of the human faculty of language and that movement is the paramount tool used by narrow syntax to rule out configurations like (4.2.3) has been explored in the literature since the formulation of the Linear Correspondence Axiom (LCA) of [Kayne, 1994]: this is used to explain the phonetic realization of chains in [Nunes, 2004] and is the main theme of [Richards, 2010], where it is christened *Distinctness*. We adopt a slightly theoretically weaker perspective.

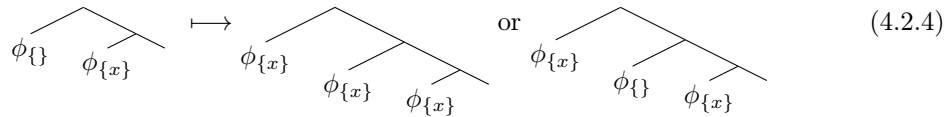
Because phase heads trigger the interfacing of their complements, they, at least, have to be endowed with means to detect the presence of the forbidden topological configurations (4.2.3) within their complements. Consequently, phase heads must be merged with tools to explore the structure of the syntactic objects formed below them and rule out indistinguishable sets of formal features. But what does it mean for two sets of formal features to be non-distinct, or equivalently, how does narrow syntax distinguishes sets of formal features? Strict minimalism tolerates at least one distinction: some formal features of some functional heads are unvalued whereas other are valued, the corresponding heads being respectively probes or goals with respect to this feature. We therefore assume that (104) below is all there is in narrow syntax.

- (104) Unvalued formal features, or probes, are the computational device used in narrow syntax to ensure that prohibited structure do not appear.

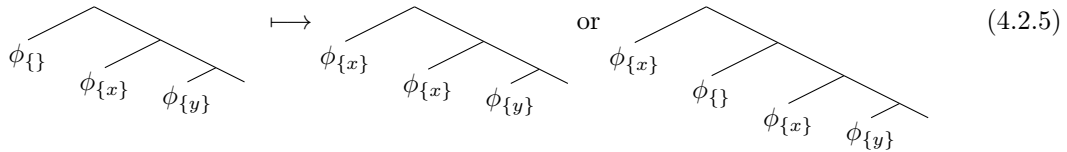
This entails that phase heads should have to be first merged with probes, as is indeed the case at least for C (first merged with ϕ and focus probes) and vC (first merged with ϕ -probes). This also suggests (105) below.

- (105) The operation Agree, that is to say the valuation of an unvalued feature by probe/goal union, is a by-product of the need of phase heads to probe below in order to avoid forbidden topological configuration.⁴⁷

Note that because valuing an unvalued formal feature x on a probe means copying the value of the goal, from the point of the narrow syntax, the probe and the goal then become indistinguishable with respect to x .



On the other hand, even if $\phi_x \simeq \phi_y$, ϕ_x and ϕ_y become potentially distinguishable in (4.2.5) after Agree



because one has now entered in a Agree relation with $\phi_{\{\}}$ and not the other. In order for them to be actually distinguishable, it is presumably necessary that the record of the operation Agree be overtly expressed. It thus appears that there may be no conceptual reason to oppose or even distinguish movement driven by the need to form linearizable structure and feature driven movement; on the contrary probe/goal relations ultimate function might be to produce linearizable structure and probe/goal union, which is to say movement in the overwhelming majority of cases where it is accompanied by lexical pied-piping, is presumably the recording of the established Agree relations. This is in essence very close to the observation of [Kayne, 1994] that the otherwise puzzling wealth of functional heads appearing in human language is probably due to the fact that “functional heads make landing sites available” once incorporated the principle that the only way functional heads have to trigger movement is via feature valuation. This close interaction between functional heads, Agree and movement is also explicitly the thesis defended in [Miyagawa, 2009, Chapter 2, statement (1)]: movement is the recording of otherwise inexpressible functional relations.⁴⁸ It is also the theoretical core of [Alexiadou and Anagnostopoulou, 2001] and [Alexiadou and Anagnostopoulou, 2007] where the possibility for several DPs to remain in vP or VP is explored from this perspective. Compared to [Kayne, 1994], [Richards, 2010] and [Nunes, 2004], these works, and this manuscript, give the operation Agree preeminence and remain uncommitted to which interface is the source of which interface effects. Finally, we note that the idea that relations between indistinct nodes have to be mediated through an asymmetric Agree relation between one of these nodes and a functional head is in accord with the conceptual approach to predication laid out in [Den Dikken, 2006, Section 2.5].

At the closing of a phase, all nodes in the phasal domain sporting undistinguishable formal features must therefore have entered distinct Agree relations with distinct probes. As remarked before (4.2.4), after valuation of a feature x by probe/goal relation, from the strict point of view of feature content, there is no distinction between the two copies of $\phi_{\{x\}}$. We call this identity the chain $\langle \phi_{\{x\}}, \phi_{\{\}}, \phi_{\{x\}} \rangle$ mediated by the functional head $\phi_{\{\}}$. Let us first consider the simplest problematic case: that of a phase head h with two undistinguishable nodes x, y in its phasal domains when first merged. In first approximationn, this is the configuration built when the vC of a transitive verb is first merged (under the common assumption that the external argument is first merged below vC). In that case, exactly one of them, say x , enters in an Agree relation with the probe(s) at h forming the chain $\langle \phi_{\{x\}}, \phi_{\{\}}, \phi_{\{x\}} \rangle$. This has two consequences: 1) the two nodes x and y are now distinct, 2) a copy of the formal features of x which have been

⁴⁷Note that this should not in anyway be construed as departing from the formalization of Agree as the means to record functional relation and thus enhance the expressive power of human language advocated for in [Miyagawa, 2009]. Indeed, bare topological structures like binary trees encoding rich and complex messages will necessarily feature many forbidden topological configurations, so that the two requirements should be understood as two complementary aspects of the same fundamental idea.

⁴⁸In fact, [Miyagawa, 2009, Chapter 1, footnote 5] explicitly points out the fact that first merging probes at phase heads seems to help keeping phases as small as possible, presumably for computational efficiency reason. This remark, there attributed to [Chomsky, 2007], is virtually identical to our approach. See also footnote 47.

probed now appear in h or in its specifier. It follows that only y is now unambiguously located in the complement of h so interfacing of the complement of h is possible. We assume that the fact that h is responsible for the interfacing of y is nothing but structural Case assignment, or more generally licensing. Hence, in the terminology of section 3.1.2, we see that the operation Agree applied to the forbidden topological structure (4.2.3) triggers the formation of a *chain* between the functional heads probed and the probe and a *link* between the probe and the functional head not being probed. According to this perspective, structural Case assignment is thus not a functional relation between heads, it is an *absence* of relation in the situation where another head has entered an Agree relation. This implies in particular that structural Case assignment, despite being a negative property, has to obey standard locality conditions: only if two or more functional heads could theoretically be probed can structural Case be assigned.

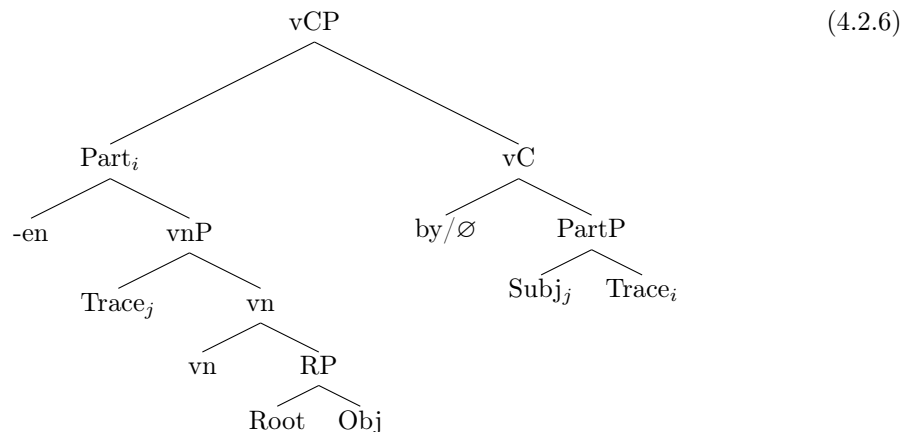
4.2.2 The nature of Case

We are now in position to replace (44) by our real assumption.

- (106) Structural Case assignment is the recording in the narrow syntax at the point of interfacing (and thus by a phase head) of a goal which has not entered in an Agree relation with a functional head when two or more indistinguishable goals are probed.

Note that this entails that structural Case may be assigned several times on a DP but that nothing can happen after the DP is sent to the interfaces, and thus that overt structural Case assignment is always the last syntactic operation affecting a DP. This comes eerily close to the conclusion of [Richards, 2012] (quoted here from [Richards, 2012, Statement (4)] with minimal modification) that Case morphology may be assigned to a DP arbitrarily many times but that if a structural Case morpheme is to appear, it must be on the periphery of the DP's inflection.

In section 3.2.7, we have assumed that the grammatical subject gets assigned accusative structural Case by vC before getting assigned nominative structural Case by T. This stipulation follows from our current reformulation: the DPs which receive accusative structural Case are those which are below vC and which have not entered in an Agree relation with vC. In the derivation (3.1.4) of the passive clause given in section 3.1.1 and repeated below as (4.2.6), there are functional heads between vC and Obj, so there is no reason to assume that vC enters in an Agree relation with Obj.



Hence, it should receive structural accusative Case, as needed. More generally, we are led to expect a correlation between Case assignment and the position of a DP in the derivation. It seems, for instance, that genitive Case is assigned to direct object staying below vn, as is apparent in Irish and could account for the generally genitive marking of objects of nominalized verb, as in (107b) or (107c).

- (107) (a) (Irish) Ta sé ag baint an fhéir.⁴⁹
 Is he-NOM PROG cut the grass-GEN.
 He is cutting the grass.
 (b) The boat's construction.

⁴⁹Example from [Rouveret, 2012, Example (27a)].

- (c) (Japanese) Fune no kenzou.
 Boat-GEN constr-build.
 The boat's construction.

Accusative structural Case is assigned by vC to the DP with which it does not enter an Agree relation with, so typically the DP staying below it in an SVO order. Nominative Case is assigned by C to the DP x with which it does not enter an Agree relation with. Because x has not been sent to the interfaces by vC, it has either entered an Agree relation with vC or there were no vC to start with (the simplest and presumably most common cases) or it has entered in an Agree relation with a functional head which has entered in an Agree relation with vC (the passive case in a smuggling derivation). In both situations, a copy of the formal features of x (accompanied with movement in the majority of cases) appears at the phase edge of vC in order for the Agree relation to be recorded and the probe at vC has been valued. If T has inherited a ϕ -feature probe $\phi_{\{ \}}$ from C, both vC and x are hence undistinguishable goals for $\phi_{\{ \}}$. If x is being probed, this probe/goal union has to be recorded: again by movement, in the wide majority of situations. Hence, we recover the fact that a DP assigned nominative Case has to move to the specifier of TP in the majority of situations, though our approach also allows for movement to vC (perhaps deriving VSO order) and overt copying of the formal features of x to TP without pied-piping of the lexical material: this yields presumably either either expletives constructions as (108a) or *in situ* subject in the presence of rich verbal agreement as in (108b).

- (108) (a) There is a man in the garden.
 (b) (Greek) ...an ehi idi diavasi prosektika o Janis to vivlio.⁵⁰
 ...if has already read carefully the-John-NOM the book-ACC.
 ...if John has already read the book carefully.

What then is the nature of the structural Case assigned to a DP x rising higher in the left periphery, for instance to the specifier of α P or CP? It x has done so, it is in our formalism necessarily because it has entered in an Agree relation with a head higher than T. Apparently, when this happens (preverbal subject in Kinande, topic in Finnish, left-dislocated elements in Romance, focussed *-mo* elements in Japanese...), the Agree relation always involves the focus probe. Nevertheless, postulating that DPs raising higher than T receive focus Case, that is to say are in focus, would probably be wrong for conceptual and empirical reasons. The nominative and accusative structural Case of the classical approach seem to be entirely devoid of semantic content and in our approach, structural Case is simply the recording of a unique topological position, so should not be closely linked to a definite semantic effect. Besides subject/object inversion in Italian or Kinande as in (109) below actually focuses the subject staying low, not the object raising to the left.

- (109) (a) (Italian) Ha parlato Gianni.
 Has spoken Gianni.
 GIANNI spoke.
 (b) (Kinande) Olukwi si-lu-li-seny-a bakali.⁵¹
 wood-11 Neg-11S-Pres-chop-Fv women-2.
 WOMEN do not chop wood.

A strict identification of focus in the traditional sense and Agree relation with C has thus to be rejected. What does seem cross-linguistically true though is that the higher a DP is in the structure, so the later it is sent to the interfaces, the more specified it is, all else being equal. This is the core of the analysis of the semantic of differential object marking in [López, 2012].⁵²

⁵⁰From [Alexiadou and Anagnostopoulou, 2007, Example (19)]

⁵¹From [Baker and Collins, 2006, Example (15)].

⁵²In this footnote, we comment on the similarities and differences between the approach of [López, 2012] and ours. As far as I can determine, there is no distinction in the empirical predictions, but the proposed mechanism are completely the inverse of each other: [López, 2012] assumes that objects stay low in the structure because they Agree and satisfy their Case requirements low in the structure, typically by incorporation, whereas we assume that objects rise high in the structure because they don't Agree low (and we consider Case to be a by-product with no independent existence). This is forced upon us by our theoretical choice: without Case and with only Agree to drive movement, an Agree relation is the only explanation we have to justify raising, and conversely, a lack of Agree is the only explanation we have for a lack of movement. However, it seems to us that the two approaches make slightly different predictions outside of semantics. If one believes in the theory of incorporation

In section 4.1, we saw an extreme example of this which we attributed to an intervention effect: underspecified or indefinite elements cannot be attracted by a focus probe in the left periphery because their existential nature is syntactically encoded by a focus feature which acts as an intervener. However, the effect is general: for instance, Scandinavian object shift target only definite object, pre-verbal subject are interpreted as more definite than post-verbal ones in Russian... Interestingly for our purpose, this is empirically manifest even when only the formal features of the object affected move high in the structure, that is to say when an Agree operation takes place, and not only when there is lexical pied-piping, as we should expect under hypothesis (35) if the phenomenon is at least in part narrowly syntactic. Also interesting is the fact that this effect is discernible even in languages where definiteness is grammatically unmarked. We illustrate these claims in the following examples.

- (110) (a) (Spanish) Juan no amó una mujer.⁵³
 Juan not loved a woman.
 Juan did not love any woman.
- (b) (Spanish) Juan no amó a una mujer.⁵⁴
 Juan not loved ACC a woman.
 There was a woman Juan did not love.
- (111) (a) (Turkish) Köy-ü haydut bas-tığ-in-i duy-du-m
 Village-ACC robber raid-NOM-POSS-3SG-ACC hear-PAST-1SG.
 I heard that robbers raided the village.
- (b) (Turkish) Köy-ü bir haydut-un bas-tığ-in-i duy-du-m
 Village-ACC a robber-GEN raid-NOM-POSS-3SG-ACC hear-PAST-1SG.
 I heard that a specific robber raided the village.
- (112) (a) (Japanese) Kinoo Ayumi ga katta hon.
 Yesterday Ayumi-NOM buy-PST book.
 The book which Ayumi bought yesterday.
- (b) (Japanese) Kinoo Ayumi no katta hon.
 Yesterday Ayumi-GEN buy-PST book.
 The book which Ayumi bought yesterday.

In the examples (110), (111) and (112), no visible movement occurs but differential Case markings indicate that the Agree relations in the (a) examples differ from those of the (b) examples. Furthermore, it can be argued that the Agree relations in the (b) examples is with a higher functional head than in the (a) examples: a functional head between vC and vN in (110) according to [López, 2012] and C in (111), (112) according to [Hiraiwa, 2001]. Finally, it is apparent in (110), (111) that the (b) examples are more specific. As for (112), I note that the specificity marker *sono* in Japanese is apparently morphologically linked to genitive. In all three examples then, a shift in agreement towards a higher functional head triggers a more specific reading. A remarkable consequence, with the usual caveats about the correctness of this approach to Case, is that DPs which enter in no Agree relation and thus stay maximally low and those entering an Agree relation with C and thus raise maximally high are both marked genitive. This could be a coincidence, or it could reflect a deep asymmetry between Agree relations involving only ϕ -features and those involving focus features.

4.2.3 The isomorphism problem

Armed with the conceptual tools of the two preceding sub-sections, we are in position to analyze what has been considered a vexing problem for PF-deletion, and more generally syntactic, accounts of sluiced constructions and English PAE. Under this conception of ellipsis, the ellipsis site is a strict copy of the syntactic material of the antecedent clause which is not pronounced.

laid out in [Roberts, 2010], incorporation requires that the set of formal features of the incorporated object is a subset of the set of formal features of the incorporation host. But indefinite objects bear an existential, or focus, feature by all accounts and should thus resist incorporation; and they indeed do, as indicated by the impossibility of an indefinite direct object to cliticize.

⁵³Example from [López, 2012, Example (26c)]

⁵⁴Example from [López, 2012, Example (25c)]

This theoretical formalization has many advantages: to name but two, it immediately entails the strict identity of meaning between ellipsis and antecedent sites and explains why PAE should be sensitive to syntactic islands. However, aspectual mismatches, especially because they are differentially possible as we have seen in section 2.6, have proved to be challenging to handle within this theoretical framework. In [Chung, 2013, Statement (64)], a more refined proposition of the exact nature of the syntactic identity required for sluicing is proposed.

- (113) (a) *Argument structure condition.* If the interrogative phrase is the argument of a predicate in the ellipsis site, that predicate must have an argument structure identical to the corresponding predicate in the antecedent clause.
- (b) *Case condition.* If the interrogative phrase is a DP, it must be Case-licensed in the ellipsis site by a head identical to the corresponding head in the antecedent clause.

Our framework derives these two conditions from independent principles and extends them to PAE. First, let us formulate the isomorphism condition implied by our mechanism as described in 3.1.2: as the ellipsis site is given a semantic content by starting with the antecedent head and copying the licensing relations between functional heads in the antecedent clause, for the ellipsis site to be recoverable, it is necessary that the putative licensing relations of the ellipsis site be isomorphic to a subset of the licensing relations in the antecedent clause. Moreover, if a sluiced construction is headed by a DP, then a fundamental requirement of our mechanism is that its topological positioning be uniquely identifiable, and this means that its Case licensing properties are non-distinct from that of the antecedent head. Hence, we recover the conditions (113a) and (113b). Using the theoretical reduction of section 4.2.2, we can be more precise: from that point of view, the Case condition on the licensing head of a sluiced construction is just the identification of the phasal domain containing the antecedent head, or even more accurately a subset of possible phasal domains (as Case licensing properties on the *wh*-word may not in themselves determine a unique phasal domain depending on the richness of the overt Case marking system of the language). What is recursively copied from the antecedent clause is then the records of the Agree relations which head has entered into (*chains*) and which it could have entered but did not (*links*). The first set of data encodes formal features sharing and is thus of functional nature whereas the second is purely topological, as it reduces to locality conditions on the binary trees constructed in narrow syntax. We formulate this as the following isomorphism principle.

- (114) The syntactic structure of the ellipsis site is built from the licensing head by recursive copying of the recordings of the formal functional Agree relations on functional heads and of the topological configurations identified by functional heads.

In section 4.2.1, we assumed that narrow syntax needs to record the informations described in (114) to ensure that phase heads send suitable complements to the interfaces. This entails that there is no need to postulate that this record is kept in chunks finer than phase heads complements. Sticking with our minimalist point of view, we thus assume that when non phase heads locate unambiguously a DP in their complement, they simply transmit this information up to the next phase head. This predicts that languages such that prepositions are phase heads will require an overt preposition in order to license a sluiced construction targeting the complement DP (only under this hypothesis can a structural position be specified) whereas languages such that prepositions are not phase head will not necessarily require it: as PP then transmit their records to the phase head *h* higher up, *h* can locate the DP. When PPs are phase head, the antilocality principle of [Abels, 2003] implies that their complements cannot move without them, or in plain language that they cannot be stranded. Hence, we recover Merchant’s generalization as well as the correlation of section 3.2.4 between licit sluicing and binding of pronouns in PPs.

We claimed earlier than this accounts for aspectual mismatches between the ellipsis and antecedent site. The reason is the following: the syntactic material copied crucially reduces to formal relations between functional heads and the relative topological configurations between them. In particular, the heads intervening themselves undergo late insertion of phonological features. Recall the important fact that chain-formation and link-formation are deeply asymmetric: the former records a positive property whereas the latter records the absence of a property. In particular, the first, but crucially not the second, can be induced by the presence of an overt trigger on the licensing head. Consequently, a licensing head bearing valued formal features may trigger the copying of the corresponding Agree relations, hence may induce the reconstruction

of a syntactic structure in the ellipsis site with new functional heads. In other words, the Agree relations involved in the ellipsis site are the Agree relations appearing in the antecedent site plus the one induced by the licensing head. On the other hand, with one exception, the topological configurations appearing in the ellipsis site are a subset of those appearing in the antecedent site.

Hence, we expect aspectual mismatches to be possible in syntactic elliptical constructions provided they come solely from extra Agree relations encoded on the licensing head, and hence to correspond solely to uninterpretable features. This accounts for the phenomena noticed in section 2.6: *-en* is an uninterpretable feature (as can be seen from its lack of semantic content and the fact that it is not repeated in fronted predicates constructions; see [Collins, 2005, Statements (24) and (25)] and [Rouveret, 2012, Section 5.4] for further discussions) whereas *-ing* is interpretable. Or, in our terminology, *-en* is licensed by an Agree relation with the auxiliary *have* whereas *-ing* is not. Hence, *-en* can appear in the ellipsis site even if absent in the antecedent site provided it is selected by the auxiliary whereas *-ing* may appear only if present in the antecedent site. Likewise, verbal inflection pieces and negative polarity items are morphological reflexes of uninterpretable features that have entered an Agree relation (with interpretable ϕ -features and negation operators respectively), so we predict aspectual mismatches involving them to be possible provided the licensing head induces the corresponding Agree relation. This predictions is borne out.

- (115) (a) Cécile likes cheese but I don't.
 (b) Marion didn't bring any toy but Mathilde did.

We now turn to sluicing. As in the case of PAE, we expect aspectual mismatches in sluicing to be possible only when they stem from the valuation of an uninterpretable feature in the ellipsis site by an Agree relation with the licensing head. For instance, under the usual assumption that finiteness is encoded on C and expressed on T by an Agree relation, we expect finite/non-finite mismatches to occur in sluiced constructions. Conversely, interpretable feature on T, such as modality or progressive aspect, should resist aspectual mismatch. This prediction is broadly borne out as was noted in (21) repeated below as (116).

- (116) (a) Decorating for the holidays is easy if you know how.
 (b) I remember meeting him, but I don't remember when.
 (c) *Having to compromise is inevitable, but they have no idea who.
 (d) *The message said to show up in the square at midnight, but it didn't say who.

In section 3.2.5, we have argued that sluicing of linguistically unrealized argument parts was licit because the corresponding positions are syntactically realized. We can now refine our approach. For a position (linguistically realized or not) to be the target of a sluiced constructions, it is necessary that the syntactic material available specifies a unique topological position. Typically, this will be accomplished by the focus probe on the existential feature of an underspecified element but in the absence of this clue, necessarily the case for a linguistically unrealized position, the narrow syntax has to relies on the topological clues given by the licensing properties of the head. Hence, we should expect a position to be a licit target only if 1) either it contains an accessible focus feature to be probed 2) or the licensing properties of the head specifies an unambiguous position in the antecedent clause (this entails in particular that this position exists in the antecedent clause). As in the case of the PAE, the crucial point is that no topological configuration can be created *ex nihilo* because the recording of topological configurations is the recording of a negative property. In crucial support of this approach, we notice that the analysis of [Chung, 2013] of (18f) repeated below as (117a) and of the anti passive construction in Chamorro as in (117b) below also concludes that there exists a linguistically unrealized (or implicit, as it is there called) topological configuration responsible for the Case assignment properties of the licensing head.

- (117) (a) She's reading but I don't know what.
 (b) (Chamorro) Mang-guaiya si Julia, lao ti hu tungu' hâyi.⁵⁵
 AGR.AP-love UNM Julia but not AGRknow who?
 Julia loves (someone), but I don't know who.

⁵⁵From [Chung, 2013, Example (86b)].

Above, we hinted at the existence of one exception: any topological configuration at least implicitly contains the uppermost functional position and the lowermost functional positions. Hence, we should expect sluicing constructions to be able to target the CP position no matter what and to target lowermost functional positions when it does not lead to a crash at LF. This is broadly what is observed: *why* licensed sluiced constructions seem to be fairly unrestricted, perhaps even to the point of not requiring a linguistic antecedent at all. As for the lowermost positions, they should typically be implicit arguments of Case assigning verbs (as in (117a)) or unrealized complement of DPs. In the latter case, they are licit as target of sluicing provided the empty position can be probed: only in this case will the fact that no Agree relation took place can be recorded. In order to empirically test this requirement, we can use the techniques of 3.2.4: if noun complement anaphora are licit, links have been formed and so the topological position is accessible. Hence, we should expect the following correlation: languages which allow possessive anaphora and with an overt marking of the topological position corresponding to noun complement should broadly tolerate sluicing of non-overt noun complements. Besides, based on the structure of DP of [Longobardi, 2003, Section 4.2.1], it is reasonable to assume that these languages are those with optional or no definiteness marking (otherwise the D position of the structure might be an intervener). In support for this correlation, we mention the following Russian and Japanese examples; two languages which don't mark definiteness, which consider sluicing of noun complement perfectly normal and which have a possessive anaphor.

- (118) (a) (Japanese) Kagi o mitsuketa kedo dare-no ka shiranai.
 Key-ACC find-PAST but who-GEN Q know-NEG
 They found keys but they don't know whose.
- (b) (Russian) Natacha vidit avtomobil no ia ne znau tchey.
 Natacha sees car but I not know who-GEN.
 Natacha sees a car but I don't know whose.

French is a language at the other extreme end of the spectrum: nouns always require a definite or indefinite article, the translations of (118a) and (118b) require the insertion of the case-marking item *celle de* and third person possessive pronouns are always ambiguous between a bound or free reading.

5 Conclusion

We resume our findings and mention open theoretical and empirical questions. We proposed a mechanism for semantic recovery of syntactic elliptical constructions based on the notion of links, or licensing. This model predicts that sluicing constructions and post-auxiliary ellipses should be sensitive to Case assignment properties and apparently correctly accounts for the differential acceptability of voice alternations, the sensitivity to syntactic islands, the sensitivity to non verbal antecedents and the complementary distribution of sluicing with bound pronouns. It also sheds light on specific curious linguistic phenomena, as the disappearance of real sluiced constructions in spoken French and Frisian or the asymmetry between animate and inanimate objects in Maliseet PAE.

In the last sections, we have seen that this model reduces to core computational properties and interfaces conditions. Because the interfaces can interact only with certain very constrained topological structures, each time a forbidden topological structure is built in the narrow syntax, an Agree relation between a probe and a goal has to be established. The probing head records this Agree relation by probe/goal union but also the fact that something else was not probed. We hypothesized that this information, of dual nature, is what is sent to the interfaces and that the latter relation is structural Case assignment, or licensing, of the non-probed goal. This was seen to make correct empirical predictions for the relative possibility of voice alternations in PAE. Insofar as this formalization captures something of interest, it entails a number of surprising consequences for the architecture of narrow syntax. To start with, it implies that structural Case assignment is always a reflex consequence of interfacing with no independent existence. Secondly, it naturally suggests several theoretical investigations outside of the realm of ellipsis. I suspect for instance that the transitivity restriction on nominative/genitive construction in Japanese could be fruitfully analyzed from this point of view (under our approach, the existence of an object marked accusative implies that the object was sent to the interfaces by vC and

thus that the grammatical subject was alone in the phase above; as vC in Japanese probably does not host a copy of the formal features of the subject computationally accessible, this means that there is no ambiguity in the higher phase and thus that there is no need for the subject to enter in an Agree relation with C). Among the most intriguing connection this model suggests, I would reiterate the observation of section 4.2.2 that the higher the formal features of a syntactic object raise in the structure, the more specific they tend to be interpreted, all else being equal. I suspect that this observation could be derived from independent principles: according to the symmetry principle of [Fukui and Takano, 2000], sentences are interpreted in a top-down fashion by inversion of the operation Merge. The appearance of formal features high in the structure would probably have the effect of anchoring their referent to an element early in the sentence, hence triggering specificity according to the the definition of [von Stechow, 2002, Statement (3)].

Returning to ellipsis, this reduction to interfaces properties entails a very precise notion of the isomorphism requirement between the ellipsis site and the antecedent site. Because the ellipsis site is interpreted using the recordings of Agree relations and of topological configurations which are detected by the absence of an Agree relations, syntactic ellipsis is licit only if the set of required Agree relations is contained in the union of the set of Agree relations present in the antecedent site with the set of Agree relations recorded on the licensing head and if the set of required topological configurations is contained in the set of topological configurations present in the antecedent clause. Or in the words of (114) repeated below:

- (119) The syntactic structure of the ellipsis site is built from the licensing head by recursive copying of the recordings of the formal functional Agree relations on functional heads and of the topological configurations identified by functional heads.

The asymmetry between the nature of the two relations being recorded (one positive, the other negative) was seen to make correct non obvious predictions for the licitness of aspectual mismatches in PAE as well as the licitness of sluiced constructions with linguistically unrealized antecedents. Besides, the statement (119) entails the syntactic identity condition of [Chung, 2013] which is thus reduced to strictly minimalist assumptions.

We conclude by summarizing various questions opened (or left open) by this manuscript.

- a) Our formalism imposes no restriction on sluicing constructions targeting augmentless DPs in Kinande in the absence of the head α . Are these constructions attested? Conversely, the fact that Maliseet transitive verbs do not assign structural Case to their animate direct object should prevent sluicing constructions to target them, while inanimate objects should be licit targets. Is this attested?
- b) Our accounts of the differential island repairing properties of English sluicing, English PAE and Japanese sluicing is susceptible to a huge number of empirical tests: each time an island is or is not repaired by a sluiced constructions in a given language, this should be visible at the level of link-formation, perhaps by comparing with licensing of reflexive anaphors. Is this prediction attested?
- c) Our formalism predicts that languages with overt case marking of cartographic positions on the *wh*-word might license sluiced constructions targeting linguistically unrealized positions. Is this attested? For instance, can the implicit argument of an Irish verb-noun be the target of a genitive marked sluicing? How about instrumental Case for languages having it?
- d) An intriguing correlation seems to exist between language which do not mark definiteness, the assignment of genitive Case to DPs staying very low or raising very high in the structure, the existence of possessive anaphor and the possibility for sluicing to target noun complements. Russian, Japanese, Cuzco Quechua, Turkish and Chamorro (among many others) would be interesting to study in that respect. Does this correlation hold up and what does it mean? Could it be that the uppermost position (the definiteness position) of a DP is actually a phase head?
- e) How well does our isomorphism requirement in term of Agree relations and topological configurations fare when applied to VP-stranding languages like Hebrew?
- f) Does structural Case, and more generally our isomorphism requirement (114), play a role in other elliptical constructions? Gapping and finite *do so* constructions would seem to be particularly interesting in that respect.

- g) How does our abstract view of structural Case carries over to absolutive/ergative language?
How well does it fare when applied to notoriously complex Case systems?

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