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Control in Free Adjuncts in English and French: a Corpus-Based Semantico-Pragmatic Account

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11.1 Introduction

Three main sorts of approaches to control can be found in the linguistic literature: syntactic, semantic and pragmatic. The syntactic approach can be exemplified by Boeckx et al. (2010), who treat obligatory control as syntactic movement rather than binding, making PRO ‘simply a residue of movement – the product of the copy-and-deletion operations that relate two theta-positions’ (Hornstein 1999: 78). Thus in the derivation of *John hopes to leave*, *John* starts out in the subordinate VP [*John leave*] and raises to the sentential level, checking two theta-roles on its way and ending up with two cases, one corresponding to the ‘hoper’ and the other to the ‘leaver’ role. This purportedly explains the subject control reading (henceforth SC). In a purely conceptual approach such as that of Culicover and Jackendoff (2005), it is the semantic content of the matrix verb rather than syntactic movement which is the key factor. They argue that since control remains constant with a given lexical notion over a wide variety of constructions it cannot be a syntactic phenomenon – thus in (1a–d) below with the notion ‘order’, the NP *Fred* is understood to control *leave* in all cases even though its syntactic position varies considerably:

- (1a) Bill ordered Fred to leave immediately.
- (1b) Fred’s order from Bill to leave immediately.
- (1c) The order from Bill to Fred to leave immediately.
- (1d) Fred received Bill’s order to leave immediately.

Culicover and Jackendoff propose that with non-finite action complements only one controller is possible – ‘the character to which the head assigns the role of actor for that action – whatever its syntactic position’ (Culicover and Jackendoff 2003: 524): with *promise* the complement’s subject is controlled by ‘the giver/maker of the promise, wherever that character may be located in syntax’ (Culicover and Jackendoff 2003: 529); with *persuade* the controller is always the person persuaded. An example of a pragmatic approach

1 is Levinson (1987), who argues that ‘the grammatical patterns follow the
 2 patterns predicted by our pragmatic apparatus: minimal forms prefer core-
 3 ferential readings, less minimal forms prefer disjoint readings’ (Levinson
 4 1987: 420). Thus *Zelda*₁ *asked Mary*₂ [*PRO*₂ *to leave*], being a non-minimal
 5 form with a direct object, favours a disjoint reading, that is, non-subject
 6 control (henceforth NSC); in contrast, *Zelda asked* [*PRO*₁ *to leave*], a minimal
 7 form with no object, triggers a coreferential interpretation, ergo SC. These
 8 inferences are based on Levinson’s I-principle according to which a speaker
 9 will say as little as necessary to convey his intended message.

10 Each of these approaches has its shortcomings. Without recourse to meaning,
 11 a strictly syntactic approach has no way to distinguish between *John managed*
 12 *to leave* and *John motioned to leave*, which leaves one with no explanation for
 13 why *John* is not assigned two thematic roles in the latter but is exclusively cast
 14 as the ‘mationer’. By tying control to thematic roles determined by the matrix
 15 and defined independently of any particular configuration of sign–meaning
 16 units, Culicover and Jackendoff’s approach abstracts away from the linguisti-
 17 cally signified content of the utterance. Careful consideration of the evidence
 18 shows however that this is not feasible. On the lexical level, the content of
 19 the subject of *promise* and its pragmatic relation to the infinitive’s event can in
 20 some cases have a determining impact on control, as can be seen from (2):

- 21
 22 (2) There are dozens of programmes that promise you to have the body
 23 you always wanted to have in a very short period of time.¹

24
 25 On the grammatical level, the meaning of the complement form itself is
 26 also pertinent – with the very same matrix verb *choose*, the *to*-infinitive is
 27 exclusively attested with SC, whereas the gerund-participle also allows NSC,
 28 as shown in Duffley and Abida (2009):

- 29
 30 (3) The federal government chose to make unemployment insurance
 31 harder to get, and changed the name of the programme to Employment
 32 Insurance.
 33 (4) I’ve been teaching a course on Game Culture and Design [...] and am in
 34 the midst of conducting some hands-on workshops with the students.
 35 We’re building game mechanics and rules systems playable on the table-
 36 top. [...] I deliberately chose going to the movies as a concept because
 37 it’s a broad topic and doesn’t immediately evoke game play ideas.

38
 39 With regard to Levinson’s pragmatic approach, his I-principle is unable
 40 to account for the difference in control between objectless infinitival and
 41 gerund-participial constructions such as:

- 42
 43 (5a) John wanted to read *Brideshead Revisited*.
 44 (5b) John suggested reading *Brideshead Revisited*.

1 Here the *to*-infinitive construction is more complex, being composed of *to*
 2 plus the bare stem; nevertheless, it is the *to*-infinitive that exhibits constant
 3 SC readings in such objectless structures, while the gerund-participle shows
 4 variability in control: SC with verbs like *enjoy*, *try* and *remember*, NSC with
 5 *suggest*, *advise* and *justify* (cf. Duffley 2006: 47–52).

6 In view of such facts, one can only agree with Kortmann (1991: 77) that
 7 ‘any attempt to develop a theory able to predict the selection of a particular
 8 controller in a uniform way, especially when choosing a monocausal (for
 9 instance, solely semantics- or syntax-based) approach is bound to fail’ and
 10 with Landau (2013: 254) who argues that non-obligatory control, of which
 11 adjunct control is a subcategory, ‘falls outside the purview of core grammar
 12 and is best analyzed as a complex outcome of pragmatic factors’. The study
 13 of control in free adjuncts presented here will provide further evidence in
 14 favour of the need for a semantico-pragmatic explanation of adjunct control
 15 based on a complex interaction between such factors as the lexical meanings
 16 of the matrix subject and predicate, the lexical and grammatical meanings
 17 in the free adjunct, the position in the sentence occupied by the adjunct,
 18 and shared world knowledge of stereotypical scenarios.

19 Besides the generative studies by Williams (1992) and Kawasaki (1993),
 20 based on author-fabricated examples, a certain number of corpus-based explo-
 21 rations of free adjuncts have been carried out. Kortmann (1991) examines
 22 1680 occurrences of free adjuncts and absolute constructions in a 450,000-
 23 word corpus and brings to light a number of significant generalizations. One
 24 is the fact that 91.5 per cent of his free adjuncts showed SC. Kortmann also
 25 investigates the contextual factors associated with NSC, two of which are
 26 relevant to our study. The most important of these is the presence of ‘dummy
 27 subjects’ (for example, *Driving at a speed of 100 m.p.h., it is not easy to read the*
 28 *road signs*); the other factor concerns ‘speech-act qualifiers’ (as in ***To consider***
 29 ***the real cases first, how narrow indeed is the distinction***), which do not modify
 30 the main clause but rather characterize an act performed by the speaker.
 31 However, whereas Kortmann lumps together all of the various types of item
 32 found in these constructions (infinitives, gerund-participles, past participles,
 33 nouns, adjectives, prepositional and adverbial phrases), the approach adopted
 34 here will aim at building up from the linguistic–semantic to the pragmatic
 35 level, and consequently will only examine two forms whose semantics we
 36 believe we have a sufficient grasp of – the infinitive and the present participle.
 37 We have also excluded absolute constructions because they do not pose any
 38 problem for determining control assignment since the controller is always the
 39 nominal preceding the non-finite verbal (as in *I stood there alone, my friends*
 40 ***eating at another table***, for instance). Moreover, the infinitive and the
 41 gerund-participle will be studied separately in order to ascertain the possible
 42 effects of their semantic content on their behaviour with respect to control.

43 Another corpus study of adjuncts was carried out on Early Modern English by
 44 Río-Rey (2002), who analysed 1183 free adjuncts and absolute constructions

1 in a corpus of 252,000 words from texts published between 1500 and 1710.
 2 She found an even higher percentage of free adjuncts with NSC – 12.1 per cent.
 3 The focus of Río-Rey's study was the diachronic evolution of free adjuncts as
 4 opposed to absolute constructions, and so it does not identify factors favouring
 5 NSC or show how they contribute to producing this effect.

6 A third corpus-based study is Hayase (2011), who examined 956 examples
 7 from the British National Corpus of dangling modifiers involving gerund-
 8 participles in sentence-initial position with 96 specific lexemes, namely
 9 verbs of cognition (*supposing*), physical motion (*walking*), perception (*look-*
 10 *ing*), physical states (*standing*) and physical activities (*opening*). This study
 11 has a much more limited scope than ours in that it only examined the *-ing*
 12 form and only with certain types of lexeme. Hayase treats the structure as a
 13 ground-before-figure construction in which the participial clause 'describes
 14 an (atemporal) unbounded background situation (the ground), while the
 15 main clause describes a bounded (temporal) situation of Cognition or
 16 Perception (the figure), and the semantic link between them is inferred'
 17 (Hayase 2011: 99). While the tenseless nature of the gerund-participle and
 18 its placement in initial position do lend themselves to setting up a ground
 19 with respect to the main-clause predication, this is not the only effect this
 20 configuration can produce. Hayase's account runs into difficulty with cases
 21 where the participle denotes a punctual action such as:

22
 23 (6) **Opening the exit to the fifth and top floor**, out came wafts of grey
 24 choking smoke.

25
 26 The prior position of the gerund-participle is exploited iconically here to
 27 symbolize the chronological sequence holding between two actions and to
 28 suggest a cause-effect relationship, not to institute a ground-figure relation.

29 The fourth and final corpus-based study of which we are aware is Lyngfelt's
 30 (2002) investigation of Swedish, presented as extendable to English in
 31 Lyngfelt (2009). In the Swedish data he found three properties favouring NSC
 32 in adverbial adjuncts:

- 33
 34 (a) sentence-initial position
 35 (b) passive matrix verb
 36 (c) expletive matrix subject

37
 38 The first and third factors have already been evoked above; the second can
 39 be illustrated by:

40
 41 (7) The study was done **using a well-tested methodology**.

42
 43 As the English examples show, all three of Lyngfelt's factors are at work in
 44 NSC readings with free adjuncts in English.

1 A review of the literature on French shows that the only corpus analysis of
 2 free adjuncts is Combettes' (1998) book on detached constructions, which
 3 is based both on examples from grammars and previous studies, and on
 4 literary sources and the press. Like Kortmann, he includes among detached
 5 constructions absolute constructions containing their own linguistically
 6 expressed controller. Combettes proposes that such constructions obey
 7 'grammaticalization', whereby a text-structuring device whose nature is
 8 essentially pragmatic/informational is integrated into syntactic structure.
 9 Detached constructions are divided into two types according to their degree
 10 of syntactic integration: (i) those equivalent to subordinate circumstantial
 11 clauses, which are only loosely integrated and allow syntactic dislocation;
 12 (ii) those equivalent to subordinate explicative clauses, which are strongly
 13 integrated and often accompanied by thematic breaks, being attached to
 14 a new rhematic element. This approach is similar in spirit to our own,
 15 although it is concerned with the textual function of detached structures
 16 rather than the problem of pinpointing what accounts for control.

17 There is thus a need for a corpus-based approach to control in infinitival
 18 and participial free adjuncts both in English and in French. The lone French
 19 study deals with this topic in the context of a broader investigation into
 20 the textual function of all detached constructions. In English, no large-
 21 scale corpus analysis of control in free adjuncts focusing on the English
 22 gerund-participle and infinitive has been carried out in order to verify the
 23 relative importance of the factors identified in previous studies or to investi-
 24 gate whether other factors such as the meanings of the forms themselves
 25 are at work in determining control. In order to remedy this situation, the
 26 1 million-word International Corpus of English-Great Britain (ICE-GB) and a
 27 300,000-word subsection of the French Treebank Corpus² (FTB) were examined
 28 for occurrences of the participle and infinitive in adverbial function. These
 29 corpora were chosen because they are both tagged and parsed, and allowed
 30 systematic extraction of all of the structures under study, thus providing a
 31 basis for statistical generalizations.

33 11.2 The English data

34 A total of 4133 occurrences of the two forms in adverbial function were ana-
 35 lysed in English (1748 of the gerund-participle and 2385 of the infinitive).
 36 These had to be treated manually in order to separate out the free adjuncts:
 37 1250 gerund-participles and 1911 infinitives.³ One general observation
 38 based on the data is that the proportion of unattached or dangling gerund-
 39 participial and infinitival adjuncts was significantly higher than that found
 40 in previous studies. The gerund-participle showed 29 per cent and the infini-
 41 tive 24 per cent NSC in free adjunct function. Nevertheless, SC still remains
 42 the norm for adjuncts, a datum which Combettes (1998: 40–1) argues is a
 43 reflection of the fact that the subject usually corresponds to the theme in
 44

1 information structure, it being natural for a secondary predication to apply
 2 to the utterance theme.

3
 4 **11.2.1 The gerund-participle**

5 All three factors identified by Lyngfelt for Swedish were found to be relevant
 6 for NSC with the gerund-participle in English as well. Of the 1250
 7 occurrences of *-ing* in free adjuncts, 141 fell into his three categories: NSC
 8 was observed in all 38 sequences with expletive matrix subjects (see Table 11.1),
 9 66 of the 71 cases with passive matrix verbs (see Table 11.2), and 66 of the
 10 238 sequences with initial position of the gerund-participle.⁴

11 The NSC ratio was both statistically significant and very high with the latter
 12 two categories: 93 per cent of passive matrix verb structures (vs 25 per cent
 13 for active voice) and 100 per cent of expletive matrix subject (vs 26 per cent
 14 in other cases) examples exhibited NSC. However, a number of divergences
 15 from Lyngfelt's findings also surfaced. Firstly, although sentence-initial
 16 gerund-participles represented a significant percentage of NSC (18 per cent of
 17 the 361 total), there were almost three times as many sentence-initial gerund-
 18 participles with SC as with NSC (172 vs 66). Overall therefore, initial position
 19 of the gerund-participle favours SC, which only makes sense due to the adjective-
 20 like nature of the *-ing*, its syntactic contiguity to the main-clause subject
 21 when it is in initial position, and the tendency noted by Combettes for a
 22 secondary predication to be applied to the overall utterance theme. More

23
 24 *Table 11.1* Contingency table: control type by matrix subject type for adjuncts with
 25 gerund-participle

	Matrix subject type	
	Non-expletive subject	Expletive subject
Subject control	889 (74%)	0 (0%)
Non-subject control	323 (26%)	38 (100%)
Total	1,212 (100%)	38 (100%)

33 $\chi^2 \approx 93$; p -value < 0.01.⁵

34
 35 *Table 11.2* Contingency table: control type by matrix verb voice for adjuncts with
 36 gerund-participle

	Matrix subject voice	
	Active	Passive
Subject control	884 (75%)	5 (7%)
Non-subject control	295 (25%)	66 (93%)
Total	1,179 (100%)	71 (100%)

44 $\chi^2 \approx 147$; p -value < 0.01.

1 importantly, over half of the 361 cases of NSC (53 per cent) did not exhibit
 2 any of the three properties identified by Lyngfelt. Among these, one type of
 3 construction even outranked all three of Lyngfelt's properties by a significant
 4 margin: structures with a sentence-final gerund-participle clause controlled
 5 by the whole proposition expressed by the matrix clause – what Williams
 6 (1985) describes as 'event control'. These accounted for 111 occurrences of
 7 NSC. This type is illustrated by the two examples below where the adjunct
 8 is paraphrasable by 'and **that** would leave/cause', with the demonstrative
 9 corresponding to the entire content of the preceding main clause:

10
 11 (8) In order to reach orbit a V-2 would have to be filled with propellant
 12 up to as much as 98% of its take-off weight, **leaving only 2% for**
 13 **everything else.** (ICE-GB W2B-035)

14 (9) Consequently this layer will undergo starvation and ultimately death,
 15 **causing the entire biofilm to detach from its support.** (ICE-GB
 16 W2A-021)

17
 18 The final position of the gerund-participle clause is an important factor
 19 contributing to the event control interpretation here, which was often asso-
 20 ciated with an impression of logical consequence as in (8) and (9) above;
 21 an impression that can be explained as a pragmatic effect deriving from
 22 the word order being exploited iconically. Another relevant factor was the
 23 lexical meaning of the gerund-participle: resultative notions such as *leave* in
 24 (8) above accounted for over 50 cases, causatives as in (9) for over 20 and
 25 lexemes denoting permission like *allow* for 15.

26 Another frequent case of NSC occurred with metalinguistic expressions as in:

27
 28 (10) That's obviously not the reaction, well **judging from the way she**
 29 **behaved.** (ICE-GB S1A-080)

30
 31 This type of structure, of which 46 instances were found in the corpus, can
 32 be paraphrased by a conditional clause and functions as a way of hedg-
 33 ing the assertion made in the main clause by specifying the point of view
 34 from which this assertion is made or the conditions under which it is valid.
 35 Seventy per cent of the 46 occurrences of this structure manifested NSC (see
 36 Table 11.3).

37 The next most frequent type has also escaped notice in previous stud-
 38 ies. Eight cases were found in which the controller of a gerund-participle
 39 adjunct was the implicit subject of another gerund-participle or infinitive,
 40 as in:

41
 42 (11) To take Beckett's earlier works as being important for what they tell
 43 us about Beckett's better known later writings is **to grant** these early
 44 texts secondary status, **while still claiming that they contain more**

1 Table 11.3 Contingency table: control type by function type for adjuncts with
2 gerund-participle

	Adjunct function		
	Metadiscursive	Other	
3			
4			
5			
6	Subject control	14 (30%)	875 (73%)
7	Non-subject control	32 (70%)	329 (27%)
8	Total	46 (100%)	1,204 (100%)

9 $\chi^2 \approx 36$; p -value < 0.01.

10
11
12 **transparent evidence of the author's underlying intentions.**
13 (ICE-GB W2A-004)

14
15 Related to these, one case was found in which the controller was the implied
16 agent of the action denoted by a deverbal noun:

17
18 (12) However, lack of telial material on leaks in the UK has prevented
19 **classification using this system.** (ICE-GB W2A-028)

20
21 This is clear evidence of the essentially pragmatic character of control assign-
22 ment: in (12) the noun *classification* logically implies an agent performing
23 the action of classifying, and due to the natural relation between a classifier
24 and the use of a classificatory system, it is this agent who is interpreted as
25 the person using the system in order to classify leaks.

26 Two cases were also found that did not fit into any of the above categories.
27 In (13) below, the controller corresponds to an entity, the new form of Thames
28 barge, whose existence is implied by the overall content of the matrix clause:

29
30 (13) The form of the Thames barge evolved in the early nineteenth
31 century, **replacing an earlier more primitive kind of sailing vessel.**
32 (ICE-GB S2B-022)

33
34 The example (14) illustrates an intratextual use of a gerund-participle adjunct,
35 whose controller corresponds to the content of the matrix clause that it
36 introduces:

37
38 (14) The Sigma makes sensible use of its technology, it cruises very well
39 and it comes with a three-year warranty. **Countering that**, it has a
40 bland appearance. (ICE-GB S2A-055)

41
42 Here the non-specificity of the gerund-participle's implicit subject is
43 exploited as an anticipatory device signalling the forthcoming introduction
44 of something countering the positive qualities of the Sigma.

11.2.2 The infinitive

As with the gerund-participle, the data showed that both passive matrix verbs and expletive matrix subjects favour NSC with infinitives. Regarding the first factor, 82 per cent of the 324 examples with passive matrix predicates exhibited NSC, as can be seen in Table 11.4; regarding the second, all 13 cases of expletive subjects showed NSC as well, as shown in Table 11.5.

Within the 18 per cent of SC readings with passives, two factors were found which facilitated the SC interpretation: (i) animate matrix subjects (42 per cent of the 58 cases of SC, cf. (15) below); and (ii) expressions of the type: *X is/was made/designed/created/prepared/produced to do Y* (30 per cent of SC, cf. (16) below):

- (15) Patients entered in this study would be randomised to receive a **standard three-weekly regimen or the weekly intensive regimen.** (ICE-GB S2A-035)
- (16) The copy was made at an earlier stage, uh maybe in the 7th century, **to go with the first basilica on the site.** (ICE-GB S2A-060)

However, the representation of the matrix subject as passive was overwhelmingly associated with NSC. The reason for this is pragmatic: since the matrix subject is represented as passive, it cannot easily be construed

Table 11.4 Contingency table: control type by matrix verb voice for adjuncts with gerund-participle

	Matrix subject voice	
	Active	Passive
Subject control	1,397 (88%)	58 (18%)
Non-subject control	190 (12%)	266 (82%)
Total	1,587 (100%)	324 (100%)

$\chi^2 \approx 724$; p -value < 0.01.

Table 11.5 Contingency table: control type by matrix subject type for adjuncts with infinitive

	Matrix subject type	
	Non-expletive subject	Expletive subject
Subject control	1455 (77%)	0 (0%)
Non-subject control	443 (23%)	13 (100%)
Total	1898 (100%)	13 (100%)

$\chi^2 \approx 38$; p -value < 0.01.

1 as acting for a purpose. Confirmation of this was found with stative matrix
 2 predicates, all five of which also exhibited NSC, as in:

3
 4 (17) **To enable backtracking up the menu structure**, each menu object
 5 contains a pointer back up to its parent menu. (ICE-GB W1A-005)

6
 7 Here the matrix subject is not acting at all, and so, as with passives, does not
 8 lend itself to being construed as acting for a purpose.

9 Lyngfelt's third factor favouring NSC, sentence-initial position, was indeed
 10 found to be slightly more frequent with this reading with the infinitive
 11 (54 per cent of the 81 occurrences of sentence-initial *to*-infinitive adjuncts),
 12 as opposed to the gerund-participle which exhibited only 18 per cent NSC
 13 in this position. In all cases, however, NSC was associated with some other
 14 contributing factor:

- 15
 16 (a) metalinguistic function (cf. (18) and Table 11.6), 48 per cent of the 44
 17 NSC contexts;
 18 (b) passive matrix predicates (cf. (19) below), 36 per cent of NSC contexts;
 19 (c) impersonal matrix predicates expressing deontic necessity (cf. (20)
 20 below), 9 per cent of NSC;
 21 (d) inanimate matrix subjects (cf. (21) below), 7 per cent of NSC.

- 22
 23
 24 (18) **But to be candid**, she felt some doubt on the matter. (ICE-GB W2F-011)
 25 (19) **To make the system more flexible**, a new function was written at
 26 the request of the survey. (ICE-GB W1A-005)
 27 (20) **To build a vehicle that could achieve the speed required to put a**
 28 **satellite in orbit**, it therefore became necessary to build a series of
 29 vehicles mounted on top of each other. (ICE-GB W2B-035)
 30 (21) However, **in order to maintain a near normal rhythm of speech**,
 31 the monitoring of the feedback is not so thorough. (ICE-GB
 32 W1A-016)

33
 34
 35 *Table 11.6* Contingency table: control type by function type for adjuncts with
 36 infinitive

	Adjunct function	
	Metadiscursive	Other
Subject control	34 (62%)	1,411 (76%)
Non-subject control	21 (38%)	435 (24%)
Total	55 (100%)	1,846 (100%)

44 $\chi^2 \approx 36$; *p*-value < 0.02.

1 The significantly higher proportion of SC with fronted *-ing* forms is due to the
 2 adjective-like character of the gerund-participle which leads it to be associated
 3 more readily with the most salient NP in the sentence – the matrix subject
 4 representing the utterance topic. The significant difference observed between
 5 the two forms of adjunct in initial position justifies our methodological deci-
 6 sion to look at them separately so as to ascertain the possible effects of their
 7 particular semantic content on their behaviour with respect to control.

8 As with the gerund-participle, a considerable number of cases were found
 9 in which sentence-initial or sentence-final position was associated with
 10 event control (all of the 111 cases of event control occurring with the infini-
 11 tive were in one of these two positions, 89 per cent final, 11 per cent initial).
 12 The most frequent structure (sentence-final) is illustrated in (22), the less
 13 frequent one in (23):

- 14
 15 (22) Both fuel and oxidant were pumped together into the rocket motor,
 16 where they burned together **to produce hot gas at high pressure.**
 17 (ICE-GB W2B-035)
 18 (23) **To prevent confusion between Occam channels and Mascot**
 19 **channels**, all text referring to Mascot channels will use a capital C.
 20 (ICE-GB W2A-038)
 21

22 The position after the matrix is most often associated with an impression of
 23 temporal subsequence, the first event being felt to be the cause bringing the
 24 infinitive's event into existence, an impression which is not so clearly felt
 25 when the infinitive is in initial position. Thus, as with the gerund-participle,
 26 word order plays an iconic role guiding the pragmatic interpretation of the
 27 relation between the two events with the infinitive as well. The types of
 28 lexeme found with the infinitive and the gerund-participle are roughly simi-
 29 lar: the top three with the infinitive included verbs of allowing (21 cases),
 30 helping (21 cases) and producing (15 cases).⁶

31 As with the gerund-participle, the controller of an infinitival adjunct can
 32 be pragmatically implied by another infinitive, as in (24), a gerund-participle
 33 (25), or even a deverbal noun (26):

- 34
 35 (24) Both Marx and Lenin formulated theories on how **to increase** devel-
 36 opment in the 'Third World' **in order to decrease the 'gap' between**
 37 **the industrialized countries of the North and the agrarian/sub-**
 38 **sistence states mainly situated in the South.** (ICE-GB W1A-015)
 39 (25) The training process consists of inputting the desired patterns in
 40 sequence, and **using** the delta (or Wedrow-Hoff) rule **to alter the**
 41 **connection weights.** (ICE-GB W2A-032)
 42 (26) The vast majority of electronic enthusiasts will certainly own a siz-
 43 able conglomeration of the most wonderful odds and ends tucked
 44 carefully away in every conceivable corner of the home. [...] Every

1 now and then, *a tidy up* is in order, if only **to muse for a while over**
2 **the priceless cache.** (ICE-GB W2B-032)

3
4 The *to*-infinitive does not require its implicit subject to be any more precise
5 than the unspecified agent implied by the non-finite verbal or deverbal
6 noun preceding it. It is not surprising therefore to find infinitival adjuncts
7 in contexts involving dilution of responsibility. Thus in the sentence below
8 no one in particular is represented as responsible for doing something to
9 improve the course referred to:

10
11 (27) What do the students think of the course in general and the B.A.
12 and what could be done **to improve it?** (ICE-GB S1A-008)

13
14 Like the gerund-participle, the *to*-infinitive is used in a wide variety of style
15 disjuncts, the two most frequent types involving reference to the speaker's
16 sincerity and introduction of an example:

17
18 (28) Well, his recent work's shit, actually, **to be blunt.** (ICE-GB S1A-045)

19 (29) I mean, just **to give you a sort of swift example**, supposing
20 uhm you've got a chain of gas stations [...] and they have one
21 independent competitor. (ICE-GB S1B-005)

22
23 *To*-infinitive phrases can thus act as a device for the speaker to let the hearer
24 know how he intends some portion of the discourse to be construed. This
25 is consonant with the purposive meaning of the preposition *to* introducing
26 the infinitive.

27 In some cases, there is a very large dose of pragmatics in the mix. Thus in
28 the context below our encyclopedic knowledge of cooking and the reason
29 why people put things in fridges guides the interpretation:

30
31 (30) When finished, shape into rolls, about 4-5 inches long and 1 inch
32 thick and put these, if there is time, in the fridge **to chill for 1/4**
33 **hour.** (ICE-GB W2D-020)

34
35 If *chill* were replaced by *keep from thawing out*, SC would be induced due to
36 the incompatibility of food with the agentive role in keeping something
37 from thawing out. The external situation can also play a crucial role in control,
38 a case in point being:

39
40 (31) Where are the vegetarians, **to give them the vegetarian dinner?**
41 (ICE-GB S1A-011)

42
43 Here the *to*-infinitive expresses the purpose of the speaker's question about
44 the place where the vegetarians are seated, and world knowledge about what
 someone asking such a question will do with the information guides the

1 interpretation, which could be either that the speaker is going to give the
 2 vegetarians their dinner or the waiters working under his orders.

3
 4 **11.3 The French data**

5
 6 A roughly 300,000-word subsection of the French Treebank corpus has
 7 been morphosyntactically and functionally annotated, which allowed us to
 8 extract all the infinitival and participial verb phrases marked as modifiers.⁷
 9 After automatically pruning away the past participle and absolute construc-
 10 tions, 1663 free adjunct candidates were left. Of these, 350 verb phrases
 11 wrongly tagged as modifiers were discarded,⁸ bringing the total number of
 12 relevant free adjuncts to 1313: 809 infinitives and 504 present participles. As
 13 expected, the majority of adjuncts were SC. However, 29 per cent of infini-
 14 tivals and 17 per cent of participials displayed NSC; compared to the results
 15 of previous studies, these proportions are significantly higher. Comparing
 16 these statistics with those derived from the English data is neither the pur-
 17 pose of this chapter nor methodologically sound procedure, as the French
 18 and English corpora used in this study are not comparable. Any difference
 19 one might attribute to the specific character of one of the two languages
 20 could actually be a matter of genre or medium, the FTB consisting of only
 21 written newspaper articles often related to economic matters, while the
 22 ICE-GB includes both spoken and written texts on a variety of topics from
 23 a wide assortment of genres.

24
 25 **11.3.1 The present participle**

26 As was the case for English, several factors concerning the matrix clause
 27 were found to favour the appearance of NSC in participial adjuncts. For
 28 instance, as Table 11.7 shows, all eight cases with expletive *il* as matrix
 29 subject were NSC, for obvious semantic reasons. We found this type of
 30 constructions with *il + être + ADJ + de* (*il est nécessaire de [it is necessary*
 31 *to]*, *il est possible de [it is possible to]*), and with *il + VERB* (*il + convenir [it is*
 32 *good to]*, *il + falloir [it is necessary to]*). The logical subject of the participle is
 33 understood to be either generic human as in (32), or a more specific agent,
 34
 35

36 *Table 11.7* Contingency table: control type by matrix subject type for adjuncts with
 37 present participle

	Matrix subject type	
	Non-expletive subject	Expletive subject
Subject control	419 (84%)	0 (0%)
Non-subject control	77 (16%)	8 (100%)
Total	496 (100%)	8 (100%)

38
 39
 40
 41
 42
 43
 44
p-value < 0.01.⁹

1 either implicit or explicit, as in (33) where the controller is identified by
 2 the pronoun *nous*.

3
 4 (32) *l'inflation sous-jacente, qu'il est possible de mesurer en suivant*
 5 *l'évolution de l'indice des prix hors énergie et produits alimen-*
 6 *taires, était fin 1992 un peu supérieure à 3% l'an.* (FTB, 271190)
 7 [Underlying inflation, which it is possible to measure **by following**
 8 **the evolution of the consumer price index excluding energy and**
 9 **food**, was over 3% per year at the end of 1992.]

10 (33) *Alors, en attendant « que les choses changent, il nous faut [...]*
 11 *montrer que nous [...] sommes capables de faire fonctionner nos*
 12 *centrales nucléaires sans incident ».* (FTB, 249061)
 13 [So, **while waiting for 'things to change**, it is necessary for us to
 14 show that we are able to operate our nuclear power plants without
 15 incident'.]

16
 17 Passive voice in the matrix also seems to increase the likelihood of an
 18 NSC interpretation, which occurred in 55 per cent of the 11 cases, as Table
 19 11.8 shows.

20 Here is a typical case:

21
 22 (34) *Les pays industrialisés ont aussi toutes sortes de problèmes spéci-*
 23 *fiques qui doivent être surmontés en instituant une économie plus*
 24 *efficace et ouverte.* (FTB, 249057)
 25 [Industrialized countries also have many specific problems that must
 26 be solved **by instituting a more efficient and open economy**.]
 27

28 This example shows the relevance, for control assignment, of understanding
 29 the participants implied by the matrix verb: in almost all cases, the control-
 30 ler is the overt or covert agent of the passive. In the latter case, the context
 31 is especially decisive.

32 When we looked at possible NSC scenarios, we found event control to
 33 be particularly salient with the present participle (35 of 39 cases of event
 34

35 *Table 11.8* Contingency table: control type by matrix verb voice for adjuncts with
 36 present participle

	Matrix verb voice	
	Active	Passive
Subject control	414 (84%)	5 (45%)
Non-subject control	79 (16%)	6 (55%)
Total	493 (100%)	11 (100%)

44 *p*-value < 0.01.¹⁰

control are with participial adjuncts). It is also noteworthy that all 35 adjuncts were in final position, as in (35) below, similarly to what was found in the English data; French too thus exploits the iconic placement of the adjunct to denote a cause–effect relation. This type of construction also appears to select certain kinds of verbs, notably those that denote a change-of-state or a cause–effect relationship.

- (35) La liste des pays qui demandent à participer à cette nouvelle donne ne cesse de s’allonger, **ouvrant ainsi de nouvelles possibilités d’investissements et de commercialisation**. (FTB, 224968)
 [The list of countries asking to participate in this new opportunity keeps expanding, **opening up new investment and commercialization opportunities**.]

Another type of use was represented by cases like (36) below, where the adjunct is metadiscursive and thus does not modify an element in the sentence but refers to the speech or thought act underlying the sentence’s utterance. Other forms found in the corpus were *en tenant compte de* [taking into account] and *en se référant à* [referring to]. Since these metadiscursive adjuncts have no formal marking, pragmatic inferences must necessarily be made in order to assign control with them. There were only five occurrences of this type of predication with present participle adjuncts, but all of them were NSC as shown in Table 11.9.

- (36) **En excluant le profit exceptionnel enregistré en 1990**, [...] la hausse du bénéfice 1991 est de 21%. (FTB, 249489)
 [Excluding the exceptional profit recorded in 1990, profit growth in 1991 is 21%.]

Interestingly, the controller can also be an NP embedded in the subject of the matrix, as in (37) below, where it is obviously not the unemployment rate that affects 11 per cent of the active population but unemployment itself. The controller can also corefer with the possessor in a possessive determiner

Table 11.9 Contingency table: control type by function type for adjuncts with present participle

	Adjunct function	
	Metadiscursive	Other
Subject control	0 (0%)	419 (84%)
Non-subject control	5 (100%)	80 (16%)
Total	5 (100%)	499 (100%)

p-value < 0.01.¹¹

1 in another NP, as noted by Kortmann (1991: 66). In (38), one does not
 2 understand that the strategy is waiting, but rather the man employing it.

3
 4 (37) **Touchant 11% de la population active**, le taux de chômage atteint
 5 actuellement son niveau le plus haut depuis 1985 [...]. (FTB, 249322)
 6 [Affecting 11% of the active population, the unemployment rate
 7 is now at its highest point since 1985.]

8 (38) **En attendant que la justice se soit prononcée dans le sens**
 9 **qu'il espère**, sa tactique est, apparemment, d'entretenir le doute.
 10 (FTB, 249819)
 11 [While waiting for court to rule in his favor, his strategy is,
 12 apparently, to sow doubt.]

13
 14 **11.3.2 The infinitive**

15 Most of the factors relevant for control in participial adjuncts are also per-
 16 tinent to infinitives. Thus, an expletive subject in the matrix always corre-
 17 sponds to NSC, as shown in Table 11.10. One particularly prominent pattern
 18 had an expression of deontic modality both in the adjunct and in the matrix
 19 clause; an overwhelming majority of the 63 cases of expletive subjects had
 20 *pour/afin de* (both meaning 'in order to') + INFINITIVE as the adjunct and
 21 *falloir* as the matrix verb, as in (39):

22
 23 (39) il faudra d'autres réunions [...] **pour essayer d'avancer vers un**
 24 **accord.** (FTB, 249103)
 25 [other meetings will be necessary to try to move towards an
 26 agreement.]

27
 28 Similarly, passive voice in the matrix also shows a higher NSC ratio with
 29 infinitival adjuncts (66 per cent) than does active voice (25 per cent), as
 30 Table 11.11 shows.

31 In sentences like (40) below, a wide variety of factors come into play in
 32 assigning control, namely the presence of the reflexive pronoun *se*, which

33
 34
 35 *Table 11.10* Contingency table: control type by matrix subject type for adjuncts with
 36 infinitive

	Subject type	
	Non-expletive subject	Expletive subject
Subject control	578 (77%)	0 (0%)
Non-subject control	168 (23%)	63 (100%)
Total	746 (100%)	63 (100%)

44 $\chi^2 \approx 167$; p -value < 0.01.

1 Table 11.11 Contingency table: control type by matrix verb voice for adjuncts with
2 infinitive

	Matrix verb voice	
	Active	Passive
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
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31		
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34		
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36		
37		
38		
39		
40		
41		
42		
43		
44		

10 $\chi^2 \approx 44$; p -value < 0.01.

13 must corefer with the implicit subject, the meaning of the verb *imposer* [*to impose*], which implies a patient, and the knowledge of typical scenarios regarding driving tests and law enforcement.

- 17 (40) un délai de six mois est imposé par la loi [...] **avant de pouvoir se représenter au permis de conduire** [...]. (FTB, 249710)
18 [A six-month waiting period is imposed by the law **before being able to take the drivers test again.**]

22 A similar case to (40), which did not occur with participial adjuncts in our corpus although nothing would seem to exclude it, is when the matrix verb is in the reflexive. In French, transitive reflexive verbs can be pragmatically equivalent to passives in which the semantic patient becomes the subject and the reflexive pronoun *se* the object, as in *Ce livre se lit facilement* [*This book reads easily*] and *La grève se poursuivra* [*The strike will continue*]. The count of reflexive verbs in the matrix was too low for statistical significance, but example (41) below will serve to illustrate the phenomenon. This type of construction has no exact equivalent in English, where this type of effect can only be created by using the passive voice:

- 33 (41) Le magistrat a ajouté que des discussions se poursuivraient avec
34 Abou-Dhabi **pour tenter de maximiser l'indemnisation offerte aux déposants**. (FTB, 226479)
35 [The magistrate added that discussions would continue with Abu
36 Dhabi **to try to maximize the indemnities offered to depositors.**]

39 As with participial adjuncts, several metadiscursive infinitival adjuncts like the one in (42) below were found in the corpus, including: *pour ne citer que* [*to cite only*], *sans oublier* [*not to omit*], *à en juger par* [*judging by*], *pour le dire autrement* [*to put it in other words*], *sans parler de* [*not to speak of*], *à en croire* [*if one is to believe*] and *à supposer que* [*supposing that*]. In all examples, the implicit subject was either the generic human *on* or the speaker himself. The only two

1 Table 11.12 Contingency table: control type by function type for adjuncts with
2 infinitive

	Adjunct function		
	Metadiscursive	Other	
3			
4			
5			
6	Subject control	2 (7%)	576 (74%)
7	Non-subject control	26 (93%)	205 (26%)
8	Total	28 (100%)	781 (100%)

9 $\chi^2 \approx 56$; p -value < 0.01.

10
11
12
13 sentences where such an adjunct was SC occurred when the matrix subject
14 was expressed by the generic pronoun *on* itself, as in (43). Table 11.12 shows
15 that the ratio of NSC is significantly higher for metadiscursive adjuncts.

16
17 (42) **à y regarder de plus près**, le bilan n'est peut-être pas aussi sombre.
18 (FTB, 248982)

19 [looking more closely, the bottom line perhaps is not so bad.]

20 (43) **À considérer les dégâts infligés aux bilans des banques et des**
21 **compagnies d'assurances parisiennes [...]**, on commence à en être
22 moins sûr. (FTB, 270449)

23 [Considering the damage inflicted on the balance sheets of
24 Parisian banks and insurance companies, people are beginning to
25 have doubts.]

26
27 Event control is also possible for infinitival adjuncts, although it occurs
28 much more frequently with participials. Sentence (44) below is one of the
29 four cases of event control with an infinitive in the FTB. Adjunct position
30 seems to be freer for infinitival adjuncts, as two out of the four cases were
31 sentence-initial, whereas all 35 event-controlled participial adjuncts were
32 sentence-final.

33
34 (44) Et **pour noircir encore le tableau**, le passage du cyclone Andrew sur
35 les côtes de Floride devrait coûter près de 45 milliards de francs aux
36 assureurs. (FTB, 271201)

37 [And to make matters worse, the aftermath of Hurricane Andrew on
38 the coast of Florida will probably cost insurers nearly 45 billion francs.]

39
40 As with present participles, the controller can also be embedded in the
41 matrix clause's NP subject, as in (45) below, or be coreferential with the
42 possessor of a possessive determiner, as in (46). In these cases, semantic
43 and pragmatic incompatibilities between the subject of the matrix and the
44 adjunct require a search for other potential controllers than the subject: thus

1 one understands in (45) that the operation has to be what highlights the
 2 presence of deposit sites, not the operation's profitability, and in (46) that
 3 the position cannot be construed as negotiating agreements, but rather
 4 those who hold it.

5
 6 (45) La rentabilité de l'opération est jugée aléatoire, **sauf à mettre en**
 7 **évidence d'autres gisements dans la région.** (FTB, 249630)

8 [The profitability of the operation is judged to be doubtful, **except**
 9 **for highlighting other deposit sites in the area.**]

10 (46) Notre position est de prendre les devants **pour négocier des**
 11 **accords qui n'entraînent qu'une baisse minimale des salaires [...].**
 12 (FTB, 249694)

13 [Our position is to take the lead **to negotiate agreements that**
 14 **result only in a very slight decrease in wages.**]

15
 16 Finally, another possibility is for the controller to be the agent of a noun.
 17 In (47), the infinitive *conseiller* is controlled by *M. Mllemann*, which is the
 18 explicit agent of the deverbial noun *intervention*.

19
 20 (47) Stern avait déjà révélé une autre intervention de M. Mllemann
 21 auprès de supermarchés **afin de conseiller l'achat d'un produit**
 22 **fabriqué par un cousin de son épouse.** (FTB, 271314)

23 [Stern had already revealed another manoeuvre by Mr Mllemann
 24 **to recommend to supermarkets the purchase of a product**
 25 **manufactured by his wife's cousin.**]

26
 27 The French data thus show more or less the same possibilities for the iden-
 28 tification of the implicit subject of the infinitive as the English data. This
 29 subject can be the implicit agent of a passive or reflexive, a generic human
 30 agent, the speaker, the event of the matrix, another NP in the matrix, the
 31 possessor in a possessive determiner, or the agent implied by a deverbial
 32 noun.

33 34 11.4 Conclusions

35
 36 One general conclusion that can be made regarding frequency is that the
 37 proportion of NSC in our corpus was significantly higher than that found in
 38 previous studies: 29 per cent of infinitivals and 17 per cent of participials in
 39 French, 24 per cent of infinitivals and 29 per cent of gerund-participials
 40 in English. This seems to indicate considerable semantico-pragmatic flex-
 41 ibility with infinitival and participial free adjuncts in contemporary English
 42 and French, allowing the speaker to use adjuncts for various kinds of
 43 predications, including reference to many elements that are not explicitly
 44 represented linguistically. Moreover, somewhat unexpectedly this seems to

1 occur predominantly in written texts: the ICE-GB is only 40 per cent writ-
 2 ten and yet 71 per cent of NSC with the gerund-participle and 57 per cent
 3 with the infinitive came from the written portion of the corpus, and all of
 4 the FTB is made up of written texts. One conclusion regarding English that
 5 can be drawn from our study is that the difference observed between the
 6 two forms in initial position justifies the methodological decision to look
 7 at them separately so as to ascertain the effect of their semantic content on
 8 their behaviour with respect to control: the significantly higher proportion
 9 of SC with fronted participles is due to the adjective-like character of this
 10 form which leads it to be associated more readily with the most salient NP
 11 in the sentence, the matrix subject representing the utterance topic. In both
 12 languages, final position of the participle is exploited iconically with event
 13 control to imply a cause–effect relation between the actions expressed by the
 14 matrix and the adjunct. It is also worth noting that both languages make
 15 frequent use of metadiscursive adjuncts. These constructions seem to have
 16 undergone various degrees of lexicalization and can often be translated in
 17 the other language by a similar structure with a non-finite verbal that is also
 18 likely to display NSC.

19 On an even more general level, a comparison between free adjunct and
 20 complement functions with the English infinitive shows that, as regards
 21 control, free adjuncts are much less semantically integrated into the matrix
 22 than complements are: a survey of the 2676 infinitives in complement func-
 23 tion in the ICE-GB turned up only 7 cases of NSC, that is, only 0.003 per cent
 24 of infinitival complements vs 24 per cent NSC with infinitival free adjuncts.
 25 As argued in Duffley (2006: 51) regarding complement function, for exam-
 26 ple *She tried to open the door*, the infinitive is represented in such structures
 27 as the terminus of a movement implied by the matrix verb's event, which
 28 entails that the matrix verb's subject aims to move to the realization of the
 29 infinitive's event, a construal that invariably implies SC. Infinitival and par-
 30 ticipial free adjuncts being less bound to the matrix's semantic content, they
 31 both allow NSC more frequently and require substantial pragmatic work to
 32 be interpreted. Bach (1982: 54) describes the chain of inferences determin-
 33 ing control in *I bought 'Bambi' to give to Mary to pass on to John to take along*
 34 *on the camping trip to read to the children* as follows:

35
 36 I buy *Bambi*; I have *Bambi*; I'm going to give it to Mary; then Mary will
 37 have it; she's supposed to pass it on to John; then he'll have it and will be
 38 able to take it along on the camping trip and it will be on hand (for John
 39 or anyone else on the trip) to read to the children. I have just worked out
 40 the most likely controllers of the purpose clauses in (75) [= the sentence
 41 above]. How did I do it? By understanding what it means to give, to pass
 42 on, to take along, and so on. How much of this can we or should we put
 43 into our theories of linguistic competence, into our theories of syntactic
 44 and semantic representations? I don't think we'll have a satisfying answer
 to this question until we've done a lot more work.

1 Based on our analysis of the data, our answer to Bach's question concerning
 2 how much knowledge needs to be incorporated into the explanation of control
 3 would be: all of it! As Landau (2013: 258) says, 'problems in control are
 4 challenging in that they bear no obvious mark as to which part of the grammar
 5 they belong to; lexicon, syntax, semantics or pragmatics – the proper
 6 analysis is always up for grabs'. As we have shown in this study, the controller
 7 can correspond to the matrix verb's subject, but also to another NP in the
 8 matrix clause, the event expressed by the whole matrix clause, the speaker
 9 himself, an implied generic human, the possessor denoted by a possessive
 10 determiner, the implicit or explicit agent of a deverbal noun or of a passive
 11 or reflexive verbal construction. The possibilities are legion, so much so that
 12 there is no way one can infer the intended message correctly without a considerable
 13 amount of knowledge, both semantic and pragmatic.

14 Notes

- 15
 16
 17 1. www.sixpacksmadeeasy.com
 18 2. The FTB was provided to us courtesy of the Laboratoire de Linguistique Formelle
 19 at the Université de Paris 7.
 20 3. Typical examples that had to be weeded out were:

- 21 (i) he goes **shooting** off in the car up the road
 22 (ii) you may have local issues which you would like **to raise**.

23 In these two sequences neither form is deletable or syntactically mobile.

- 24
 25 4. These numbers do not add up to 170 because 29 cases involved both initial
 26 position and expletive matrix subjects, all of which showed NSC.
 27 5. Unless otherwise indicated, Pearson's chi-squared test with Yates' continuity
 28 correction has been used to measure ratio independence between SC and NSC.
 29 6. There are also differences: the verb *help* occurred nine times with the infinitive,
 30 but only once with the gerund-participle; the purely resultative lexeme *leave*
 31 was not attested at all with the infinitive, but occurred over 50 times with the
 32 *-ing* form. These differences seem to reflect the goal/result-directed orientation
 33 implied by infinitival *to*. Space does not permit us to pursue this matter further
 34 here, however.
 35 7. In the function tagset, 'MOD' stands for *modifier* and is the tag given to mobile
 36 and optional phrases. Modifiers can be adverbial phrases ('AP'), prepositional
 37 phrases ('PP'), infinitival or participial phrases ('VPinf' or 'VPpart'), subordinate
 38 clauses ('Ssub') or noun/pronoun phrases ('NP').
 39 8. An example of a frequent wrongly tagged phrase is the compound future with
 40 *aller*: 'il se demande où il va **loger sa famille de trois enfants**' (FTB, 248937)
 41 [he's wondering where he will **house his three-child family**] where the verbal
 42 phrase is neither mobile nor optional and thus should not have been considered
 43 an adjunct.
 44 9. Since the count number is low and one of the cells in the contingency table has
 a value smaller than or equal to 5, Fisher's exact test was used to calculate ratio
 independence.
 10. *Idem*.
 11. *Idem*.

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