

CHAPTER 4

CONTROL AND PREDICATION

INTRODUCTION

A question that is central to the study of control is how controlled infinitives are interpreted. Specifically, what is the semantic procedure associating the infinitive, or PRO, with the controller. Indeed, whether the significant relation is controller-infinitive or controller-PRO is already a contentious issue. There are two major schools of thought on these matters, which I will term the *predicational* and the *propositional* approaches.

The predicational approach holds that infinitives in OC denote unsaturated predicates (properties). The open position corresponds to the subject of the infinitive, which under some versions is projected as PRO and under others is completely missing from the syntax (the latter take controlled infinitives to be bare VP's). If PRO is present, then it is merely a lambda-variable. The semantic procedure associates the controller with the infinitive - by predicating the latter of the former; some versions take this predication to apply in the course of the semantic composition of the sentence, others take it to be induced by a lexical entailment of the control predicate ("meaning postulates"). This cluster of theories is represented in Bach (1979, 1982), Williams (1980), Dowty (1985), Lebeaux (1985), Chierchia (1984, 1989, 1990) and Clark (1990).

The propositional approach holds that infinitives in OC denote closed propositions, just like finite clauses do. PRO is projected in the syntax and saturates the subject position of the infinitive. The semantic procedure associates the controller with PRO via an anaphoric relation of sorts. Theories which assume some version of this story are Chomsky (1980, 1981), Koster & May (1982), Manzini (1983), Bouchard (1984), Koster (1984) and Borer (1989). The present study is situated within this camp as well.

Notice that the issue under debate is not the existence of PRO; both approaches are compatible with a syntactic PRO (a point to which we return below). Rather, at stake is the manner in which PRO composes with the infinitival VP. This determines the semantic type of the infinitive, and the question is: Is the infinitive a predicate or a proposition?

This chapter brings to bear some novel arguments on this question. I will show that within a particular empirical domain - adjectival complementation - the propositional approach can express natural generalizations that the predicational approach fails to. In particular, we will see that some subject-gap infinitives pattern with gapless infinitives while others pattern with object-gap infinitives. The former type of subject-gap infinitives will be shown to exemplify control, whereas the latter will be shown to exemplify predication. Distributionally, the former are found under psych-adjectives, the latter under non-psych adjectives. This clear division is expected if control in fact involves a different mechanism than predication.

This chapter is organized as follows: Section 1 presents the empirical puzzle, partly noted by Faraci (1974); psych-adjectives *tolerate* at most a subject gap in their complement whereas non-psych adjectives *require* exactly one bound gap. Section 2 proposes an analysis which groups the former type with control constructions and the latter with complex- predicate constructions. It is further argued that psych-adjectives denote a binary relation between an experiencer and a (propositional) subject-matter argument, while non-psych adjectives only select a theme argument. An infinitive appearing with the latter kind of adjective is a predicate-modifier.

Section 3 establishes the argument-modifier distinction between the two kinds of infinitives under four different tests (ellipsis, extraction, extraposition and preposition stranding). In section 4 I discuss two apparent problems to the present analysis - the distribution of arbitrary PRO and the *easy*-class of adjectives - and show that their properties are orthogonal to the cases at hand. Section 5 derives a surprising crosslinguistic correlation between subject-gap complements to non-psych adjectives and subject infinitival relatives; it is shown that this correlation follows from the propositional approach to control but not from the predicational one. In section 6 we spell out the full implications of this study to the general debate between the two approaches to control.

1. ADJECTIVES AND INFINITIVAL COMPLEMENTS: THE PUZZLE

Faraci (1974) made the observation that the possibility of “object deletion” in a *for*-infinitival complement of a predicate correlates with the semantic properties of the predicate:

- (1) a. The patient is ready/anxious/eager for the doctor to operate on him.
- b. * The patient is ready/anxious/eager for the doctor to operate on ____.
- c. The tumor is ready for the doctor to operate on ____.
- d. * The tumor is ready for the doctor to operate on it.

[Faraci 1974: 80-82]

Faraci’s generalization was that “psychological predicates do not take complements with deleted objects” (p.81). Notice that the predicate *ready* is ambiguous between a

psychological reading, as in (1a,b), and a “material”, non-psychological reading, as in (1c,d). We will notate those as *ready_P* and *ready_M*, respectively.

To avoid confusion, let us give a precise definition of “psychological”. The definition merely spells out intuitive semantic entailments:

- (2) Let P be an n-place predicate. P is psychological iff:
 $P(\langle x_1, \dots, x_i, \dots, x_n \rangle) = 1 \Rightarrow \exists x_i \exists s (x_i \text{ is in } s) \quad [s = \text{some mental state}]$

That is, a predicate is psychological if and only if it follows from the truth of the minimal proposition in which it occurs that some argument of the predicate is an *experiencer*, i.e., an individual in a certain mental state. For example, if *John is afraid* is true, then John is necessarily in a certain mental state, namely fright. However, if *John is quiet* is true, then nothing follows with respect to John’s mental state; he *could* be quiet in virtue of being in a variety of mental states, but his being in any one of them is not necessary.¹ I take it that native speakers have direct, pre-theoretical access to intuitions of this sort (a useful test is to ask yourself whether the predicate can be true of an unconscious person). Therefore, whether or not a particular predicate is psychological can be established independently of any grammatical process which is alleged to be sensitive to this distinction.

Faraci’s generalization, to the best of my knowledge, has never been explained. Before we attempt to explain it, we should determine its actual scope. It turns out that related facts, not discussed by Faraci, obtain when the subject of the infinitival complement is null. Thus, consider the following cases with psychological adjectives:

- (3) a. John₁ is ready_P [e₁ to serve his country].
 b. John₁ is ready_P [e₁ to be served].
 c. * John₁ is ready_P [e_{arb} to serve e₁].
- (4) a. Mary₁ was happy [e₁ to assist anyone].
 b. Mary₁ was happy [e₁ to be assisted].
 c. * Mary₁ was happy [e_{arb} to assist e₁].
- (5) a. Bill₁ is afraid [e₁ to tell the truth].
 b. Bill₁ is afraid [e₁ to be told the truth].
 c. * Bill₁ is afraid [e_{arb} to tell the truth to e₁].

In these examples, the matrix subject (the *experiencer*) can be associated with a subject gap but not with an object gap in its complement. Compare the following

¹ The discussion is limited to stage level properties, which unlike individual level properties, can be reliably deduced from episodic statements.

examples with non-psychological adjectives, where the matrix subject (the *theme*) can - in fact *must* - be associated with either a subject or an object gap:

- (6) a. The soup₁ will be ready_M [e₁ to be served in 5 minutes].
 b. * The soup₁ will be ready_M [e_{arb} to serve it₁ in 5 minutes].
 c. The soup₁ will be ready_M [e_{arb} to serve e₁ in 5 minutes].
- (7) a. The book₁ is available [e₁ to be read].
 b. * The book₁ is available [e_{arb} to read it₁].
 c. The book₁ is available [e_{arb} to read e₁].
- (8) a. This story₁ is not fit [e₁ to be printed].
 b. * This story₁ is not fit [e_{arb} to print it₁].
 c. This story₁ is not fit [e_{arb} to print e₁].

The contrast is nicely illustrated by the famous ambiguity of (9a):

- (9) a. The chicken is ready to eat.
 b. The chicken₁ is ready_P [e₁ to eat].
 c. The chicken₁ is ready_M [e₁ to eat].
 d. * The chicken₁ is ready_P [e_{arb} to eat e₁].
 e. The chicken₁ is ready_M [e_{arb} to eat e₁].
 f. The chicken₁ is ready [e₁ to be eaten].

On top of the familiar “active-passive” ambiguity of (9a) there is an additional ambiguity in the sense of *ready*. Interestingly, we do not get all four logically possible combinations: When the bound gap is in the subject position, both senses of *ready* are available (9b,c).² However, in an object gap construction, *ready* cannot be interpreted psychologically; thus, (9e) is a possible reading of (9a), but (9d) is not. Notice that there is nothing intrinsically anomalous in the interpretation (9d); indeed, the subject gap construction (9f) *does* admit that reading, whereby the chicken is in a suicidal state of mind. So contrary to common belief, (9f) and the “passive” reading of (9a) are *not* synonymous, as the former admits a psychological reading absent from the latter.

A parallel paradigm is exhibited by the predicate *need*, which is sometimes ambiguous between a psych reading and a non-psych, modal reading, and sometimes not (D. Pesetsky, p.c.):

² The reading in (9c) is accessible, although pragmatically odd, given the animacy of the matrix subject; it requires one to view the chicken as some kind of a “machine”. This reading becomes natural with inanimate subjects, e.g., *The computer is ready to work*. I am grateful to Noam Chomsky for bringing the paradigm in (9) to my attention. Chomsky’s observation launched my investigation into complex predicates.

- (10) a. John needs [for us to talk to Mary].
 b. John₁ needs [e₁ to talk to Mary].
 c. John₁ needs [e_{arb} talking to e₁].
 d. John₁ needs [e₁ to be talked to].

(10a) only has the psych reading: John is in a “needy” state of mind, consisting in our talking to Mary. (10b) is ambiguous between that reading and a deontic modal reading - John has to talk to Mary.³ Interestingly, (10c), with the object gap, only has the latter reading; it cannot mean that John is in a “needy” state of mind consisting in someone’s talking to him, although that is a perfectly sensible reading, available in (10d).⁴

All of the facts in (1)-(10) can be captured by two simple statements. The following generalization subsumes Faraci’s cases as well as the cases with null subjects:

(11) *Generalization of Infinitival Complementation (Version I)*

Given a predicate P that takes an infinitival complement C:

- a. If P is psychological, C contains at most one bound gap - in subject position.
 b. If P is non-psychological, C contains exactly one bound gap (subject or object).

It is the task of the next section to derive (11) from deeper principles.⁵

2. SEMANTIC SELECTION AND CLAUSE-TYPING

The analysis I develop is keyed to the intuition that psych-adjectives and non-psych-adjectives, of the sort discussed above, differ radically in their argument structures. In order for an individual to be an *experiencer*, there has to be something which is experienced; in Pesetsky’s (1995) terminology, there has to be a *target/subject-matter* argument. Thus, psych-adjectives are relational, minimally dyadic.⁶ In

³ In fact, the deontic sense of (10b) is itself ambiguous between a relational and a propositional modality (this is clearer with quantificational subjects, e.g. *Someone needs to talk to Mary*). This ambiguity is orthogonal to the discussion in the text.

⁴ The object gap construction (10c) must be expressed with a gerundive complement (e.g., **John₁ needs to talk to e₁*) for independent reasons. English does not allow object-gap infinitivals in case positions (Clark 1990).

⁵ Generalization (11) restricts attention to bound gaps; the distribution of arbitrary PRO is governed by independent principles, to which we return in section 4.1.

⁶ This is an oversimplification. A few psych-adjectives can optionally appear with no “notional” subject matter argument (e.g., *sad, happy*). However, as far as I can tell, all of them accommodate a dyadic interpretation as well (*sad/happy about x*). The same is not true of non-psych adjectives. For the purposes of our discussion it is sufficient that an infinitival complement to a non-causative psych-adjective saturates the target/subject matter argument slot of that adjective. I return to causative adjectives in section 4.2.