# On the nature of Θ-roles

Dutch evidence for a feature-based account

Lex Tavenier
5668840
MA Thesis Linguistics
Research Master Linguistics, Utrecht University
Supervisor: dr. Marijana Marelj
Second reader: prof. dr. Jan-Wouter Zwart
Date submitted: 17-06-2020
Word count: 25278

## Table of contents

# 1. Introduction

Among the many axes along which the human mind 'carves up' reality as it perceives it around itself, the representation of participants in events – a regular who-did-what-to-whom – seems at once so trivial one might forget it exists and so vital that it has sparked several long, productive traditions of psychological, philosophical, etc. thinking. The relation between participants and events has been a staple area of interest of linguistic description too since the ancient Sanskrit grammarian Pāṇini's kārakas. In contemporary linguistics, this subject is cast in the form of the well-known thematic roles. Since the cognitive revolution, several decades' worth of work on thematic theory has pushed our understanding of the different possible conceptions of thematic roles ever further. It is perhaps not surprising that a subject so rich with avenues to explore faces as much disagreement about the optimal formal implementation, both between and within frameworks. An overview of different treatments of thematic roles in the literature can leave the reader wondering what exactly they are in a technical sense. Yet, the importance of this question never ceases to grow as our understanding of the formalisms involved (and formalism itself) grows independently, because it touches upon the bigger question of the grammar assumed: knowing what thematic roles are informs one about where to place them in the architecture of grammar and, thus, about what the latter looks like.

In the generative tradition of Chomsky (1981, 1995, *et seq.*), there is debate about which of two possible approaches to the so-called Θ-roles to adopt: one which takes them to be syntactic configurations or one which takes them to be syntactic features. An argument of formal elegance speaks in favor of the latter view; it can be implemented without unduly expanding the architecture of grammar and, by Occam's Razor, is thus preferred on conceptual grounds – which, as we will see, is an argument very much in line with the goals of the current Minimalist Program. The former view is traditionally adopted, however, because the latter one is taken to be incorrect; the predictions made by the featural approach are thought not to be borne out. On the contrary, a more recent literature has presented cross-linguistic evidence that they are. It is in this line of research that this thesis takes its place. Although support for the featural account is found in many languages, evidence from Dutch has not been presented. In fact, the relevant Dutch data have not even been considered in this matter to my knowledge. The main contribution of this thesis, then, will be to determine whether or not the hypothesis that Θ-roles are syntactic features is corroborated, based on the empirical domain of Dutch. I argue that the Dutch data too support the featural account of Θ-roles.

The thesis is organized as follows: chapter 2 sets the theoretical stage by exploring the history of thematic roles in the literature and explaining what my assumptions about Θ-roles are. It spells out in more detail what my research question, hypotheses and methodology are and explains the relevance of the inquiry. In chapter 3, I present an overview of both empirical and conceptual evidence put forth in the literature so far from languages like English, Japanese, Spanish, German, and Icelandic and from a variety of linguistic environments. In chapter 4, I turn to the case of Dutch: guided by my discussion of cross-linguistic evidence in the previous chapter, I consider Dutch data relevant to my research question. Chapter 5 concludes the thesis.

# 2. Theoretical framework

This chapter provides an overview of background theory relevant to the thesis. I explain how the thematic layer of language is captured by different theories and how this informs the present study. I also go into detail about my research question, hypotheses and methodology.

In section 2.1, I sketch the way thematic roles have been implemented in influential theories, which will inform our critical overview of current generative accounts of thematic roles. Section 2.2 spells out my assumptions about Θ-roles and the principles of the grammar moderating them. In section 2.3, I turn to the two alternative, configurational and featural accounts of Θ-roles proposed in the literature and the methodology I will use to argue to explore their validity . Before turning to the extant empirical evidence in the next chapter, section 2.4 explains the relevance of the thesis.

## *2.1. A brief history of thematic roles*

Few areas of linguistic theory are as controversial as the notion 'thematic role'. In a way, this lack of consensus is surprising, since authors all seem to be in intuitive agreement on the philosophical and psychological import of the notion (even though the notion may not yet be operationalized and vague in those intuitions). Indeed, intuitive philosophical and psychological notions like agency, causation, and the conception of participants in event structure seem to have a straightforward, if not direct, counterparts in linguistic notions like Agent, Cause and thematic role in general that have been developed since the latter half of the twentieth century.

Any consensus stops there, however, since the first important questions on their nature already see theorists in disagreement. The question of the size of the set of thematic roles, for instance, is one that has linguists divided: whereas some theories (e.g. Government-Binding (henceforth GB) theory (Chomsky, 1981)) assume a limited repertoire of roles in order to capture and make generalizations about the subjects of (1a) and (1b) (i.e. that they share the role Agent and thus behave on a par as to, for instance, the well-formedness of adding an 'agentive' adverb *volitionally*), some linguists have their doubts about the feasibility of such a finite set of roles with which to make useful generalizations. In response, they circumvent the question by remaining agnostic as to the size of the set of thematic roles.[1]

1) a. Hannibal (volitionally) killed Bedelia
   b. Hannibal (volitionally) cut the meat

[1] One way to circumvent this question would be to proceed by developing theories of thematic roles using labels on a predicate-by-predicate basis (which Dowty (1989), cited in Dowty (1991), dubs individual thematic roles). Such a hypothetical approach would instead take *Hannibal* to be a Killer in (1a) and a Cutter in (1b), without making any claims as to the size of the set of all thematic roles. As Dowty (1991) points out, however, this misses the point of theoretical description of language in that it denies the possibility of generalization, that is, of describing the bigger patterns that emerge from language (in the case of (1), the fact that, on an appropriate level of abstraction, *Hannibal* in (1a) and *Hannibal* in (1b) share the similarities of both being involved in the described event causally and volitionally). In this view, the individual thematic roles appear as an admission of defeat, which, though valiant, is a dead end and therefore is a non-option where the progress of thematic theory is concerned.

The issue of the repertoire of thematic roles aside, another important, divisive question is one of the atomic status of thematic roles: is Agent sufficient as an atomic label that we assume the human language faculty employs (or at least that linguists postulate in their theories) or is further decomposition possible or even necessary? Here too opinions diverge, with some linguists taking the traditional thematic roles as the primitives that the human language faculty operates on and that linguistic theory should reflect (like Chomsky's (1981) GB theory or Parsons' (1990) neo-Davidsonian event semantics).[2] Others, from the same or different theoretical frameworks, have instead put forward proposals that say that thematic roles as Agent, Theme etc. are a shorthand, which, in order to reach an explanatorily adequate account of the empirical data, need to be decomposed further into features, logical functions, sets of entailments etc. (Jackendoff, 1972, 1976, 1987; Zaenen, 1988; Rozwadowska, 1988 (cited in Dowty (1991)); Dowty, 1991; Reinhart, 1991, 2000, *et seq.*). Another hot topic of discussion I will mention here is where exactly in the architecture of grammar thematic roles take their place: in some theories, they are purely syntactic creatures (e.g. Chomsky (1981)), whereas in other theories they are of a semantic nature (e.g. Jackendoff, 1972, 1976, 1987), whereas for others still they are at the interface of syntax with the lexicon and semantics (Dowty, 1991; Reinhart, 1991).

With this many diverging approaches to thematic roles, a full understanding of what relevant ontological questions to ask ourselves in theorizing about them is impossible without an idea of a variety of theories. This is because each theory is necessarily concerned with only one of many takes on thematic roles. In the following sections I sketch the way in which thematic roles are implemented in some influential accounts. These include Chomsky's GB theory, Jackendoff's Conceptual Semantics and Dowty's theory of proto-roles. The choice for these particular accounts is not random: through the prism of these different takes on thematic roles, we will see that theories differ as to place they assign to thematic roles in the grammar – whether the theory in question assumes thematic roles to be a vital, 'real' moving part of the grammar or whether it is designed in such a fashion that whatever we would call thematic roles simply 'fall out' of the system as such; that they are nothing but a projection of familiar notions upon a formalism that has no need of them. Also, we will see how different theories prevent their counterpart to thematic roles from being the "thinly disguised wild card[s] to meet the exigencies of syntax" Jackendoff (1987, p.371) notes they might be if care is not taken to properly justify them and their place in any theory. Finally, we will see where different theories assume thematic roles take their place in the architecture of grammar. This overview informs us as to how more recent, Minimalist thinking (Chomsky, 1995 *et seq*.) about thematic roles (see section 2.2) has evolved and implements them in the theory.

### 2.1.1. From thematic roles to Θ-roles

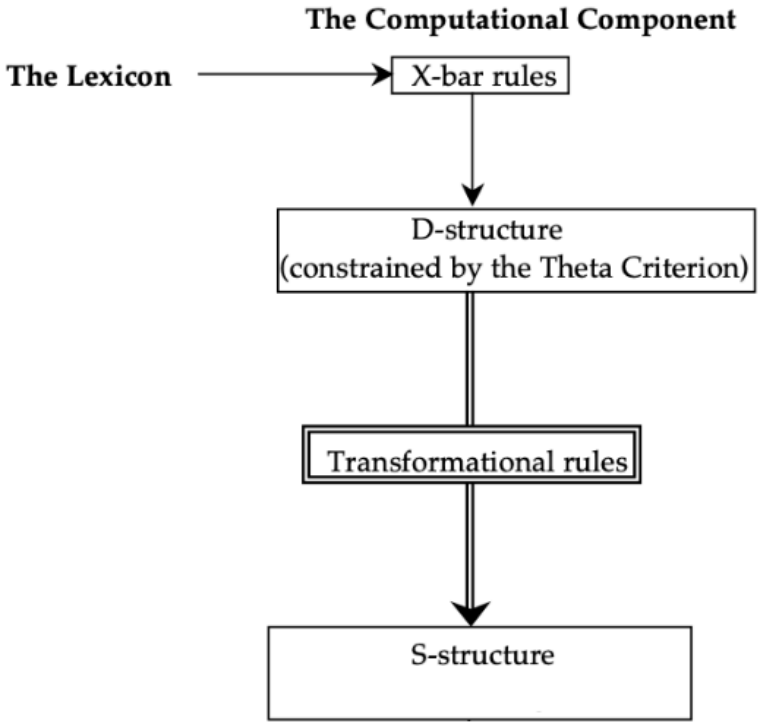
In Chomsky's GB theory, thematic roles, labelled Θ-roles, are the central notion of Θ-theory, one of the "subsystems of principles" of the grammar (Chomsky, 1981, p. 5), along with such subsystems as bounding theory and Case theory. Θ-roles are formalized through Θ-marking, which can be summarized as in (2).

[2] Although note that Parsons (1990), having no specific interest in developing the lexico-semantic/lexico-syntactic aspects of thematic roles, can afford to use atomic labels like Agent as a shorthand, without committing himself to the idea that they are necessarily atomic. Still, he is included here since he makes no explicit reference to decomposition of thematic roles into anything smaller than the atomic labels.

2) *Θ-marking* (Chomsky, 1981, p.37)
A syntactic category α Θ-marks a position β and category ɣ for a certain Θ-role if α has the appropriate properties and is in the correct structural relation to it.

These properties of α mentioned in (2) are lexically determined and, along with what Chomsky calls grammatical functions – structural relations like 'subject-of-S', determine the ultimate Θ-role assigned to an argument. In the conception of the computational component of the grammar (i.e. the syntax) in GB theory, given in figure 1 (adapted from Carnie (2013)), Θ-marking takes place at 'deep' or D-structure, a representation of the 'earliest' stages of the derivation of a sentence. To get to a D-structure representation of a sentence, the computational component first selects from the lexicon whatever elements it needs for a given derivation and then constructs from them a structure of embedded constituents in accordance with the standard X-bar schema of constituent structure. The D-structure representation that emerges from this reflects an early stage in the derivation in the sense that it precedes any transformational operations (such as movement, DO-insertion, etc.) necessary to arrive at the 'surface' or S-structure of a sentence.

Figure 1
*A model of GB style grammar*




As an example, both the D- and S-structure representations of the interrogative sentence *What did the man bite* are given in labelled bracketing notation in (3a) and (3b) respectively. In the D-structure representation in (3a), the constituents *the man*, *bite*, *what* and the phonologically null inflection for third person, singular past tense (represented as Ø) are merged in or as [Spec,VP] position, V, the complement of V, or T respectively, with positions like [Spec,CP], C and [Spec,IP] remaining empty (represented as *e*) at this stage. Θ-marking now takes place as the verbal predicate *bite* assigns the Agent and Theme roles to the DPs *the man* and *what* respectively. The Θ-marking of arguments by *bite* is retained throughout the derivation as transformations now take place: in (3b), we find that a new constituent *DO*,

bearing the inflection for tense, has been added and that it, along with several of the constituents present in (3a), has moved to a structurally higher position, leaving a trace in its original position. Together, these transformations, applied to the D-structure, ultimately yield the S-structure of the sentence in question.

3) a. [$_{CP}$ *e* [$_{CP}$ *e* [$_{IP}$ *e* [$_{IP}$ Ø [$_{VP}$ [$_{DP}$ The man] [bite [$_{DP}$ what]]]]]]]
   b. [$_{CP}$ what$_k$ [$_{CP}$ did$_j$ [$_{IP}$ [$_{DP}$ the man]$_i$ [$_{IP}$ t$_j$ [$_{VP}$ t$_i$ [$_{VP}$ bite t$_k$]]]]]]]

Although the way in which Θ-roles are determined is something that takes place at the interface between syntax and the lexicon, the assignment of the Θ-roles themselves (and thus where they enter into play as moving parts in the grammar) takes place in syntax; after all, Θ-marking is defined in structural terms. Ultimately, then, Θ-roles to Chomsky are syntactic in nature, though they play a crucial role in interpretation by marking arguments of predicates from non-arguments, which allows either set to be singled out from the other by the rest of the grammar. In fact, the relation between arguments and Θ-roles is definitional for Chomsky: any constituent is an argument if and only if it is Θ-marked. This 'if and only if'-conditional is a loose rephrasing of the Θ-Criterion, a principle of the grammar stated in (4) below.

4) *Θ-Criterion* (Chomsky, 1981, p. 36)
   Each argument bears one and only one Θ-role, and each Θ-role is assigned to one and only one argument.

As a principle, the Θ-Criterion allows the grammar to 'keep track of' individual arguments over the course of a derivation in that it postulates that there be only one Agent, Theme, Goal etc. per predicate and argument in any given derivation, no matter what transformations apply to D-structure to yield the S-structure of a given sentence. It also rules out English examples like (5), ruled out as ill-formed for having one argument too many since there is no Θ-role assigned to *vegetables*; the Θ-roles of *cut* (Agent and Theme) are already exhausted (assigned to *Hannibal* and *the meat* respectively).

5) *Hannibal cut the meat the vegetables

As Dowty (1991) points out, the Θ-Criterion forces the GB theory to assume the existence of an exhaustive list of Θ-roles; since Θ-roles are accredited with semantic content (in terms of the by now familiar labels Agent, Theme etc.), serve to distinguish one argument from another and are subject to the Θ-Criterion, they must be both definitely and unambiguously determinable for each argument and constitute a finite set, since the Θ-Criterion would otherwise be trivially satisfied (since the list of individual thematic roles of Killer, Cutter etc. is trivially expandable).

Finally, in more recent generative theory it has been proposed to sever the external argument (merged in [Spec,VP] in (4a)) from the VP domain where all Θ-marking takes place for Chomsky (1981). The external argument is instead introduced in the specifier of the projection of a head *v*, which takes the VP as a complement. Also, in recent literature the process of Θ-marking, though it still functions on a par with (2), is argued to derive from

independent principles (Hale & Keyser, 1993).[3] In section 2.3.1, I detail this more recent generative development of Θ-theory.

Keeping this short description of Θ-theory in mind, I turn now to Jackendoff's (1972, 1976, 1987, 1990) 'thematic relations'.

### 2.1.2. Thematic relations as conceptual structure

Building on Gruber's (1965) early GB style work, Jackendoff (1972, 1976, 1987) puts forward, and over the years develops, a theory of thematic information in what he dubs Conceptual Semantics (henceforth CS). To him, thematic relations (a term perhaps inspired by Gruber's 'lexical relations') are part of conceptual structure in that they are defined in terms of configurations of conceptual operators. CS is inspired by the similarities he perceives in the semantic core of different predicates and the ways in which they vary and aims at giving a formal account of these facts.

The predicates *fall* and *fly* (represented in (6), from Jackendoff (1976)), for instance, share a semantic core of motion, formalized in the conceptual operator or 'semantic marker' GO, which is shared in their total bracketed denotation. The difference then between the denotations of *fly* and *fall* is in their further denotation in that the former is restrictively modified by the semantic marker THROUGH THE AIR, straightforwardly signaling that the motion in question is one that takes place through the air, and the latter by the semantic markers DOWNWARD, BY FORCE OF GRAVITY and UNIMPEDED to yield a denotation of falling instead of, say, flying or rolling for that matter.

6)

*fly:* [GO (x, y, z) / THROUGH THE AIR]

*fall:* [GO (x, y, z) / DOWNWARD, BY / FORCE OF GRAVITY, / UNIMPEDED]

(Jackendoff, 1976, p.94)

The variables present in the denotations of semantic markers like GO(*x*, *y*, *z*) are 'filled in' with primitive 'semantic parts of speech' like THING, EVENT, PLACE etc. As Jackendoff (1987) himself states, what GB theory knows as Θ-roles 'fall out' in the system of CS in, roughly speaking, the variables that are present in the denotations of semantic markers like GO(*x*, *y*,

[3] Note that this severing of the external argument from the VP domain and the idea that Θ-marking is derived from independent principles is tangential to the question of the nature of Θ-roles (as syntactic features or configurations). In terms of the examples given in this section, the only difference this severing makes is that the argument *the man* in (4a) would be introduced in [Spec,*v*P] instead of in [Spec,VP], or, in terms of the definition of Θ-marking in (2), that the category α Θ-marking *the man* would be *v* instead of V. Both the view of Θ-roles as syntactic features as well as the view of Θ-roles as configurations can in principle be implemented under the analysis of external arguments as external to the VP domain. The only difference would be that, under the configurational account, the set of 'flavors' of *v* would have to be expanded to accommodate every kind of external argument (see section 2.3.1) and that, under the featural account, the Θ-feature of the external argument would be a feature on *v* instead of on V.

*z*) and the bigger conceptual structure in which this semantic marker is embedded. In other words: in a sentence like (7), *Hannibal* is the 'Agent' by virtue of being the THING or PERSON substituted for the first argument of the semantic marker GO(*x*, *y*, *z*). Likewise, *Paris* and *Florence* are 'Source' and 'Goal' respectively for being the PLACEs substituted for the second and third variables of GO(*x*, *y*, *z*).

7) Hannibal flew from Paris to Florence

Note that I put the traditional thematic labels in quotation marks here because, in this conception of thematic relations, they are not primitive. What I mean by this is that Jackendoff's thematic relations are made up from the different semantic markers, defined for any arguments they might take using the variables, and the relations between these markers (and, by extension, between these variables). Jackendoff's thematic relations therefore can come in as many shapes and sizes as CS allows, depending on what different semantic markers exist and how the combinatorial rules allow them to enter into structural semantic relations to each other.

Another important way in which thematic relations differ from Θ-roles is in the way in which they function in the grammar. Since one and the same argument can be in multiple conceptual relations to another semantic marker, it can be in more than one thematic relation to other semantic markers/arguments: in Jackendoff's representation of *buy* in (8), for instance, *X* is both the one to whom possession of *Y* changes from *Z* (8a) and the one from whom money changes possession to *Z* (8b) and a similar but reversed story holds for *Z*. In the conceptual representation of (8), then, *X* and *Z* are both in a Source and a Goal relation to other semantic parts of speech at the same time, just not in the same relation to the same part of speech.

8) X buys Y from Z
   a. Y changes possession (from Z) to X
   b. money changes possession from X to Z

What's more, not all thematic relations need to be expressed (i.e. not all variables of semantic markers need to be filled in by semantic parts of speech): Jackendoff analyzes the sentence in (9), minimally different from (7) only in that the Source is left unexpressed, as having a conceptual representation including a semantic marker GO(*x*, *y*, *z*) that has only its first and third variable filled in by the semantic parts of speech PERSON (*Hannibal*) and PLACE (*Florence*). In this too, CS differs from GB theory in that any Θ-role would necessarily have to be expressed, or at least accounted for, in the syntax.

9) Hannibal flew to Florence

CS thus does not have (any need for) anything like Chomsky's Θ-Criterion since the one-to-one mapping of arguments and thematic relations poses no problems whatsoever for the theory. All that the framework requires is that the semantic markers upon which the thematic relations crucially hinge be generalizable in some sense to the lexical semantics of other items so statements and predictions can be made about patterns in the semantics of (dis)similar lexical items. This is to avoid having the thematic relation become a wild card of the syntax.

Finally, Jackendoff's CS differs from Θ-theory in that it recognizes the possibility for the multiple semantic relations that a semantic part of speech may be in to be on different tiers other than just the thematic tier I have discussed so far. More specifically, Jackendoff argues for an action tier dealing with Actor-Patient information aside from the thematic tier which, to him, roughly represents information about motion and location. As far as *Fred*'s (10) (taken from Jackendoff (2000)) representation on the thematic tier is concerned, he cannot be the Theme (not to be confused with the Theme of GB theory), since that to Jackendoff signals the relation of 'thing moving relative to another thing' and *Fred* is not necessarily moving. Instead, *Fred* is the Goal to which (the hand of) *Sue* moves. At the same time, for Jackendoff *Fred* is undeniably an 'affected object' and he represents this facts in the action tier by labelling him Patient. In the formalism of CS, this Patient relation may be represented as the second argument of the semantic marker AFF(*x*, *y*), which inherently conveys information of the action tier. A similar argument is made for *Sue* not only being in a thematic Theme/'moving-relative-to' relation, but also in an Actor relation to *Fred*, as the first argument of the AFF(*x*, *y*) marker.

10) Sue hit Fred
Theme Goal (thematic tier)
Actor Patient (action tier)

I turn now to a final account of thematic roles to be highlighted here, the one presented in Dowty (1991).

### 2.1.3. Thematic proto-roles

Dowty (1991) presents yet another take on the question of thematic roles inspired by *Rosch et al.*'s Prototype Theory (Rosch & Mervis, 1975), which analyzes lexical categories as cluster concepts rather than discrete sets, with some exemplars of a category having more of the critical features that make it a member of that category than others. The main take-away from Prototype Theory for Dowty is that category membership may be gradient and he relates this insight to one of the difficulties in the literature on thematic roles that Jackendoff has in mind when he refers to the risk of thematic roles becoming syntactic wild cards: the problem of justifying what is and what is not a thematic role and what argument bears it. Dowty argues that the problem may be symptomatic of the fact that the categories of Agent, Theme etc. might be as fluent as Rosch's categories of furniture or fruits. That is: that there is no discrete category of Agent or Theme etc. and instead arguments all bear these thematic roles to a greater or lesser extent. This idea is formalized in the form of the Proto-Agent (P-Agent) and Proto-Patient (P-Patient) roles. For each of these proto-roles he defines a (not necessarily exhaustive) set of entailments that hold for the most representative argument realizing them, as in (11) below (taken from Dowty (1991)).

11) Contributing properties for the Agent Proto-Role:
    a. Volitional involvement in the event or state
    b. Sentience (and/or perception)
    c. Causing an event or change of state in another participant
    d. Movement (relative to the position of another participant)
    (e. Exists independently of the event named by the verb)

Contributing properties for the Patient Proto-Role:

a. Undergoes change of state
b. Incremental theme
c. Causally affected by another participant
d. Stationary relative to movement of another participant
(e. Does not exist independently of the event, or not at all)

These sets of entailments are accompanied by principles of argument selection which are intended to explain where arguments merge depending on whatever entailments hold of them in a given proposition.[4] These principles describe the patterns in which the arguments of a predicate merge as subject or (in)direct object (and, by extension, external or internal argument), depending on whether an argument is most prototypically (in the technical sense of the word, that is, for which most contributing entailments hold) a P-Agent or a P-Patient and for which of multiple arguments the most entailments for either proto-role hold. According to Dowty (1991), this decomposition of the proto-roles into truth-conditional features avoids the pitfall of solving the difficulties of pinning down particular thematic roles by simply drawing more hard and arbitrary lines across the thematic landscape because there seems to be a pattern in the syntax which could not otherwise be explained (which would come down to Jackendoff's wild cards for the exigencies of syntax). As Dowty explains, the P-Agent and P-Patient roles might be the only two roles necessary if arguments are allowed to fall into a grey zone in between these two clearly defined proto-roles. After all: if category membership is taken to be gradient, then any position in this grey zone is meaningful or 'workable by the grammar' to the extent that the categories are not discrete and for each argument it can be determined what entailments of either proto-role hold of it and how it differs in terms of these entailments from other arguments that fall in between the clear-cut proto-roles. What is traditionally labelled the Experiencer, for instance, clearly satisfies some, but not all of the criteria for being either a P-Agent or a P-Patient: it is sentient and exists independently of the event named by the verb (P-Agent entailments (11b) and (11e)), but is not necessarily causally or volitionally involved in the event or state, nor necessarily moves relatives to another participant (P-Agent entailments (11a), (11c) and (11d)). On the other hand, it undergoes a change of state and is causally affected by another participant (P-Patient entailments (11a) and (11c)), but is not necessarily an Incremental Theme, stationary relative to another participant or non-existent independently of the event named by the verb (P-Patient entailments (11b), (11d) and (11e)). What's more, an argument might even not be the argument most fit to realize either proto-role, if other arguments present satisfy more criteria of either proto-role: in (12), *Hannibal* and *a cake* would be the arguments most representative of the P-Agent and P-Patient roles respectively, leaving the argument *Will* (for which some entailments of both sets in (11) hold) to be interpreted as partly P-Agent and P-Patient (yielding a reading of *Will* as Benefactive, to use a traditional label).

12) Hannibal bakes Will a cake

[4] Dowty points out that the term 'argument selection' here is not intended in the way it is typically intended in generative grammar in that these are not principles on the process of selection of arguments from the lexicon/numeration, but constraints on what predicates may be lexicalized/found in natural languages. See Dowty (1991, p.576) for further discussion.

What this proto-role approach shares in common with GB's Θ-roles is that it identifies a finite (indeed, a very limited) set of two (proto-)roles that it assumes to be sufficient for linguistic description and explanation. Where it differs from GB theory is in that it obviously sees thematic roles as non-discrete categories and decomposes them into sets of entailments, contrary to the primitive, discrete Θ-roles of GB grammar. In addition, any corollary to the Θ-Criterion appears difficult to implement if category membership is non-discrete, since all or no arguments may bear a proto-role to the extent that the appropriate entailments hold of it. It furthermore has no need of any such principle, since all participants in an event/state can be identified using the entailments and the pattern of merging in subject or ((in)direct) object position can be predicted by the difference (if any) in respective entailments that hold of different arguments of the same predicate. What's more, upon close inspection, the proto-roles, in Dowty's system, appear not to be implemented to make generalizations about arguments per se (Levin, 2019), contrary to Θ-roles. Rather, they are implemented to express generalizations about the subject and (in)direct object positions, stating what entailments hold of prototypical constituents merged in those positions. The crucial difference is that, where Chomsky uses Θ-roles to single out the different arguments of a predicate directly, proto-roles instead serve as instructions to the principles guiding argument selection from the set of constituents in a derivation to not only select the arguments from the non-arguments, but to have them merge in the positions they are best fit for. Although this is only a nuance, Dowty's proto-roles thus are only indirectly involved in argument selection.

Below, I close this section by taking stock of the general commonalities between different theories of thematic roles that emerge from this overview, reflecting specifically on those aspects that I link to more recent, Minimalist implementations of thematic roles.

### 2.1.4. Taking stock

As I said above, this overview of different accounts of thematic roles serves to sketch the background against which I will later introduce Minimalist approaches to thematic roles. It does so by pointing out dimensions along which theories of thematic roles may differ, as evidenced by the (dis)similarities between GB theory, CS and Dowty's proto-roles. Here, I summarize these dimensions.

A first aspect of the literature on thematic roles that stands out to me are the differences between the status of thematic roles in different theories. By this I mean to raise the ontological question I referred to earlier: are thematic roles 'real' in different theories? In GB theory, for example, predicates are stored in the lexicon with information about their argument structure, including which Θ-roles are assigned to which arguments. Θ-roles are thus expressly built into the architecture of the grammar to allow the computational module to manipulate them, to tell an argument from a non-argument. Under this approach, Θ-roles serve to build the notion of argument into the theory as a discernable, meaningful (in the sense that it is a relevant moving part in the ontology of the theory, not in the sense that it necessarily has semantic content) part of syntactic structure. Now a part of the grammar, Θ-role-bearing arguments can then be subjected to whatever array of principles the theory would need to come to a satisfactory description and explanation of the data, such as the Θ-Criterion, which makes explicit reference to Θ-roles. In this sense, the Θ-roles of GB theory are real, as opposed to, say, the thematic relations of CS, which are only 'real' insofar as the

semantic markers and variables are, but no more than that. Thematic relations can be said to simply fall out in the formalism, without the combinatorics of CS making any explicit reference to them as a relevant moving part of the system: the way the system of CS is designed necessarily gives birth to the thematic relations, without intentionally implementing them or using them for linguistic description elsewhere in the theory. This is what I mean when I say that thematic relations are not real in CS. This contrast is somewhat parallel to the different functions of thematic roles in different theories that Dowty (1991) distinguishes. One of these functions is what he calls the 'argument-indexing' function, which is exemplified by GB theory. Dowty points out that Chomsky's Θ-roles are not the only notion that serve this purpose in the literature and relates it to Fillmore's (1968) Deep Case in his early Case Grammar, which also implemented the need to be able to tell arguments from non-arguments. Dowty contrasts this argument-indexing function of thematic roles to the kind of approach taken exactly by Jackendoff's CS, in which they serve no such purpose. Dowty does not present a cover-term for the kind of function thematic relations fulfill in this kind of approach to complement and contrast with the argument-indexing function of Θ-roles. Whether or not this is a conscious decision, I think this is telling of the fact that, in fact, they do not fulfill any particular role in such an approach. More than anything, they are epiphenomenal in that they are necessary consequences of the machinery that the particular formalism assumes in order to function. Likening Jackendoff's thematic relations to Chomsky's Θ-roles is no more than projection of a notion familiar from one framework (Θ-roles) onto another framework. Both frameworks obviously aim to capture the same facts. However, where one explicitly assumes a notion like a thematic role to be part of its equipment, the other only happens to have a corollary to that notion which emerges naturally because of the way the formalism is designed, without relying on their own 'native' corollary having any ontological reality to them. Jackendoff's thematic relations appear to me like this because, in contrast to Θ-roles, they seem to be only an afterthought pointed out in passing as something the reader might recognize or want to categorize as different from, but similar to, a notion from another theory and which CS strictly does not need to be functional: all it needs are the semantic markers and their potential to combine in a principled fashion to come to a satisfactory theory, not the thematic relations that emerge from them (which, crucially, are not the same things). Dowty's proto-roles, on the other hand, straddle the boundary between ontological reality and epiphenomenality: they are presented as real parts of the ontology of the grammar for the sake of making generalizations about the key argument positions of subject and (in)direct object, but, as Levin (2019) states, do not themselves figure in any further generalizations – contrary to GB's Θ-roles. Qua function too, proto-roles seem to me not to behave on a par entirely with Θ-roles, in that they are not themselves responsible for selecting arguments to merge in subject and object positions. Instead, the argument selection principles are. Rather than 'indexing arguments', the proto-roles, in effect, function rather as a description of what the most prototypical constituent merged in the subject or (in)direct object position looks like in term of entailments that hold of it. The argument selection principles next inform the computational system about which one of a set of potential subject/(in)direct object candidate constituents should merge where depending on what derivations given a predicate and its arguments are possible.

A second aspect of the literature on thematic roles that I find significant is the focus on the question of the justifiability of thematic roles, or in Jackendoff's terms, on the question of whether the thematic roles of any theory are wild cards yielding to the requirements of

syntactic description or reasonable generalizations that find independent support. In CS, the system of the author who voiced this concern so eloquently, thematic relations (or rather, the semantic markers and variables from which they are derivatives) are introduced only to the extent that they serve this exact purpose of enabling the theory to make generalizations – in this case about the semantics of predicates. This way, Jackendoff is able to avoid yielding to the exigencies of syntax.[5] In GB theory, the same concern applies: to save a version of Baker's (1984) *Uniformity of Theta-Assignment Hypothesis* from the problem posed by some psych predicates, for example, Pesetsky (1995) proposes a finer-grained semantics which analyzes two problematic instances of the Theme role into two unproblematic instances of separate Θ-roles (for a more detailed discussion of Pesetsky (1995), see section 2.3.1). This distinction between two different Theme-like roles must be motivated on grounds of grammatical behavior, as Pesetsky does based on the different semantics of the arguments, in order for the proposal to not just be a way to 'explain away' the problem. By defining the proto-roles truth-conditionally, Dowty's account in turn circumvents this problem, since all arguments can be identified using the sets of entailments. Between the ontological status of thematic roles and the risk of them being wild cards of the syntax, then, Dowty's proto-roles combine some of the intuitions and ideas of GB's Θ-theory with the ones of CS.

Finally, I note that all theoretical frameworks I have considered here recognize the import of thematic roles to both the syntax and the semantics: whether they are thought of as creatures of or implemented in the syntax (Θ-roles), the semantics (thematic relations) or at the interface of the two modules (proto-roles), all accounts point out explicitly and theoretically how they relate to both levels (if not how they relate both levels to each other) by either putting them at the 'semantic' end of syntax in LF or by explicitly pointing out how merging of arguments in the syntax is determined in part on the way variables of semantic markers are filled in by semantic parts of speech. Dowty's proto-roles play a crucial, if indirect role in determining which argument merges where: as prototype-theoretical descriptions of what subjects and (in)direct objects 'look like' (i.e. they inform the principles of argument selection as to which argument of a predicate merges where in the syntax, depending on the lexical semantics of the predicate).

In the next section, I spell out my assumptions about Θ-roles and the Θ-Criterion in the Minimalist Program, the framework in which the present thesis is based. In section 2.3, the relevance of the current section becomes apparent when we consider specific Minimalist implementations of Θ-roles.

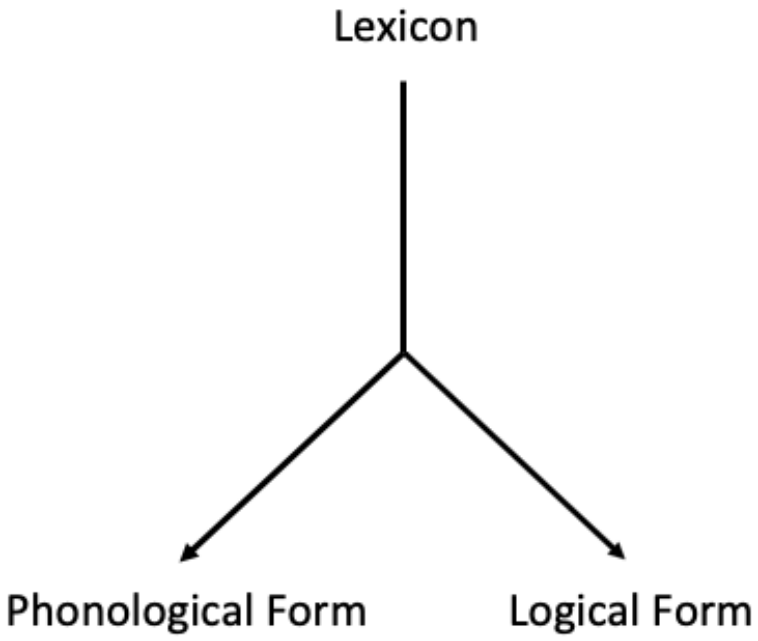
## *2.2. Θ-roles in the Minimalist Program*

Now that we have seen an overview of several different implementations of Θ-roles in the literature in section 2.1, it is important I state my case as to my own working assumptions about them, which is what I do here.

[5] One might wonder whether he actually succeeds in this or is merely pushing the problem back one linguistic level of representation or unduly conflating his own theory by granting it the generative power to introduce new semantic markers as necessary. At this point, I can only say that this is a question that came to me while exploring CS, but that I do not know the answer to it. Since it is outside the domain of the present thesis, I leave this issue for further research.

Since GB theory, generative theory has developed into the Minimalist Program, launched by Chomsky (1995). The Minimalist Program aims to reduce the formal complexity of GB theory while keeping the empirical coverage constant, thereby improving generative theory overall. The computational module is taken to be an intermediary linking the lexicon to the phonological and interpretative modules of the language faculty. Assuming the Minimalist hypothesis of optimal design of the language faculty and reflecting this design in generative theory, Chomsky dispenses with all levels of representation of the computational module that are not at the interface with the lexicon and the phonological and interpretative modules. Schematically, this conception of syntax can be represented in what is often referred to as the 'inverted Y model' in figure 2. Syntax in this visualization is the inverted Y stretching from the lexicon at the top, down to the interfaces with the sensory-motor and conceptual-intentional systems. The lexicon in figure 2 is the same as it was in the GB model of grammar sketched in section 2.1.1. Phonological Form, or PF, represents what is ultimately produced and perceived as a physical signal by language users, with transformations like movement having taken place. Logical Form, or LF, is a different level of representation, where the interpretation and building of propositions takes place – which, crucially, may be different from the representation of a sentence at PF due to 'covert' operations that take place over the course of the derivation that influence the interpretation of a sentence, but not its physical representation. The closest thing to S-structure in the model is the split in the inverted Y, called SPELL OUT (Zwart, 1998), where LF derivations start to diverge from PF derivations. What is crucial about this model of syntax to us, is that it lacks any corollary to GB theory's D-structure entirely, since D-structure was a module-internal, non-interface level of representation and thus suspect of formal redundancy.

Figure 2
*The inverted Y model of Minimalist syntax*




With the facts of language unchanged in the Minimalist Program, it immediately becomes evident that Θ-roles require renewed attention in the Minimalist Program as well, since their previous locus in the grammar (D-structure) is eliminated in contemporary generative theory. This attention to Θ-roles in the Minimalist program is the central focus of this thesis. For my

present purposes, I adopt Marelj's (2019) assumptions about Θ-roles: working in the tradition of Reinhart (2016), Θ-roles to her are creatures of the interface between the lexicon and the computational system (syntax) directly, and the interpretative module of the grammar (semantics) indirectly. The example in (13) serves to illustrate why I adopt these assumptions: it appears almost trivial that (13) is never produced or comprehended to invoke a scene where chasing of a cat by a dog occurs, even though there are no conceptual grounds on why this should be so (i.e. there is no pre-theoretical reason why language should not capture such a scene using (13)).

13) The cat chases the dog

Note that the correct interpretation of (13) goes against the stereotypical chasing relation that holds between cats and dogs in our real-world knowledge. What this fact tells us is that the syntax is modular with regard to encyclopaedic knowledge. Additionally, it demonstrates that the syntax feeds information about participants in event structure to the interpretative module, since, in the semantics (in adults and very young children alike), the subject is interpreted as the Agent of the chasing event and the object is interpreted as the Theme, even if the subject and object are a cat and a dog respectively and, more importantly, even if the semantics has no reason *a priori* to interpret the arguments this way. This reason, then, is provided by the computational module, which forces this interpretation. In short, the structure of the arguments relative to the predicate and each other determines in part the interpretation of the proposition. Θ-roles, introduced already in the structure built by the syntax, carry information that survives to the interpretative module. For the output of a blind computational system like the syntax to be usable to the semantics, it must thus be 'at home' in both systems. In other words: Θ-roles must be creatures of the interface between syntax and semantics. Within Minimalist thinking, this assumption is relatively uncontroversial, since it is in line with the legibility conditions that require that all output of a module like the computational system be legible at the interface with other relevant modules (Chomsky, 1995).

Although this answers the question of *where* I assume Θ-roles take their place in derivations and the theory, this leaves unanswered the question of *what* exactly they are, that is, what kind of creatures, in a technical sense, they are. This, in fact, is the topic I spend the rest of the present thesis exploring. In the next section, I spell out this question in more detail, discussing what answers have been proposed in the literature and what evidence would argue in favor of one of these answers over the other.

### 2.2.1. The Θ-Criterion in the Minimalist program

In section 2.1.1, I introduced GB's Θ-theory and the Θ-Criterion that is part of it. Since the Θ-Criterion is *the* condition on the distribution of Θ-roles and my thesis will be intimately concerned with Θ-roles, it is vital I also spell out my assumptions as to its implementation and place in Minimalist theory, which I do here. However, a little further history on the Θ-Criterion is warranted.

Chomsky (1986) restates the Θ-Criterion in (4) as the Chain Condition in (14). The Chain Condition is stated over chains – abstract objects created over the course of a derivation

consisting of moved constituents and what would formerly be the traces of their movement – and serves a similar, but slightly different purpose from the Θ-Criterion. Focusing on its import to Θ-theory now, the Chain Condition stipulates that only the 'tail' of a chain (i.e. whatever position a constituent is base-generated in, or $\alpha_n$) be a Θ-position, ruling out all derivations which involve the 'head' (i.e. whatever position an constituent lands in after moving for the last time, or $\alpha_1$) or any intermediate 'link' of a chain occupying a Θ-position. Stated differently, the Chain Condition rules out derivations which involve movement into Θ-positions.

14) *Chain Condition*
If C = ($\alpha_1$,…, $\alpha_n$) is a maximal CHAIN, then $\alpha_n$ occupies its unique Θ-position and $\alpha_1$ its unique Case-marked position.

The Chain Condition is weaker than the Θ-Criterion, since the latter rules out not only derivations involving movement to or through Θ-positions (such as when arguments move to Θ-positions and so pick up more than one Θ-role over the course of a derivation, violating the biconditionality of arguments and Θ-roles it enforces), but also ones that involve any argument bearing multiple Θ-roles obtained without moving. As Marelj (2004, fn. 39) points out, Chomsky (1981) himself argues that examples such as the one in (15), however, demonstrate empirically that the stick biuniqueness interpretation of TC cannot be correct: in cases of secondary predication like in (15), the subject obtains two Θ-roles in its base-generated position, one from *left* and one from *sad*, and the resulting sentence is perfectly grammatical.

15) Mary left sad

Chomsky (1986) thus bans any derivations in which Θ-roles are obtained through movement using the Chain Condition. (15) passes this well-formedness criterium since no Θ-position is filled through movement, only through base-generation of arguments. The correct generalization then seems to be that movement into Θ-positions yields ill-formed derivations.

More recently however, the Chain Condition too has come under attack as theoretically undesirable and empirically inadequate (Anderson, 1990; Andrews, 1990; Brody, 1993; Bošković, 1994; Koizumi, 1994; Lasnik, 1999; Gergel & Hartmann, 2009; Ito, 2008; Roehrs, 2005). The empirical evidence put forward against the Chain Condition consists of observations of movement into Θ-positions – exactly what it is supposed to rule out – thus demonstrating it to be incorrect. The Chain Condition is argued to be theoretically undesirable in, for instance, that it is argued to ban A-movement altogether (which would be a very surprising thesis to say the least). What's more, several theorists have argued that this direct evidence against the Chain Condition opens up possibilities for further, desirable Minimalist approaches to GB style theories, which in turn indirectly suggest that indeed it should be dispensed with (Hornstein, 1999, 2001; Manzini & Roussou, 2000; Marelj, 2004, 2019; Ackema & Marelj, 2012). I refer the reader to Rodrigues (2004) for an overview of arguments against the Θ-Criterion and Chain Condition. In this thesis, I adopt the assumption that no ban on movement into Θ-position of any kind holds.

In the next section, I present my research question, hypothesis and methodology, and explain why, under the hypothesis that Θ-roles are syntactic features that I explore, movement into Θ-positions should be possible, contrary to the Θ-Criterion/Chain Condition.

## *2.3. Research question, hypothesis and methodology*

As stated informally in section 2.2, I ask what kind of interface creature Θ-roles are. Stated more formally in (I), the question that this thesis is concerned with, is what Θ-roles are in the technical sense: what place do they take in the architecture of grammar? In current generative theory, there are two main implementations of Θ-roles: as structural configurations, or as syntactic features on a par with ϕ-features. These alternatives, then, constitute two possible hypotheses, as in (i) and (ii) respectively. In this thesis, I make a case for hypothesis (ii) based on the relevant Dutch data, which have hitherto been notably unexplored. In this section, I detail what hypotheses (i) and (ii) entail about Θ-roles and, crucially, where these two accounts make divergent predictions about the data concerning Θ-roles. This allows me to operationalize my research question into an executable methodology.

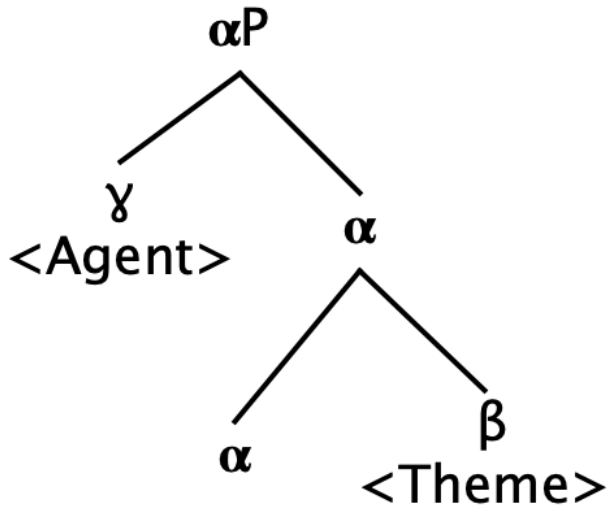
I. What is the nature of Θ-roles?
   i) Θ-roles are configurations
   ii) Θ-roles are features

In section 2.3.1, I first explain what it means for Θ-roles to be seen as configurations. In section 2.3.2, I contrast this with the implementation of Θ-roles as syntactic features, focusing specifically on how to tease these two accounts apart. Finally, in section 2.3.3 I introduce the phenomenon of long-distance Θ-marking as a common denominator in many (but not all) previous works arguing for hypothesis (ii) and one that we will encounter multiple times in the present study. This will serve to give an idea of the kind of possible evidence in favor of hypothesis (ii) that we will encounter.

### 2.3.1. A configurational account of Θ-roles

In current generative theory, the least controversial of hypotheses (i) and (ii) is the former; ever since the first conception of GB theory, Θ-roles have been implemented as privileged structural configurations. Recall from section 2.1.1 that Chomsky (1981) defined Θ-marking (i.e. the process by which arguments are assigned Θ-roles) as a structural relation between the Θ-marker and its argument(s) at D-structure. The tree in (16) represents the configurational approach to Θ-roles: given the Θ-marking head α, it Θ-marks the categories β and ɣ as its Theme and Agent respectively for the sole reason that β and ɣ occupy the correct structural positions relative to it. As per the Chain Condition of GB theory I discussed above, these positions are the positions that the arguments β and ɣ are base-merged in: if β and ɣ move from these positions relative to α to other positions, the chains ($\beta_1$, … , $\beta_n$) and ($\gamma_1$, … , $\gamma_n$) created by this movement will still reflect the correct argument status of β and ɣ, since in the derivational history the tails of these chains (and only their tails) are Θ-marked. The arguments β and ɣ, spelled out at the head of the chain, will thus be interpreted correctly as Theme and Agent respectively.

16)




This configurational approach to Θ-roles is further explored in a Minimalist setting by Hale and Keyser (1993), who argue that Θ-roles are derivatives of lexical relational structure (LRS). LRS refers to the structural positions relative to the lexical heads V, N, A and P that arguments can merge in. To use again the example tree given in (16) and substituting V for α: to Hale and Keyser, ɣ bears the Agent role since it occupies the specifier position of the VP projected by α. Going beyond that, they claim the Agent role actually reduces to being merged in the [Spec,VP] position. The configurational approach to Θ-roles thus does not take Θ-roles to be part of the ontology of the grammar: if Θ-roles are configurations, this means they, much like, for instance, Jackendoff's thematic relations, fall out of the system insofar as it assumes that the lexical categories project structure, which is an uncontroversial assumption. These configurations, however, entail that there are privileged structural positions which cause arguments occupying them always to be interpreted as the Agent, Theme etc. of a predicate across and within languages. To Hale and Keyser, then, there is a dedicated part of the grammar that keeps track of these privileged structural positions and ensures that arguments merged in them are interpreted correctly. Hale and Keyser note that this idea comes down to a restatement of Baker's (1988) Uniformity of Theta Assignment Hypothesis (UTAH), stated in (17).

17) *Uniformity of Theta Assignment Hypothesis*
Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-Structure

The UTAH hypothesizes that all thematic relationships of a kind should be assigned in identical structural relations at D-structure and, by extension, that non-identical thematic relationships should be established in non-identical structural relations. Like any configurational account of Θ-roles, it thus predicts a unique structural position for every unique Θ-role. This idea, of course, is very attractive in that, should it prove true, a strict one-to-one mapping of Θ-roles to structural positions in natural language would greatly benefit the child in its task of acquiring the argument structure of its first language, allowing it to generalize, say, one Theme's structural position to another's.

However, the variable mappings of all but the Agent Θ-role to structural positions creates a big problem for the UTAH and similar proposals. One of the most recalcitrant Θ-roles is the Experiencer. The Experiencer role is assigned to arguments that are mentally affected by the presence or nature of the Theme argument in the way denoted by the psych predicate.[6] That is, they experience a change in mental state because of another participant. To demonstrate why the mapping of some Experiencers threatens the UTAH, let's consider (18). In (18a), *Will* is the Theme which causes the object *Hannibal*, the Experiencer, to worry. In (18b), the fact that *Hannibal* worries is expressed differently, with *Hannibal* now in subject position.

18) a. Will worries Hannibal
    b. Hannibal worries (about Will)

If we assume that the positions the Experiencers in (18) surface in are the D-structure positions of the arguments, the UTAH clearly turns out to be untenable, because the Experiencers of verbs like *worry*, known as *worry*-type, Object-Experiencer or class-II psych verbs, do not conform with it: one and the same Θ-role is found in two different argument positions (external and internal), which strongly refutes the UTAH.

Belletti and Rizzi (1988) do not give up on the UTAH and argue that the 'variable' merging of Experiencers in (18) is only apparent: based on evidence from Italian, they adopt an unaccusative analysis for Object-Experiencer verbs and argue that the subject position the (18b) Experiencer surfaces in is derived. That is, the Experiencer of (18b) is just as much an underlying object as the Experiencer of (18a), but it has moved to the external argument position in S-structure – a position left empty at D-structure, in line with the unaccusative analysis. With the UTAH applying only at D-structure, it is saved because the two Experiencers in (18) do first merge in identical positions according to this analysis.

However, Pesetsky (1995) makes a convincing case as to why Belletti and Rizzi's (1988) analysis of Italian Object-Experiencer verbs is not entirely correct. Belletti and Rizzi analyze these verbs as a heterogenous group of verbs consisting of those patterning with Italian *piacere* (to please) and those patterning with Italian *preoccupare* (to worry). However, to them, both the *piacere*-type verbs and the *preoccupare*-type verbs share the characteristic of being unaccusative verbs. Pesetsky agrees with Belletti and Rizzi's unaccusative analysis of the *piacere*-type verbs, but demonstrates why the purported unaccusative status of the *preoccupare*-type verbs (to which English *worry* belongs) is incorrect: first, he rebuts their argument that passives of *preoccupare*-type verbs are adjectival instead of verbal; this is problematic for Belletti and Rizzi since, for their analysis to work, the attested Italian passives of *preoccupare*-type verbs must be something other than verbal passives. This is because unaccusative verbs cannot form verbal passives for lack of an external argument, which means that, if the passives of *preoccupare*-type verbs are in fact verbal, this would strongly suggest that the *preoccupare*-type verbs are not unaccusative after all. Pesetsky demonstrates that the observed passives are indeed not adjectival using evidence from both Italian and English, contra Belletti and Rizzi. Second, Pesetsky goes on to provide evidence

[6] What I dub the Theme of psych predicates goes by many names in the literature: Theme, Cause, Object/Target/Trigger of Emotion, Stimulus, Target/Subject Matter, to name a few (Landau, 2009; Levin, 1993). Because the question of the nature of this role is orthogonal to my present goals, I will refer to this role as Theme throughout the paper.

from English and Dutch passives of *preoccupare*-type verbs that suggests that they are in fact verbal passives, arguing that *preoccupare*-type verbs in these and other languages are transitive verbs, not unaccusative. This means that Belletti and Rizzi's unaccusative analysis of Object-Experiencer verbs does not solve the problem that (19) poses to the UTAH. To make sure the UTAH is not left without protection from Experiencers of *preoccupare*-type verbs like the ones in (18), he proposes a finer-grained semantics for the roles involved in sentence pairs like (18) in the same article. As Marelj (2013) summarizes, he argues for a mapping hierarchy linking thematic roles to argument positions that takes the Themes of (18a) and (18b) to be separate thematic roles which he dubs Causer and Target or Subject Matter respectively. The relevant part of Pesetsky's hierarchy is given in (19):

19) Causer > Experiencer > Subject Matter[7]

According to this hierarchy, the Experiencer always merges in a position higher than the Subject Matter (which is merged as an object in (18b)), but lower than the Causer (merged as a subject in (18a)). In his analysis then, the Experiencers in (18) are both merged in the same internal argument position higher than the Subject Matter, which means they no longer pose a threat to the UTAH. To derive the S-structure positions of the Experiencers in (18), the Experiencer stays in its internal argument position and surfaces as an object in (18a), whereas in (18b) it moves from its internal position to the would-be external argument position left empty because there is no Causer in (18b). Furthermore, Pesetsky (1995) derives the Object-Experiencer verb in (18a) from the reduced Subject-Experiencer verb in (18a) by an operation that adds a causative morpheme that adds an external argument position to the verb's lexical entry, in Object-Experiencer verbs filled by the Causer.[8]

This brief discussion of the UTAH serves as a way of illustrating the kind of reasoning about Θ-roles that such a position requires. Hale and Keyser (1993) not only point out the similarity between their position and the UTAH, but also spell out specifically what grammatical principle they assume is behind them. Their answer comes in the form of the principle of Unambiguous Projection, which they assume to be part of the grammar. According to this principle, syntactic projections must be unambiguous. As far as Θ-role assignment is concerned, this requires there be a unique structural position for every Θ-role. This claim, they argue, also explains why there is only a limited number of Θ-roles: there are only so many lexical categories after all, each with only so much structure they project, and they can

[7] Pesetsky (1995) motivates this decomposition of the Themes in (18a) and (18b) into Cause and Subject Matter respectively by observing that in (18a), *Will* does Cause *Hannibal* to worry, but need not himself be what *Hannibal* is caused to worry about: the sentence can be continued using *about his health*, for instance. In (18b), however, *Will* is indubitably what *Hannibal* is stated to worry about, but *Will* is not the one causing the worrying: the sentence *Will made Hannibal worry*, using a periphrastic causative, is strictly a paraphrase of (18a), but not of (18b). Note that this finer-grained semantics of the Theme roles at play in psych verbs would also obviate the, as yet unmentioned, problem of having supposedly two D-structure positions for the Theme in alternations like the one in (18).

[8] Note that this derivation of (18a) from (18b) implicitly assumes that the verb in (18b) is unaccusative. This causes Pesetsky's account too to run into trouble because, as Marelj (2013) argues, the reduced Subject-Experiencer verbs pattern with unergative, instead of unaccusative verbs, as based on the evidence from several unaccusativity tests applied to Subject-Experiencer verbs in the past (cf. Reinhart, 2000) and for the first time in her article. As such, although Pesetsky (1995) can account for Object-Experiencer verbs under a (relativized) UTAH, he cannot safeguard it from the linking problem posed by reduced Subject-Experiencer verbs.

thus only be in so many possible structural relations relative to other constituents. The number of possible unique Θ-roles thus reduces to the number of possible, unique structural positions constituents can occupy relative to Θ-marking heads, which is limited.

The principle of Unambiguous Projection furthermore leads to the conclusion that the inventory of heads introducing arguments must be larger than just the set of V, N, A and P: taking (16) once more as an example, for any external argument that bears a Θ-role different from Agent, for instance, there must be a lexical category α and a structural position [Spec,αP] such that α is not V. This consequence of the principle of Unambiguous Projection has most notably been developed in the form of the different 'flavors' of *v* (the lexical head assumed to introduce external arguments in Minimalism) that have been argued for in the literature (cf. Folli & Harley, 2005, 2007). To account for the fact that, for instance, the verbal predicates *destroy* and *eat* allow a different set of DPs to instantiate their respective external arguments (as evidenced by the paradigm in (20) and (21), taken from Folli & Harley (2005)), Folli and Harley (2005) argue that, next to the $v_{DO}$ (Hale & Keyser, 1993) that introduces the Agent role, there must also be a $v_{CAUSE}$ that introduces the Cause role. The difference between these two flavors of *v* is that the former puts an animacy requirement on its external argument, whereas the latter does not. A verb like *destroy* is analyzed as having a $v_{CAUSE}$ layer which allows both the animate *the groom* and the inanimate *the sea* to function as its external arguments, while a verb like *eat* is analyzed as having a $v_{DO}$ layer instead, which only allows the animate argument *the groom* to function as its external argument and not the inanimate *the sea*.

20) a. The sea destroyed the beach
    b. The groom destroyed the wedding cake

21) a. *The sea ate the beach
    b. The groom ate the wedding cake

To the extent that the introduction of new flavors of *v* (and, by extension, new possible structural configurations and Θ-roles) is well-motivated by such grammatical differences as observed between examples (20) and (21), the Θ-roles of the configurational account avoid being wild cards.

Crucial to the purposes of the present investigation, the configurational account of Θ-roles makes the prediction that movement into Θ-positions should be banned. Let's see why this should be the case. Under the configurational account, Θ-roles are reduced to specific pieces of structure. That is, every unique Θ-role is associated with a unique structural position. If an argument realizing a Θ-role A (i.e. base-generated in the structural position associated with Θ-role A) moves to a different Θ-marked position to obtain a different Θ-role B there, this would identify the argument bearing the A role with the argument bearing B role and, incidentally, the structural position associated with the A role with the structural position associated with the B role. Obviously, any two structural positions X and Y are not identical, if the principle of Unambiguous Projection requires they not be to account for the fact that they are associated with distinct Θ-roles. In other words, it would entail that two distinct pieces of structure would be collapsed into one another, which the system does not allow. Movement into Θ-positions is thus irreconcilable with the configurational account and is therefore predicted to be impossible.

I turn now to what an account of Θ-roles would look like under hypothesis (ii) instead, that is, under the assumption that they are syntactic features. I explain how it differs from the configurational account in that it would allow for movement into Θ-positions. This will allow us to test hypotheses (i) and (ii) to see which is correct.

### 2.3.2. A featural account of Θ-roles

As an alternative to the configurational account of Θ-roles, the featural account of Θ-roles implements them as syntactic features on verbal heads (V or *v*). This account is controversial in that it goes against the traditional idea that Θ-roles are configurations. Nevertheless, it has been argued for and adopted by several authors (Anderson, 1990; Andrews, 1990; Brody, 1993; Bošković, 1994; Koizumi, 1994; Hornstein, 1999, 2001; Lasnik, 1999; Manzini & Roussou, 2000; Rodrigues, 2004; Gergel & Hartmann, 2009; Ito, 2008; Marelj, 2004, 2019; Roehrs, 2005; Ackema & Marelj, 2012). Under this approach, an argument is assigned a Θ-role because it checks a Θ-feature on a Θ-marking category. In the example of the tree in (16) once more, β bears the Theme role because it checks the Theme feature on α. Θ-roles, under this approach, are real in the sense that they are not derived from something else like the LRS as under Hale and Keyser's (1993) configurational approach, but are implemented directly using the familiar machinery of syntactic feature-checking (which is subject to whatever constraints on that process that are independently motivated). In other words: they are part of the ontology of the grammar. Furthermore, Θ-features are no wild cards of the syntax, since, under this approach, they are simply the implementation of the layer of event structure information that all theories of thematic roles attempt to capture. As we have seen in section 2.2 above, this information is not only part of the interpretative module of the language faculty, but of the computational module as well. Their inclusion in the syntax, just like the inclusion of, for instance, the ϕ-features, is a natural consequence of this.

Where this account of Θ-roles critically differs from the configurational account is in its predictions about movement into Θ-positions: rejecting the Chain Condition, there is nothing that stands in the way of constituents moving into positions where they check Θ-features. This is because driving movement is the hallmark of syntactic features: the literature reflects this by economy constraints on movement like Last Resort, which explicitly states that all movement must be motivated by feature-checking, lest the derivation be ill-formed. As the reader has no doubt realized, this means that a way to test hypotheses (i) and (ii) presents itself: if hypothesis (i) is correct (to the exclusion of hypothesis (ii)), it should be impossible to find instances of movement into Θ-positions. If, on the other hand, hypothesis (ii) is correct, it should be possible to attest instances of movement into Θ-positions. In the remainder of this thesis, I argue that it is. In chapter 3, I present previous evidence put forward in the literature that attests this kind of movement. In chapter 4, I argue that new data from Dutch that I present also show signs of movement into Θ-positions taking place.

Before delving into the relevance of the research topic of this thesis for the broader field of theoretical linguistics, I first discuss in more detail the relation established by Θ-marking between a head and its arguments. We will see that, rather than taking it to be a special relation like the traditional configurational account would, there exist Θ-marking structures that parallel Exceptional Case-Marking structures which force one to reconsider this special

status of Θ-marking. This is to illustrate what my methodology will look like going forward, since we encounter one kind of movement into Θ-positions already.

### 2.3.3. Long-distance Θ-marking

As we have seen above, Θ-marking in generative grammar is the most intimate, privileged relation between a head and its arguments: in GB theory, it is implemented at D-structure/*in situ*, as ensured by conditions like the Θ-Criterion or the Chain Condition, so as to have the derivation reflect the close relation between predicates and their participants, which is specified in the lexicon already. This explains why Θ-marking does not relate arguments across predicates or, in other words, why *saw* in (22) does not impose any thematic restrictions on the subject of another predicate in the embedded clause (it can be either an Agent (22a) or a Theme (22b)): the embedded subject in either of the sentences in (22) could not be an argument of *saw*, since the lexical entry of this verb is not specified for an argument within its clausal complement argument, which itself is an argument of the embedded predicate. On a conceptual level, the special relation between a Θ-marking head and its arguments is another argument for why movement into Θ-positions is illicit under traditional assumptions: under these assumptions, an argument could not be merged prior to and away from its predicate, only to establish a Θ-marking relation with it at a later stage of the derivation.

22) a. RuPaul saw Bianca work the fabric into a flowy dress
    b. RuPaul saw the fabric being worked into a flowy dress (by Bianca)

In this, Θ-marking contrasts with, say, (structural) Case-marking in that this is one syntactic relation between a head and its argument that can be established at S-structure/through movement: accusative Case, for instance, can be assigned *in situ* to the DP complement of V (the Case-marking head), as in (23a), or to the embedded subject of the clausal complement, as in (23b). What is exceptional about the long-distance or Exceptional Case-Marking (ECM) construction in (23b) is exactly this: structural Case from matrix V is assigned to *him*, an argument of another predicate in the embedded clause. We can tell this Case-marking comes from the matrix verb, since passivizing (23b), as in (23c), causes the subject *he* to now reflect the nominative Case it is assigned in the matrix [Spec,IP] position (to which it has moved from the embedded [Spec,IP] position since that is no longer Case-marked by the past participle *seen*). What's more, in (23b), there is really no other candidate Case-assigner aside from the matrix verb, since the embedded verb *die* is an unaccusative verb that cannot assign accusative Case in the first place.

23) a. Hannibal [$_{VP}$ saw [$_{DP}$ him]]
    b. Hannibal [$_{VP}$ saw [$_{IP}$ him$_i$ [$_{VP}$ die t$_i$ ]]]
    c. He$_i$ was seen [$_{IP}$ t$_i$ [$_{VP}$ dying t$_i$]]

In the traditional view, that Case-marking of an argument of one predicate by another predicate should be possible like this is a testament to the fact that it is indeed a less intimate relation between heads and arguments than Θ-marking. However, there is evidence to suggest that Θ-marking may not be as privileged a relation as previously thought. Let us take a look at examples (24) through (26) (taken from Pesetsky (1992)): Pesetsky argues that *Bill's*

*weight* in (24) receives a Θ-role from *estimated* in addition to the one it receives from *150 lbs*. This is because the ECM verb *estimated* poses selectional restrictions on the embedded subject that its accusative Case feature is checked against: (25) demonstrates that the subject has to be a DP denoting a measurement.

24) Sue estimated Bill's weight to be 150 lbs

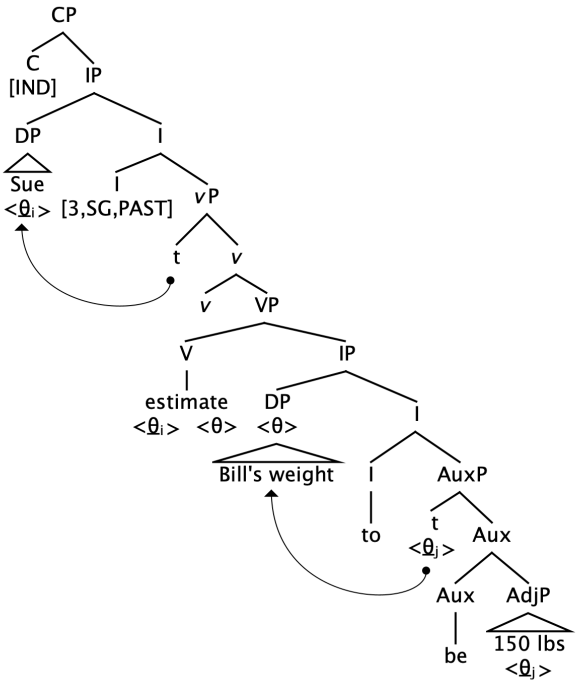
25) a. *Sue estimated Bill
    b. Sue estimated Bill's weight

Indeed, substituting *Bill* for *Bill's weight* in (24) yields an ill-formed sentence, as in (26). This confirms that *estimated* poses selectional restrictions on the embedded subject of the ECM construction as well, not just its object in a transitive construction, as in (24b).

26) *Sue estimated Bill to weigh 150 lbs

Since selectional restrictions are taken to be an indication of Θ-marking, this implies that the embedded [Spec,IP] position in (24) is Θ-marked by *estimated*. This kind of cross-clause-boundary Θ-marking is dubbed Exceptional Theta-Marking (ETM) by Rodrigues (2004) for the exact same reason that ECM constructions are exceptional: in (24) we find a predicate Θ-marking an argument from another, embedded predicate. This of course goes against the traditional conception of Θ-marking as a special, privileged relation. Additionally, this ETM construction strongly suggests Θ-marking is not special in a way relevant to my research question. Consider the underlying structure of (24), given in (27): as I discussed, *estimated* is an ECM verb. This means it Case-marks the embedded subject of its clausal complement, which moves to [Spec,IP] to be Case-marked there. In the tree in (27), this movement is indicated by the lower arrow. Note that, in the case of (24), this moved embedded subject would be the DP *Bill's weight*, which Pesetsky (1992) argues is Θ-marked by *estimated* as well.

27)



Under this analysis then, ETM constructions like (24) thus crucially involve movement into a Θ-marked position, which supports hypothesis (ii) in the way I discussed in section 2.3.2. This means that ETM constructions suggest that Θ-marking is not a privileged relation established in fixed structural configurations, as hypothesis (i) would have it, but rather one that is established under less special circumstances like through feature-checking, as it would be under hypothesis (ii). In chapter 3, we encounter more ETM constructions in my discussion of previous evidence put forward in support of hypothesis (ii).

## *2.4. Relevance*

We have seen in section 2.2 that the Minimalist rethinking of the computational system demands we rethink Θ-roles in our system as well: with D-structure gone in Minimalism, Θ-roles are left without a formal implementation. However, the relevance of the correct implementation of Θ-roles in the grammar extends beyond the question of what Minimalist Θ-theory looks like and into the bigger question of the architecture of grammar: of what separate modules and moving parts we must assume form a part of our grammar. The Minimalist goal is to keep this total formal apparatus as simple as possible. In line with this tenet of formal elegance, the need to reimplement Θ-roles in the theory should spark us to carry through this redesign of Θ-roles in as elegant a way as possible, so that we may reduce the overall amount of assumptions and complexity of the grammar. Put more concretely: it would be preferred to implement Θ-roles using technical machinery independently motivated, rather than introduce a new, privileged domain of the grammar dedicated solely to accounting for Θ-roles. Given this, hypothesis (i), the configurational approach to Θ-roles, at once appears more suspect of formal inelegance than hypothesis (ii), the featural account of Θ-roles, since it requires exactly such a special module of the grammar dedicated to linking unique structural configurations to unique Θ-roles over the course of derivations. Under hypothesis (ii), Θ-roles are accounted for using the familiar, independently motivated technical instruments of feature-checking and movement, and only an expansion of the total set of syntactic features, to include Θ-features, is needed, instead of an expansion of the architecture of grammar itself. Even if all else (i.e. the empirical coverage) were equal, Occam's Razor would thus be in favor of hypothesis (ii). All this is reason enough to pursue hypothesis (ii) as far as possible to see if it is tenable. Additionally, further avenues for Minimalist rethinking of generative theory open up if hypothesis (ii) in fact turns out to be correct. I return to this in chapter 5.

Starting in the next chapter, I show that all else is not equal, that is: that, next to the conceptual considerations sketched above, the empirical evidence too favors hypothesis (ii) over hypothesis (i), as other researchers have demonstrated before using data from languages other than Dutch.

# 3. Overview of extant evidence

In section 2.3, I spelled out my research question, hypothesis and methodology. Recall that the central question of this thesis is how Θ-roles are best implemented in modern generative theory: as configurations, as traditionally assumed, or as syntactic features – which, as I argued in section 2.4, would be the preferred option if all else is equal. In deciding between hypotheses (i) and (ii) then, we first must verify whether all else really is equal, that is, to see whether or not both alternatives have equally empirical coverage. Since they are at odds with each other where movement into Θ-positions is concerned (the former prohibiting it and the latter allowing it), looking for such instances of movement will be telling as to the validity of both hypotheses. In the remainder of this thesis, I present such empirical evidence as well as theoretical and further conceptual arguments to argue for hypothesis (ii). In this chapter, I give an overview of arguments put forward previously in defense of hypothesis (ii). This overview serves to illustrate that the featural account of Θ-roles is no fringe idea with little reality to it, but an important hypothesis that has previously found support in the literature from manifold sources. Also, it informs my investigation of the new Dutch data in chapter 3. As we will see, these arguments for hypothesis (ii) come from varying languages and structural contexts. As I explained above, the empirical arguments detailed below all concern analyses of structures involving movement into Θ-marked positions. The theoretical and conceptual arguments raised give independent motivation for why hypothesis (ii) should be adopted.

This chapter is organized as follows: in section 3.1, I discuss other instances of ETM than the examples involving *estimated* given in section 2.3.3. In section 3.2, I turn to cases of movement into Θ-positions that have been observed with secondary predication. Then, in section 3.3, we take a look at cases where dative Case-marking on arguments reveals where they moved to Θ-marked positions. In section 3.4, I explain how an account of light verbs provides a conceptual argument in favor of hypothesis (ii).

## *3.1. ETM with performative verbs*

In addition to the ETM example with *estimated* presented in section 2.3.3, Pesetsky (1992) also discusses various possible constructions with English performative verbs like *declare* (28) (taken from Pesetsky (1992)). *Declare*-type verbs (like also *decree* or *rule*) are another instance of ETM verbs, differing for Pesetsky (1992) from verbs like *estimate* only in the diagnostic used to verify their capacity for Θ-marking across a clause-boundary (i.e. the disambiguation effect of swapping the finite with the infinitival complement clause that we will see shortly) and the fact that the former class of verbs are performative verbs, whereas the latter are not. Specifically, Pesetsky observes an ambiguity in (28a), which can be taken to refer to Mary's statement about Bill being dead or to the performative speech act of Mary (a judge, coroner or other authority) declaring Bill to be dead for the official record. Crucially, this ambiguity disappears in the ECM construction in (28b), which can only have the latter, speech act reading. To explain this, Pesetsky assumes that, in ECM constructions like (28b), English *declare*-type verbs Θ-mark the subject of the embedded infinitival clause; the reasoning behind this is that Bill's state (as far as the authorities are concerned) changes by virtue of him being declared dead by Mary and thus that the DP *Bill* is affected by the matrix verb. The underlying structure of (28b) is like the one of (24) given in (27) in the relevant way that the embedded subject DP moves into a Θ-marked position.

28) a. Mary declared [$_{CP}$ that Bill$_i$ was t$_i$ dead]
b. Mary declared [$_{IP}$ Bill$_i$ to be t$_i$ dead]

As ETM verbs that Θ-mark the embedded subject position which the embedded subject moves into, they too support hypothesis (ii).[9]

Although Pesetsky (1992) only mentions the three agentive performative verbs *declare*, *decree* and *rule* (subsumed as I did here under the *declare*-type class of verbs) that allow the kind of ETM construction in (28b), note that this phenomenon is not restricted to these verbs. Other verbs that allow constructions parallel to those in (29) and exhibit the disambiguating effect of the non-finite complement are *proclaim* (29), *pronounce* (30), *acknowledge* (31) and *recognize* (32). These verbs, including Pesetsky's three *declare*-type verbs, cross-cut the English verb classes Levin (1993) compiled based on verbs' meanings and subcategorization frames: the seven verbs mentioned here come from three different verb classes. What's more, not all verbs in those classes have the ETM reading. It seems that what unifies these verbs, then, is not a particular subcategorization frame (to use Levin's 1993 terminology) or

[9] Despite the differences between verbs like *estimate* and *declare* (and the other verbs of the same class), Pesetsky (1992) speculates that the reason they both allow for Θ-marking of arguments across a clause-boundary may ultimately be the same and that that reason might be assimilable to his generalization about ECM effects through the Agent/ECM Correlation in (A) he observes:

A. *Agent/ECM Correlation:*
For α, β and ɣ in E, if α assigns Agent to ɣ in E and requires ɣ to be animate as a lexical property, then α Case-marks β only if α Θ-marks β.

As he notes himself, however, a deeper explanation of why the generalization in (A) should hold is not reached. Even after reducing (A) to interaction of the Agent Principle and the Adjacency Condition on Case (in (B) and (C) respectively), it is still unclear why predicates that assign an Agent Θ-role should behave exceptionally in this way.

B. *Agent Principle:*
If α assigns Agent to β and requires β to be animate as a lexical property, then there must be a Case-marked argument licensed by α.

C. *Adjacency Condition on Case:*
*Case-marked NP, unless a member of its chain is adjacent to the element that licenses its Case.

Ultimately, Pesetsky's account of ETM effects is thus satisfactory to the extent that his account of ECM effects is and these effects are left without more than descriptive generalization. I note, however, that Pesetsky does not address what seems to me to be the more interesting question regarding the *declare*-type verbs specifically, namely, why (28a) is ambiguous, that is, has a performative speech-act reading, in the first place. If we naturally extend his explanation of ETM effects in (28b) to the speech-act reading of (28a), one would be left to assume that the verb Θ-marks the subject position of the finite embedded clause. This is very surprising, however, since this position of an embedded complement clause is never found to be exceptionally Case-marked from across a finite clause-boundary: under the traditional analysis, the finite clause-boundary acts as a barrier to Case-marking. This suggests that Case- and Θ-features/-marking may not be as similar as Pesetsky conjectures and this would be problematic for an explanation of the speech-act reading of (28a) involving cross-clause-boundary Θ-marking, or any analysis involving ETM effects if the ETM effect in (28a) and (28b) are to receive a unified analysis. All in all, I think examples like (28) could be telling on many fronts: first, as to whether or not Pesetsky's generalizations about ECM and ETM effects are on the right track, and, if so, how and why Case- and Θ-features/-marking are similar in the sense that ECM and ETM effects have similar explanations and, if not, how and why Case- and Θ-features/-marking are different from each other. For now, I leave this question for further research.

meaning core. All of them, however, have a reading similar to the speech-act reading of (28b) above. This suggests that there is something special about performative speech-act verbs, then, that allows them to have the crucial ETM reading.[10] This is consistent with the finding that all of the other verbs in the three verb classes in Levin (1993) from which these verbs originate that do not have the ETM reading are non-performative verbs.

29) Mary proclaims Bill to be dead

30) Mary pronounces Bill to be dead

31) Mary acknowledges Bill to be dead

32) Mary recognizes Bill to be dead

The kind of ETM phenomenon Pesetsky (1992) observes in his *declare*-type verbs then features in more than just those three verbs. All the verbs I identify here share the common feature of being performative speech-act verbs, which, in the case of English, appears to be the crucial factor, as evidenced by their distribution over Levin's (1993) verb classes. This means that the breadth of the argument in favor of hypothesis (ii) that ETM effects in various verb classes constitute is bigger than just Pesetsky's set *declare*-type verbs and extends to the set of English performative verbs.

In section 3.2, I turn to different kinds of secondary predication which, as shown using several structural contexts, also support hypothesis (ii).

## *3.2. Secondary predication*

### 3.2.1. Depictives

According to Koizumi (1994) (cited in Rodrigues (2004)), the English example in (33d) (from Rodrigues (2004)) involves another example of movement into a thematic position.

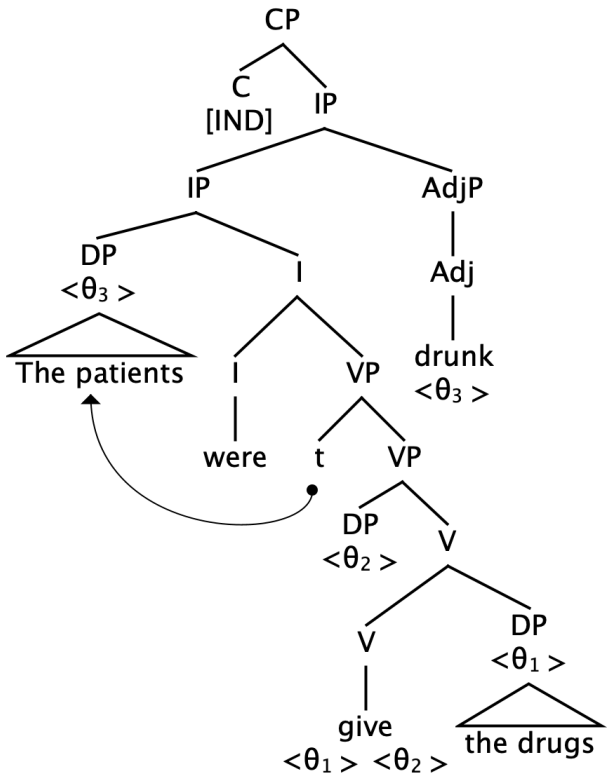
33) a. *The drugs were given to the patients$_i$ drunk$_i$
b. *They gave the patients$_i$ the drugs drunk$_i$
c. *They gave the drugs to the patients$_i$ drunk$_i$
d. The patients$_i$ were t$_i$ given the drugs drunk$_i$

As (33a-c) show, secondary predication of an indirect object is normally ruled out in English. In (33d), however, we find secondary predication of a logical indirect object that has been passivized. This contrast in grammaticality between (33a-c) and (33d) is due to the fact that, in its base-merged position in the VP of *given*, *the patients* is not in a position that *drunk* can Θ-mark. In its derived position at the head of the sentence, however, it is Θ-marked by *drunk*,

[10] Perhaps not all of the examples (29) through (32) are as obviously performative verbs as *declare* is, in that they do not all denote a physical act concomitant to the speech-act: in (30), explicit reference is made to the utterance that causes the change of state, whereas (31) only refers to the change of state to be effected in the eyes of the subject. However, all of the examples license *hereby*, which is a strong indication that we are indeed dealing with a set of verbs that all share the common characteristic of being performative verbs (Eckardt, 2012).

which is adjoined to IP (Noh, 2003), hence the grammaticality of (33d) under the given interpretation. (34) shows how the DP *the patients* moves to [Spec,IP] in (33d) and is Θ-marked by *drunk* in this derived subject position.

34)




To Koizumi this shows a case of the head of a chain being Θ-marked. Alternative accounts of (33d), appealing to a PRO- or complex predicate-analysis, have been proposed in the literature. However, Rodrigues (2004) critically discusses these alternatives and why Koizumi's account fares best at explaining (33d). Under the analysis of (33d) sketched here, then, it supports hypothesis (ii).

In the next section, I explain how, according to Ito (2008), Japanese resultative constructions can also be shown to support hypothesis (ii).

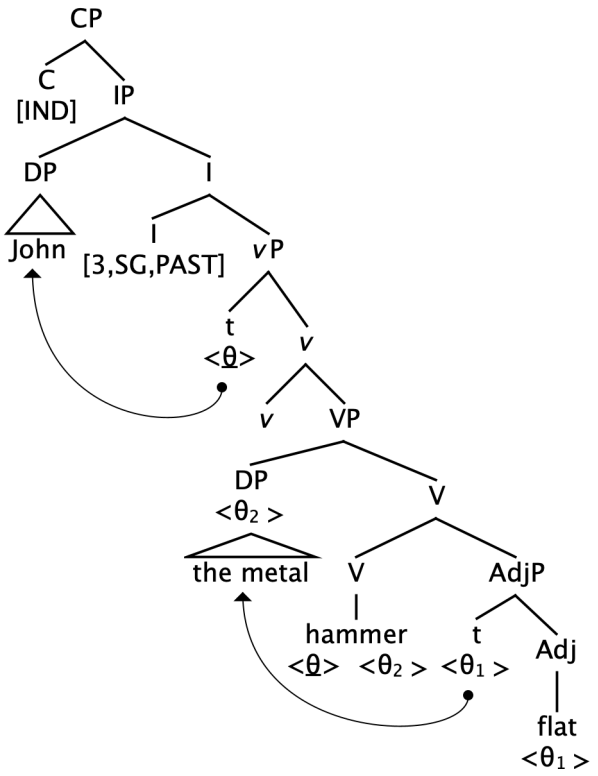
### 3.2.2. Resultatives

Ito (2008) gives supporting evidence for Saito (2001) and Bošković (1997) (both cited in Ito (2008)), who both observe movement into Θ-positions. Saito (2001) argues that in the resultative construction in (35) (taken from Ito (2008)) the DP *the metal* is assigned two Θ-roles and receives one of these through movement into a Θ-position. The relevant derivation

is shown in (36): from inside the small clause AdjP, the DP *the metal* moves to the internal argument position of *hammer*.[11][12]

35) John hammered the metal flat

36)




First, Ito argues that evidence from numeral quantifier stranding in Japanese supports Saito (2001). Consider the patterns of well- and ill-formedness in the examples in (37) and (38). The Japanese resultative construction in (37a) is grammatical, just like its English counterpart in (35). Example (37b), in which we see the numeral quantifier phrase *san-nin* (three) appear in between the (now scrambled) phrases *dairiigaa-ni* (as a major player) and *kodomo-o* (child), is not. The data in (38), according to Ito (2008), shed light on this ungrammaticality. Note first that the grammatical example in (38a) is ambiguous between a reading with *rippani* as an adjective translated as 'perfectly' and as a Goal phrase translated as 'independent'. With the introduction of the numeral quantifier phrase in (38b), we again see that the resultative construction becomes ungrammatical, much like (37b). Under the adverbial reading of *rippani*, however, (38b) is perfectly well-formed.

[11] From Ito (2008) it is not evident exactly what small clause structure Saito (2001) attributes to the secondary predicate in (35). From Ishikawa's (2004) representation of Saito's resultative structure, however, we can infer it is a small clause structure along the lines of Stowell's (1981) seminal analysis of small clauses as maximal projections of whatever category is heading them.

[12] Note that one could offer an alternative analysis of (36) in which the verb forms a complex predicate with the adjective at LF and they jointly assign a complex Θ-role to *the metal* in-situ. Under this analysis, examples like (36) do not support hypothesis (ii), since it involves no movement into Θ-positions. However, see my discussion of Marelj (2019) in section 3.4 for why a complex predicate analysis would not work in this case.

37) a. Taro-ga kodomo-o dairiigaa-ni sodate-ta
T-Nom child-Acc major player-as raise-Past
"Taro raised his child to be a major player"

b. *Taro-ga dairiigaa-ni san-nin kodomo-o sodate-ta
T-Nom major player-as 3-CL child-Acc raise-Past
"Taro raised three children to be a major players"

38) a. Taro-ga san-nin-no kodomo-o rippani sodate-ta
T-Nom 3-CL-Gen child-Acc perfectly raise-Past
"Taro raised three children perfectly"
"Taro raised three children to be independent"

b. Taro-ga kodomo-o rippani san-nin sodate-ta
T-Nom child-Acc perfectly 3-CL raise-Past
"Taro raised three children perfectly"
*"Taro raised three children to be independent"

To account for the ungrammaticality of the resultatives with the stranded numeral quantifiers in (37) and (38), Ito (2008) argues that, in those resultatives, the NP *kodomo* merges first in the PP of the secondary predicate and then moves into the internal argument position of *sodate*. This leads to a violation of the Proper Binding Condition, which excludes derivations with unbound traces, since the NP trace of *kodomo* is unbound after the secondary predicate scrambles over *kodomo*. This is represented in the bracketed structure in (39). Under the adverbial reading of *rippani*, however, no trace is left unbound, as in (40).

39) [$_{vP}$ Taro-ga [$_{VP}$ [$_{PP}$ $t_i$ san-nin [$_{PP}$ [$_{NP}$ rippa] [$_{P}$ ni]]]$_j$ [$_{VP}$ kodomo-o$_i$ [$_{PP}$ $t_j$]]] sodate-ta]

40) [$_{vP}$ Taro-ga [$_{VP}$ san-nin$_i$ [$_{VP}$ [$_{adv}$ rippani] [$_{VP}$ $t_i$ kodomo-o sodate-ta]]]]

Crucially, then, Ito (2008) is able to account for the ungrammaticality of (37b) and the resultative reading of (38b) by appealing to movement into a Θ-position. Under Ito's analysis of Japanese resultatives, then, they support hypothesis (ii).

Next, Ito turns to a curious fact about an apparent unaccusativity diagnosis mismatch that according to him also provides evidence for movement into a Θ-marked position. Consider first the contrast between the grammaticality of the unaccusative verb *tui* (to arrive) in (41a) with the ungrammaticality of the unergative verb *hasi* (to run) in (41b):

41) a. Nihonjin-ga Indo-ni go-nin tui-ta
Japanese-Nom India-to 5-CL arrive-Past
"Five Japanese arrived in India"

b. *Gakusei-ga Hakone Marathon-o go-nin hasi-ta
Students-Nom Hakone Marathon-Acc 5-CL run-Past
"Five students ran Hakone Marathon race"

This contrast is explained by Miyagawa (1989) (cited in Ito (2008)), by assuming that the non-locality of the stranded numeral quantifier to its NP host in (41b) is to blame. According to this account, the sentences in (41) have the structures in (42):

42) a. [$_{TP}$ Nihonjin$_i$-ga [$_{VP}$ Indo-ni $t_i$ go-nin tui-ta]]
b. *[$_{TP}$ Gakusei$_i$-ga [$_{vP}$ $t_i$ [$_{VP}$ Hakone Marathon-o san-nin hasi-ta]]]

In (42a), the stranded numeral quantifier *go-nin* (five) and the DP trace of *Nihonjin* (Japanese), in the internal argument position of the unaccusative verb, mutually c-command each other, which is argued to be required by a principle of well-formedness on numeral quantification. In (42b), this principle is not satisfied, since neither the DP *Gakusei* (students) nor its trace, in the external argument position [Spec,*v*P], are ever c-commanded by the numeral quantifier *go-nin*. As Ito says, this contrast is why numeral quantifier stranding is taken as a good diagnostic for unaccusativity in Japanese, since only unaccusative derivations with stranded numeral quantifiers should be well-formed, whereas unergative ones should be ruled out.

Miyagawa (1989), however, observes the following unexpected contrast in (43): given what we have just seen about the strict locality requirement on numeral quantifiers and (traces of) their DP hosts, (43a) is ungrammatical in much the same way (42a) is. (43b), with the same unergative verb *hasi*, however, is not. The minimal difference between the sentences in (43) is the addition of the Goal phrase *kooen-made* (as far as to the park) in (43b), which somehow makes the unergative verb pass the unaccusativity test of well-formed numeral quantifier stranding. To explain this, Miyagawa proposes the hypothesis that, with the inclusion of the Goal phrase in (43b), the verb *hasi* becomes an unaccusative verb, which would be expected to pass the unaccusativity test.

43) a. *Kodomo-ga inu-to awtete san-nin hasi-ta
children-Nom dog-with hurriedly 3-CL run-Past
"Three children ran with a dog hurriedly"

b. Kodomo-ga inu-to awtete kooen-made san-nin hasi-ta
children-Nom dog-with hurriedly park-as far as 3-CL run-Past
"Three children ran hurriedly as far as to the park with a dog"

Ito (2008), on the other hand, argues against this hypothesis based on evidence from an independent unaccusativity diagnostic. Consider the examples in (44) and (45). As the examples in (44) show, the unaccusative verb *hamat* (to fall), is grammatical when co-occurring with the adverb *ukkari* (abstractedly), but not with *isyookenmeini* (earnestly). This pattern is reversed with the unergative verb *hasi* in (45). The well- or ill-formedness with either of the adverbs is thus another unaccusativity diagnostic.

44) a. Taro-ga ukkari wana-ni hamat-ta
T-Nom abstractedly trap-in fall-Past
"Taro fell into the trap carelessly"

b. *Taro-ga isyookenmeini wana-ni hamat-ta
T-Nom earnestly trap-in fall-Past
"Taro fell into the trap hard"

45) a. Taro-ga isyookenmeini Hakone Marathon-o hasi-ta
T-Nom earnestly Hakone Marathon-Acc run-Past
"Taro ran Hakone Marathon race reluctantly"

b. Taro-ga ukkari Hakone Marathon-o hasi-ta
T-Nom abstractedly Hakone Marathon-Acc run-Past
"Taro ran Hakone Marathon race abstractedly"

When applied to the crucial (44b), this new unaccusativity diagnostic yields a result inconsistent with Miyagawa (1989), as in (46). Recall that under Miyagawa's hypothesis, based on a different unaccusativity test, the verb in (46) is unaccusative. As the data in (46) suggest, however, the verb is unergative instead: (46a) is well-formed with the verb co-occurring with the *"unergative adverb" isyookenmeini*, whereas (46b) is ungrammatical, with the verb co-occurring with the *"unaccusative adverb" ukkari*.

46) a.
Kodomo-ga isyookenmeini inu-to kooen-made san-nin hasi-ta
children-Nom earnestly dog-with park-as far as 3-CL run-Past
"Three children ran hurriedly as far as to the park with a dog earnestly"

b. *Kodomo-ga ukkari inu-to kooen-made san-nin hasi-ta
children-Nom abstractedly dog-with park-as far as 3-CL run-Past
"Three children ran hurriedly as far as to the park with a dog abstractedly"

Additionally, Ito points out the contrast between (46a) above and (47): the unergative adverb *isyookenmeini* seems to clash with the verb *hasi* when the sentence has a locative phrase *kooen-de* (in the park) as in (47), but not when the sentence has a Goal phrase like *kooen-made*, as in (46a). To Ito, this suggests that the phrase *kooen-made*, unlike *kooen-de*, is a small clause predicate, not an adjunct.

47) *Kodomo-ga isyookenmeini inu-to kooen-de san-nin hasi-ta
children-Nom earnestly dog-with park-in 3-CL run-Past
"Three children ran hurriedly in park with a dog earnestly"

This analysis of the attained Goal phrase *kooen-made* as a small clause leads Ito to propose an analysis of (46b) which explains the apparent unaccusativity diagnostic mismatch. Ito's structural analyses of (46a) and (47) are given in (48a) and (48b) respectively.

48) a. *[$_{TP}$ Kodomo$_i$-ga [$_{vP}$ t$_i$ isyookenmeini [$_{VP}$ kooen-de inu-to san-nin hasi-ta]]]
b. [$_{TP}$ Kodomo$_i$-ga [$_{vP}$ t$_i$ [$_{v'}$ [isyookenmeini [$_{VP}$ inu-to [[$_{SC}$ kooen-made]$_j$ [$_{SC}$ t$_i$ san-nin t$_j$]] hasi-ta]]]]

The derivation in (48a) is ungrammatical because, much like in (42b), the stranded numeral quantifier *san-nin* and (a trace of) its DP host do not mutually c-command each other and thus the derivation is ruled out by the requirement of strict locality between numeral quantifier and its DP host we have encountered above: the DP *kodomo* moves from its base-merged position in [Spec,*v*P] to [Spec,TP] like most other external arguments of unergative verbs. In (48b), however, the DP *kodomo* moves from its base-merged in the small clause with the Goal phrase through the Θ-marked external argument position of *hasi* in [Spec,*v*P] to [Spec,TP]. This derivation is well-formed since the trace of *kodomo* in the small clause mutually c-commands the numeral quantifier *san-nin*. This is how Ito (2008) is able to account for the contrast between (46a) and (47) by appealing, crucially for us, to an analysis involving movement to a Θ-marked position. Under Ito's (2008) analyses then, Japanese Goal phrases support hypothesis (ii) in more ways than one.

Next, section 3.3. discusses evidence for hypothesis (ii) from analyses of Spanish, German and Icelandic in which dative Case-marking suggests movement into Θ-positions has taken place. In Spanish and German, we take a look at dative Case-marking on the Experiencer arguments of psych verbs, which show strikingly parallel structures when embedded under the modals *querer* (to want) and *wollen* (to want), and in Icelandic we take a look at quirky subjects of *-st* reflexives.

## *3.3. Dative Case…*

### 3.3.1. …and Spanish psych verbs

Bošković (1994) argues that the Spanish example in (49) (taken from Bošković (1994), gloss and translation by Rodrigues (2004)) is another instance of movement into a Θ-position. This is because the matrix verb assigns a Θ-role to *Juan* (see Rodrigues (2004) for why this is so), whose surface position he claims is derived through movement. The reason why he assumes this is because *Juan* is marked with *a* for inherent Case, which could only have come from the embedded psych verb *gustar* (to please), since *querer* does not assign any. This means that, at some stage in the derivation, the DP *Juan* was part of the embedded VP where it was assigned inherent Case. To surface in the position it is found in in (49), it thus needs to move through the Θ-marked position in [Spec,*v*P] of the matrix verb *querer*. This example of a prepositional subject of a Spanish restructuring verb thus supports hypothesis (ii). (50) is a tree depicting what this instance of movement into a Θ-marked position looks like.[13]

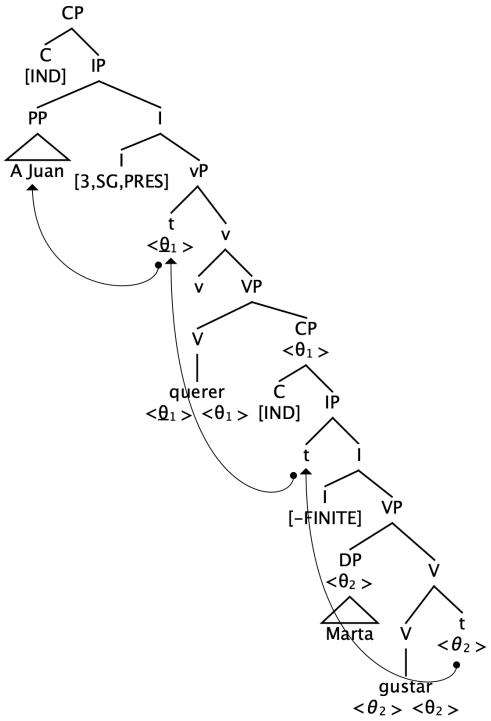
49)

| | | | | | |
|---|---|---|---|---|---|
| A | Juan | le | quiere | gustar | Marta |
| to | Juan | clitic | want-3SG | please-inf | Marta |

"Juan wants to please Marta"

[13] Note that this tree is missing the *le* clitic in the structure. However, since this should not interfere with the relevant movement of *A Juan* into the Θ-marked position in matrix [Spec,*v*P], I include this tree for illustrative purposes regardless.

50)




Now, I turn to how German data involving psych verbs embedded under modal *wollen* also suggests movement into a Θ-position has taken place.

### 3.3.2. …and German psych verbs

Gergel and Hartmann (2009) conclude that data involving the German volitional modal *wollen* support hypothesis (ii). The reason why is that they analyze it as a raising verb. An analysis of *wollen* as a raising verb supports hypothesis (ii) is because the surface position the subject raises to is Θ-marked. Gergel and Hartmann (2009) hold that psych verbs embedded under *wollen* make this evident. Let us now see how.

In (51) below, we find the Experiencer verb *gefallen* (to please) embedded under volitional *wollen*. The DP *dem Großvater* (grandfather) is interpreted as the argument bearing the Experiencer Θ-role. Gergel and Hartmann (2009) argue that this is because underlying (51) is a raising structure in which the DP *dem Großvater* is assigned this Θ-role in the embedded VP of *gefallen* and subsequently moves to its surface position as subject of the matrix clause. The fact that *dem Großvater*, as the Experiencer argument of *gefallen*, is marked with oblique Case indeed suggests that this is true and that its surface position is derived through movement.

51)

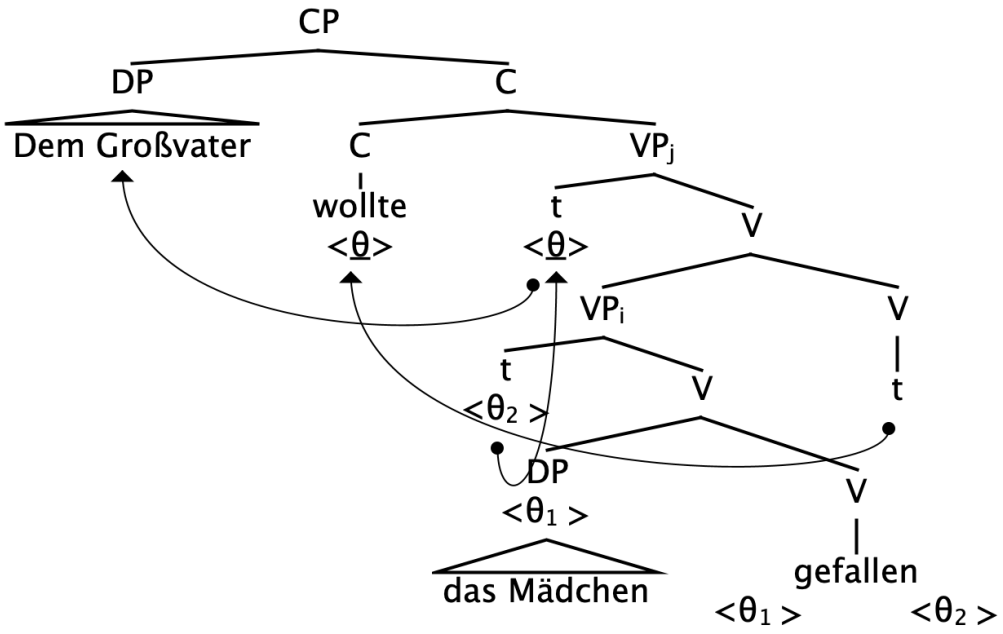
| Dem | Großvater | wollte | dem | Mädchen | gefallen |
|---|---|---|---|---|---|
| The.DAT | grandfather | wanted | the.NOM | girl | please |

"The grandfather wants to please the girl."

The reason why this raising analysis of *wollen* constitutes evidence in favor of hypothesis (ii) is because the volitional reading of *wollen* (as in (51)) is explained by assuming it assigns a

[+vol] Θ-role to its raised DP argument in matrix [Spec,VP]. In the case of (52), this means the DP *dem Großvater* moves through a Θ-marked position on its way to matrix [Spec,CP]. The relevant structure for (51) and this movement can be seen in the tree in (52) (based on tree (19) in Gergel & Hartmann (2009)).

52)




The relevant movement step in the structure in (52) is the one the DP *dem Großvater* makes from its base-merged position in $VP_i$ to [Spec,$VP_j$], which, as indicated, is Θ-marked for a [+vol] role by *wollen*. This is why the raising analysis of German volitional *wollen* supports hypothesis (ii).

I turn now to evidence for hypothesis (ii) coming from Icelandic *-st* reflexives, as evidenced by the dative Case on their subjects.

### 3.3.3. …and Icelandic *-st* reflexives

To explain Icelandic Case Fluctuation effects with *-st* reflexive verbs, Roehrs (2005) proposes an analysis in which their matrix subjects raise to their surface position from the embedded clause, through a Θ-marked position. This of course supports our hypothesis (ii). To see how he comes to this analysis, let's take a look at the relevant Icelandic data. First, the 'quirky' dative Case on the subject DP *drengnum* (the boy) in (53) (examples (53) through (55) taken from Roehrs (2005)) appears only optionally when the sentence is embedded under a middle reflexive predicate such as *segjast* (to say one's self to be): (54a), with the subject DP *drengurinn* now marked with nominative Case, and (54b), with the subject DP *drengnum* retaining its dative Case marking, are both accepted between and within different native speakers.

53)

| | | | | |
|---|---|---|---|---|
| Drengnum | gengur | vel | við | vinnuna |
| the-boy(DAT) | goes | well | at | work |

"The boy is doing well at work"

54) a.

| | | | | | |
|---|---|---|---|---|---|
| Drengurinn | segist | ganga | vel | við | vinnuna |
| the-boy(NOM) | says-self | to-go | well | at | work |

b.

| | | | | | |
|---|---|---|---|---|---|
| Drengnum | segist | ganga | vel | við | vinnuna |
| the-boy(DAT) | says-self | to-go | well | at | work |

"The $\text{boy}_i$ says $\text{he}_i$ is doing well at work"

Roehrs likens this fluctuation of Case on the matrix subject to the Case patterns of Icelandic raising and control structures. In Icelandic raising structures, the raised subject DP retains whatever Case was assigned to it by the embedded predicate: raised to the matrix clause from under the raising verb *virðast* (to seem), the subject DPs of (55a) and (55b) are marked for nominative Case by *lesið* (to read) and quirky dative Case by *batnað* (to recover from) respectively.

55) a.

| | | | | |
|---|---|---|---|---|
| Haraldur | verðist | hafa | lesið | bókina |
| Harald(NOM) | seems | to-have | read | the-book(ACC) |

"Harald seems to have read the book"

b.

| | | | | |
|---|---|---|---|---|
| Haraldi | verðist | hafa | batnað | veikin |
| Harald(DAT) | seems | to-have | recovered-from | the-disease(NOM) |

"Harald seems to have recovered from the disease"

In Icelandic control structures, however, the matrix subject is not marked for any Case the embedded predicate might assign to its subject. Instead, the matrix subject is Case-marked by the matrix control predicate: in (56), the predicates *lesið* and *batnað* are embedded under the control verb *vonast til* (to hope). As we can see, both matrix subject DPs bear the same, nominative, Case. This difference between the Icelandic raising and control structures is explained by assuming that the matrix subject DP of control structures is base-merged in the matrix clause and therefore is not assigned any Case in the embedded clause in the first place. The interpretation of the subject of the embedded clause is explained by assuming traditional control structure involving construal with PRO.

56) a.

| | | | | | |
|---|---|---|---|---|---|
| Haraldur | vonast | til | að | lesa | bókina |
| Harald(NOM) | hopes | PRT | to | read | the-book(ACC) |

"Harald hopes to read the book"

b.

| | | | | | |
|---|---|---|---|---|---|
| Haraldur | vonast | til | að | batna | veikina |
| Harald(NOM) | hopes | PRT | to | recover-from | the-disease(ACC) |

"Harald hopes to recover from the disease"

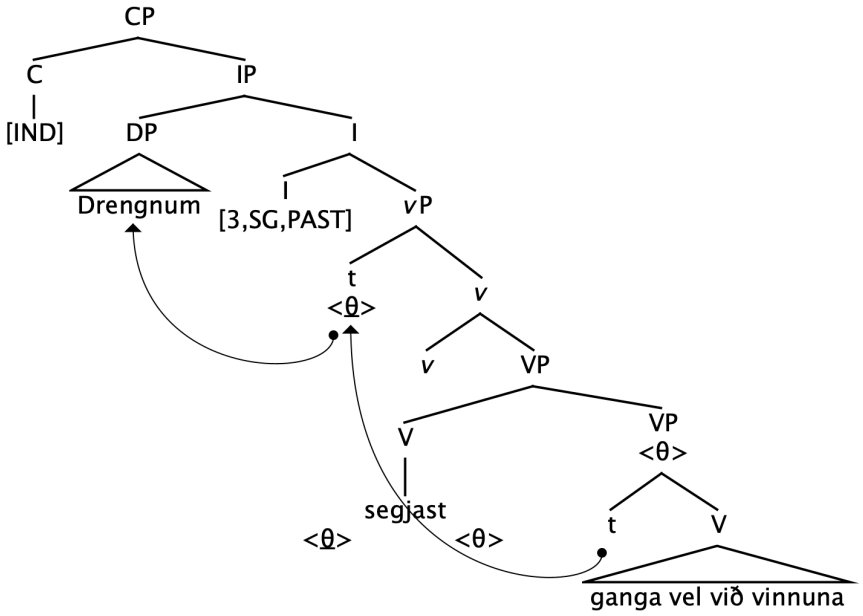
These Case facts show that the reflexive middle verb *segjast* in (54) thus shares characteristics with both raising and control structures. Roehrs goes on to provide evidence that, while the matrix verb *segjast* uniquely selects for a raising-type infinitival complement, it assigns a Θ-role to its matrix subject too (which of course is not the case in pure raising predicates). This analysis of *segjast* as a raising predicate with a matrix subject Θ-role is one part of his explanation of the Case fluctuation pattern in (54). It also provides an argument for my hypothesis (ii) in that it involves raising of an argument to a Θ-position. The evidence for this looks as follows: first, under this analysis, the matrix subject of (54b) is in a derived position – it has raised there from the embedded clause, as evidenced by the retention of its quirky Case in (54b), and, second, to raise, the subject DP has to move through [Spec,VP], which is Θ-marked by *segjast*. The reason for suspecting this is that *segjast* licenses the agentive adverb *viljandi* (intentionally), even when a non-agentive predicate such as *vera rikur* (to be rich) is embedded under it, as in (57). The ability to license agentive adverbs is typically taken as evidence that a predicate assigns an Agent role. (58) is a visualization of the relevant structure of example (54b).

57)

| Jón | sagðist | viljandi | vera | rikur |
|---|---|---|---|---|
| Jón | said-refl | intentionally | to-be | rich |

"Jón intentionally said that he was rich"

58)




Thus, under Roehrs' (2005) analysis, Icelandic *-st* reflexives like *segjast* with quirky subjects are evidence for hypothesis (ii).

I turn now to an account of thematic lightness and its implementation in narrow syntax which, crucially to our present purposes, assumes hypothesis (ii) to be true.

## 3.4. Light verbs

Marelj (2019), in her formalization of light verbs, provides theoretical and conceptual arguments in favor of hypothesis (ii). Embedded in Reinhart's (2016) Theta System and building on work by Marelj (2004) and Ackema and Marelj (2012), she works out Ackema and Marelj's proposal and concludes that Θ-roles must be interpretable interface features. Here, I detail how she reaches this conclusion.

Marelj (2004) notes that the Theta System, which decomposes Θ-roles into clusters of binary +/-c and +/-m features (for causal and mental involvement in events and states respectively), predicts that there exists an 'empty Θ-role': crossing all the possibilities of feature values and allowing for underspecification of a feature value, a possible ninth, fully underspecified feature cluster emerges as a potential Θ-role, as indicated in Table 1 (see Marelj (2004), Marelj (2019)).

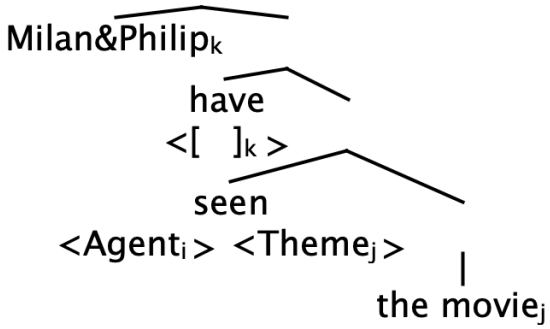
Table 1
*Possible feature clusters in the Theta System and their traditional labels (empty Θ-role highlighted)*

| TS feature cluster | Traditional label |
|---|---|
| [+c+m] | Agent |
| [+c-m] | Instrument |
| [-c-m] | Theme |
| [-c+m] | Experiencer |
| [+c] | Cause |
| [-c] | Sentient |
| [-m] | Goal |
| [+m] | Source/Subject Matter |
| [ ] | ??? |

Compared to a Θ-role like the traditional Agent, which is represented by a [+c+m] feature cluster for its volitional, causal involvement in the event or state described by its predicate, it is intuitively more difficult to give the empty Θ-role any traditional label and the idea that it might be only an artefact of the Theta System at first seems like a plausible explanation. Marelj (2004), however, argues that it is not an artefact at all, but a real Θ-role. Ackema and Marelj (2012) argue that the empty Θ-role is the role assigned by light verbs and they illustrate this formalization of lightness through the case study of HAVE, which they argue is a light verb in all its different uses (e.g. possessive HAVE, auxiliary HAVE, causative HAVE, experiencer HAVE). They argue that HAVE has a Θ-role on its Θ-grid whose value is the empty set and enters into a complex predicate with other predicates embedded under it. This complex predicate is formed through movement at LF and a Θ-Merger operation; an identity operation by means of which the vacuous Θ-role of HAVE gets its interpretation via the Θ-role assigned by a predicate merged in its complement. In the case of Marelj's (2019) example of *Milan and Philip have seen the movie* in (59) below, the DP *the movie* merges with the predicate *see* and is assigned the internal Theme role. The external Agent role of *seen* is assigned to the participial morphology at this point, akin to the saturation operation seen in passives. In the perfect in (59), on the other hand, this Θ-role is 'resurrected' in a later stage of the derivation when the auxiliary *have* merges and brings along with it an empty external Θ-role. This Θ-role

subsequently gets its interpretation through Θ-Merger with the external argument of *see* and is assigned to *Milan and Philip*, who are interpreted (indirectly through the Θ-Merger of the Θ-roles of *have* and *see*) as the Agents of the sentence.

59)

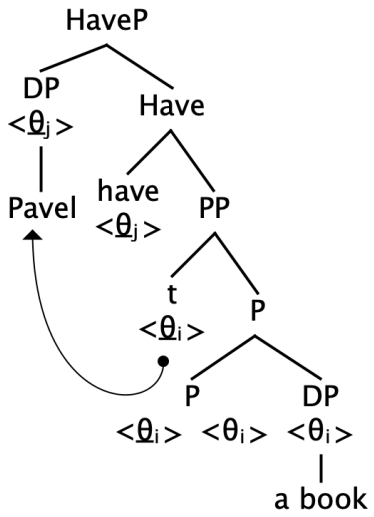



Θ-Merger: $\Theta_i = \Theta_k$

Marelj (2019) points out a problem with the Θ-Merger operation formalized as such which extends to all other complex predicate analyses of a kind. The problem is that the formation of the complex predicate through movement should take place at LF, since this is where it discharges its Θ-role. However, the lower Θ-assigning head that moves to form this complex predicate could only do so at PF, as Chomsky (1995, 2000) suggests head movement to be a PF phenomenon. If this is true, this means that the moved head could not possibly be a Θ-assigning head and that the problem of the formation of the complex predicate is one of timing, with different independent principles conspiring to force the necessary movement step to take place at mutually exclusive stages of the derivation.

To protect Ackema and Marelj's (2012) unified analysis of HAVE as a light verb, Marelj (2019) goes on to argue that some version of the Θ-Merger can be implemented in narrow syntax without violating Chomsky's requirement that head movement take place at PF. As an alternative, she proposes that, instead of the would-be Θ-assigning head, it is the argument that moves. In Marelj's example with possessive HAVE in (60) the subject DP *Pavel* is base-merged in its argument position of the embedded predicate and moves to the specifier of whatever phrase *have* is heading and is assigned the empty Θ-role of *have* there. 'Θ-Merger' then takes place because one and the same argument bears two Θ-roles (including the [ ] role from HAVE) and those are understood to be identical.

60)




Note that, in order to implement the Θ-Merger like this, Marelj (2019) assumes that every derivation including HAVE involves movement into a Θ-position, which of course supports hypothesis (ii). [14]

The theoretical argument for adopting hypothesis (ii) that Marelj's (2019) Θ-Merger constitutes, then, is that this implementation of it allows for a syntactic account of thematic lightness, which had been lacking in the literature so far. The conceptual argument in favor of this is that this allows Ackema and Marelj (2012) to assume a single lexical entry HAVE, which, to them, is a light verb that has different uses depending on its structural environment.

[14] Marelj proposes a second alternative implementation of the Θ-Merger in narrow syntax which can be implemented through Chomsky's (2000, 2001) Probe-Goal Agree operation. However, this alternative too leads to the conclusion that Θ-roles must be features, or more specifically, interpretable interface features. In this implementation, HAVE merges as an active Probe with an unvalued interpretable Θ-feature and probes its complement for a valued Θ-feature. Upon finding such a feature on the predicate embedded under it (itself an appropriate Goal), it matches its own Θ-feature value with the value of the Θ-feature on the Goal, as in (D).

D. … $F_\alpha$ [ ] … $F_\beta$ [Possessor] → … $F_\alpha$ [Possessor] … $F_\beta$ [Possessor] … Marelj (2019)

The reason she assumes that Θ-features are interpretable is that, as I explained in section, Θ-roles to her are interface features, since they carry importance to both the computational and the interpretative modules. The relevant part of Svenonius' (2006) (cited in Marelj (2019)) formalization of syntactic features, stated in (E) (taken from Marelj (2019)), leaves no doubt that Θ-features must then be interface features.

E. For any F, and any modules X and Y,

a. F is an X-internal feature iff F is an X feature and not a feature of any other module.
b. F is an X-Y interface feature iff F is an X feature and a Y feature.

As other syntactic features that must survive to the interface with semantics and be legible, this means Θ-features must be interpretable. The reason why she assumes the empty [ ] Θ-feature on HAVE is unvalued, is that, to allow for an implementation of the Θ-Merger in the syntax through Agree, HAVE must act as a Probe. Under the distinctions among syntactic features which Pesetsky and Torrego (2007) recognize (and which Marelj (2019) adopts), only unvalued features can act as Probes for Agree to take place. It follows that HAVE must be an unvalued feature, which, as Marelj states, is in line with Adger's (2010) (cited in Marelj (2019)) analysis of unvalued features as having the empty set as a value.

This avoids the undesirable alternative of having to assume multiple separate lexical entries for the ‘same’ verb, reducing the complexity of the lexicon.

In the following chapter, I examine the Dutch data relevant to my research question, as guided by this overview of extant evidence in the literature.

# 4. Evidence from Dutch

In chapter 3 we saw that evidence for hypothesis (ii) has been attested in different languages. To my knowledge, however, no overview of relevant Dutch data exists. Below, I present such an overview. Guided by the evidence we have seen in chapter 3, I examine Dutch constructions that pattern with the ones found across languages to support hypothesis (ii) to determine whether they too give support to the hypothesis. I argue that evidence for hypothesis (ii) can indeed be found in Dutch as well.

In section 4.1, I first look at possible Dutch candidate ETM structures, considering Dutch performative verbs and ECM verbs. Section 4.2 is dedicated to Dutch constructions involving secondary predication. Here, I look at passivized indirect objects and what floating numeral quantifiers reveal about the movement of arguments into Θ-positions. Finally, in section 4.3, I consider other Dutch restructuring effects involving A-movement.

## *4.1. ETM with different verb types*

### 4.1.1. Dutch performative verbs

In section 3.1, we saw how English *declare*-type verbs like the one in (28) (repeated here as (61)) support hypothesis (ii), because they, like English *estimate*, show ETM effects. In this section, I consider the case of Dutch *declare*-type verbs.

61) a. Mary declared that Bill was dead
    b. Mary declared Bill to be dead

Recall that Pesetsky (1992) argues that the example sentences in (61) suggest that *declare*-type verbs impose selectional restrictions on the embedded subject because of the disambiguating effect of the type of complement clause: (61a), with a finite complement clause, is ambiguous between a reading that takes Mary to be any odd person declaring that Bill is dead and a reading in which Mary represents an official entity (like the court system) and declares Bill dead for the official record. (61b), on the other hand, only has the latter reading. This ETM effect of the matrix verb affecting the status of the embedded subject supports hypothesis (ii) because it implies that *Bill* is Θ-marked in a derived position.

Dutch *verklaren* (to declare) shows a similar pattern of disambiguation with regard to the different readings of the propositions in (62): like with (61a), (62a) can mean either that Mary simply stated Bill was dead or that she performed the speech act of declaring him dead officially. The example in (62b), the syntactic equivalent to the English ECM construction in (61b), is degraded at best. This is unsurprising given Dutch does not normally feature ECM effects with *te*-infinitivals (den Dikken & Zwart, 1995). It is difficult to guarantee that any semblance of well-formedness (61b) might have is not due to the likeness it bears to English (61b), combined with the willingness of speakers to accept anglicized structures in Dutch. However, (61c), with the small clause *Bill dood*, is an unequivocally well-formed Dutch sentence and patterns with (61b) with respect to the disambiguation of readings: it only has the second reading in which an authority performs the change-of-official-state speech act on

*hem*. This suggests Dutch *verklaren* in (62c) too Θ-marks the [Spec,IP] position of the embedded small clause.

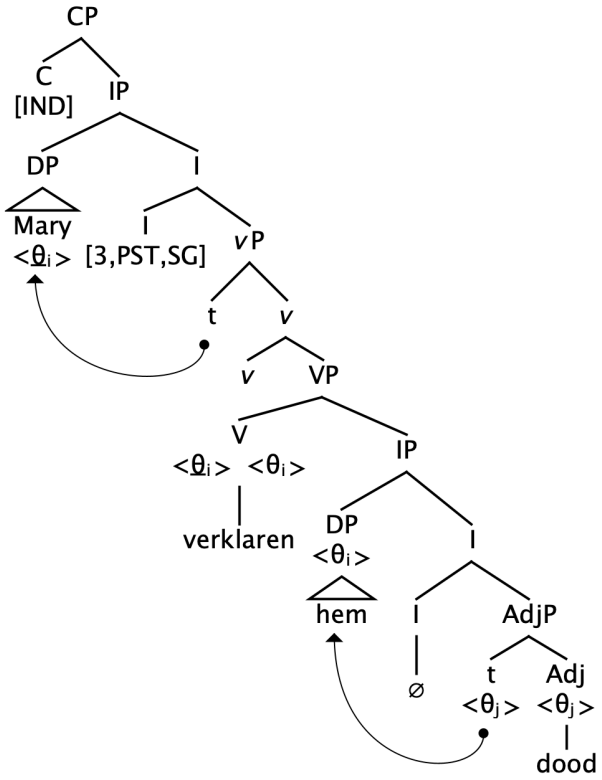
62) a.
Mary verklaarde [$_{CP}$ dat Bill dood was]
Mary declared that Bill dead was

b. *?Mary verklaarde [$_{IP}$ Bill dood te zijn]
Mary declared Bill dead to be

c. Mary verklaarde [$_{IP}$ hem dood]
Mary declared him dead

The structure for (62c) is given in (63). As indicated, the DP *hem* moves into the embedded subject position of the small clause (to check its Case feature), which, as established above, is a Θ-marked position.

63)




As in English, the set of Dutch verbs that exhibit the ETM effect is bigger than just *verklaren*: the facts described above extend to other performative change-of-state verbs like *oordelen* (to judge) (64), *achten* (to deem) (65) and *(be)vinden* (to find) (66) also exhibit ETM effects, as evidenced by the disambiguating effect of the change in the finiteness of the complement clause between the (a) and (b) examples: as with the English performative verbs, the examples (64a) through (66a) are ambiguous between a reading that describes a mere

opinion or impression of guilt, and a reading that states that an official institute considers *him* guilty.[15]

64) a.

| | | | | | | |
|---|---|---|---|---|---|---|
| Het | hof | oordeelt | dat | hij | schuldig | is |
| The | court | judges | that | he | guilty | is |

b.

| | | | | |
|---|---|---|---|---|
| Het | hof | oordeelt | hem | schuldig |
| The | court | judges | him | guilty |

"The court judges him to be guilty"

65) a.

| | | | | | | |
|---|---|---|---|---|---|---|
| Het | hof | acht | dat | hij | schuldig | is |
| The | court | deems | that | he | guilty | is |

b.

| | | | | |
|---|---|---|---|---|
| Het | hof | acht | hem | schuldig |
| The | court | judges | him | guilty |

"The court deems him guilty"

66) a.

| | | | | | | |
|---|---|---|---|---|---|---|
| Het | hof | vindt | dat | hij | schuldig | is |
| The | court | finds | that | he | guilty | is |

b.

| | | | | |
|---|---|---|---|---|
| Het | hof | (be)vindt | hem | schuldig |
| The | court | finds | him | guilty |

"The court finds him to be guilty"

This finding gives cross-linguistic support to the idea that the crucial property shared by all *declare*-type verbs is the fact that they are all performative verbs. To the extent that Pesetsky's (1992) suggestion about *declare*-type verbs Θ-marking the embedded subject position is correct and can be assimilated to the disambiguating effect of the small clause structure with Dutch performative verbs like I do here, we thus find ETM constructions in Dutch. This result supports hypothesis (ii), like the English ETM constructions do.

Next, I consider other Dutch ECM verbs.

### 4.1.2. Dutch ECM verbs

In section 2.3.3, we saw how an example like (24) (repeated here as (67)) involving the verb *estimate*, taking an infinitival complement, supports hypothesis (ii). I take a look here at the case of Dutch *schatten* (to estimate).

67) Sue estimated Bill's weight to be 150 lbs.

Recall that Pesetsky (1992) argues that (67) supports hypothesis (ii) because *estimated* puts s-selectional restrictions on the embedded subject *Bill's weight*, which is in a derived position. Dutch *schatten* also poses such restrictions on its NP complement (68), as only an NP denoting

[15] Although some speakers of Dutch may find the examples (64) through (66) (and their counterparts with a finite complement clause) to sound overly formal or archaic, all of the constructions are attested using Google Translate (May 28, 2020).

a measurement yields a well-formed sentence. However, unlike English *estimate*, it is not an ECM verb, since it takes a propositional complement (and no Dutch ECM verb does (Ter Beek, 2008)). In addition to an NP complement, it can take a clausal complement, but only if it is finite (69a). Adding an infinitival complement, as in (69b), on the other hand, yields, at best, a very degraded sentence. Also, the selectional restrictions do not extend to the embedded subject of the complement clause, viz. (69a) and (69d). Finally, the embedded subject of Dutch *schatten* does not check accusative Case (69d). Dutch *schatten* thus does not support hypothesis (ii) the way English *estimate* does.

68) a. *Hannibal schatte hem
Hannibal estimated him

b. Hannibal schatte zijn gewicht
Hannibal estimated his weight

69) a. Hannibal schatte dat zijn gewicht tachtig kilogram is
Hannibal estimated that his weight eighty kilogram is

b. *?Hannibal schatte zijn gewicht tachtig kilogram te zijn
Hannibal estimated his weight eighty kilogram to be

c. *Hannibal schatte hem tachtig kilogram (te) wegen/zijn
Hannibal estimated him eighty kilogram (to) weigh/be

d. Hannibal schatte dat hij tachtig kilogram weegt
Hannibal estimated that he eighty kilogram weighs

Generally speaking, Dutch ECM, AcI or Accusativus-cum-Infinitivo verbs form a more restricted class than in English. According to Broekhuis and Corver (2015), they are limited to perception verbs like *zien* (to see) and *horen* (to hear) and verbs of causation/permission like *doen* (to make) and *laten* (to let). In Dutch, the change of morphological case of the embedded subject pronoun under passivisation that we observed in English (23) is not found, since passivisation of Dutch ECM verbs is ruled out (70b). It is therefore assumed the accusative Case that the embedded subject of Dutch ECM verbs checks comes from the matrix verb simply because there is no other candidate source of the accusative feature.

70) a. Hannibal zag hem koken
Hannibal saw him cook

b. *Hij werd gezien koken
He was seen cook

Dutch ECM verbs like the one in (70a) do not pose selectional restrictions on the embedded subject the way that English *estimate* does in (63). No example of selectional restriction with the Dutch ECM verbs that Broekhuis and Corver (2015) list, as evidenced by a difference in grammaticality depending on the kind of embedded subject NP à la (24) and (26), exists to my knowledge. Dutch ECM verbs thus do not pattern on a par with English ECM verbs insofar as support for hypothesis (ii) is concerned.

In section 4.2, I consider cases of secondary predication in Dutch to see if structures parallel to Koizumi's (1994) and Ito's (2008) can be found.

## *4.2. Secondary predication*

### 4.2.1. Depictives

In section 3.2.1, we saw Koizumi's (1994) argument in favor of hypothesis (ii), based on example (33d) (repeated as (71)), in which we find secondary predication of a passivized indirect object.

71) The patients$_i$ were t$_i$ given the drugs drunk$_i$

In Dutch, the pattern of well-formedness is largely the same as the pattern observed in English: the ungrammaticality of (71a-c) mirrors that of (33a-c).[16] However, this is not the case for (72d), which, if grammatical, would constitute support to hypothesis (ii) in the same way (71) does. Contrary to (71) however, (72d) is ungrammatical: this is because Dutch indirect objects generally cannot be passivized (Van Langendonck, 1992; Van Belle & Van Langendonck, 1996), since the dative Case they carry cannot be suppressed (72e). (72f), with dative *haar* in fronted position is grammatical, but *haar* is not the passivized DP in (72f): the change in the number inflection on the verb between (72f) and (72g) shows that it is in fact the postverbal DP *de borden* (the plates) that is passivized. Also, note that in the fronted position (72f), *dronken* (drunk) cannot be predicated of *haar*.

72) a. *De$_{\ }$ soep wordt dronken$_i$ aan Marie$_i$ gegeven
the soup is drunk to Marie given

b. *Ik gaf Marie$_i$ dronken$_i$ de soep
I gave Marie drunk the soup

c. *Ik gaf de soep dronken$_i$ aan Marie$_i$
I gave the soup drunk to Marie

d. *Marie$_i$ wordt de soep dronken$_i$ gegeven
Marie is the soup drunk given

e. *Zij$_i$ wordt de soep dronken$_i$ gegeven
She is the soup drunk given

f. Haar$_i$ wordt de soep dronken$_{j/*i}$ gegeven
Her is the soup drunk given

[16] The grammaticality of the sentences in (72a-e) does not improve with neither different orderings of secondary predicate, indirect object and direct object, nor with dative alternation.

g. Haar$_i$ worden de borden dronken$_j$ gegeven
Her are the plates drunk given

As a consequence of the ungrammaticality of passivized indirect objects in standard Dutch, they are not a suitable testing ground for asking whether or not a depictive adjective can be predicated of the logical indirect object as in English. However, Van Langendonck (1992) discusses several examples of Dutch indirect objects that can be passivized. He explains this by appealing to change in the Case system of Dutch, suggesting that some indirect objects in nonstandard varieties of Dutch can in fact be passivized because the dative Case on these indirect objects is fading away, much like it already has eroded further in English to allow for sentences like (33d). Examples of such passivized Dutch indirect objects that Van Langendonck gives are (73a) and (75a) (both adapted from Kooiman (1963), cited in Van Langendonck (1992)). (73a) and (75a) are the passive counterparts to the active sentences in (73) and (76). Note the change in morphological case between the indirect objects *hem* of (74) and (76) and the derived subjects *hij* of (73a) and (75a). Also, these derived subjects cannot retain their dative morphology: (73b) and (75b) show this leads to at best a degraded sentence. All this suggests that the dative Case on *hem* has indeed been suppressed in the process of passivization to yield the grammatical (73a) and (75a).

73) a. Hij is de nek omgedraaid (door Hannibal)
He is the neck twisted (by Hannibal)
"He was killed (by Hannibal)"

b. *?Hem is de nek omgedraaid (door Hannibal)
Him is the neck twisted (by Hannibal)

74) Hannibal draait hem de nek om
Hannibal twists him the neck around
"Hannibal kills him"

75) a. Hij is een vinger afgezet (door Hannibal)
He is a finger amputated (by Hannibal)
"He had a finger cut off (by Hannibal)"

b. ?Hem is een vinger afgezet (door Hannibal)
Him is the neck amputated (by Hannibal)

76) Hannibal zet hem een vinger af
Hannibal amputates him a finger off
"Hannibal amputates his vinger"

Now that we have established that some passivized indirect objects can be found in Dutch, we can turn to the question of the possibility of secondary predication. Concretely, the question is whether or not (77) and (78) are permitted.

77)
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Hij$_i$ | is | dronken$_i$ | de | nek | omgedraaid | (door | Hannibal) |
| He | is | drunk | the | neck | twisted | (by | Hannibal) |

"He was killed while drunk (by Hannibal)"

78)
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Hij$_i$ | is | dronken$_i$ | een | vinger | afgezet | (door | Hannibal) |
| He | is | drunk | a | finger | amputated | (by | Hannibal) |

"He had a finger cut off while drunk (by Hannibal)"

Indeed, most of my informants, mostly from southern parts of the Netherlands, accept the indicated readings of (77), with *dronken* being predicated of the derived subject *hij*, while some also accept (78).[17] All else being equal, these positive grammaticality judgments are presumably because the structure of the relevant secondary predication of *hij* in (78) and (79) is like the one given in (34) for (71) to those speakers who accept (77) and (78).

In addition, Taalprof (2010), the pseudonym of prof. dr. Peter-Arno Coppen (full professor with the Department of Language and Communication at Radboud University), lists all of the passivized indirect objects in (79) through (82) as possible in standard Dutch, though some may be degraded (the question marks indicating possible degradedness are his).

79)
| | | | | |
|---|---|---|---|---|
| ?Hij | wordt | de | les | gelezen |
| He | is | the | lesson | taught |

"He is lectured"

80)
| | | | | |
|---|---|---|---|---|
| ?Hij | wordt | de | deur | gewezen |
| He | is | the | door | pointed |

"He is told to leave"

81)
| | | | | |
|---|---|---|---|---|
| ?Hij | wordt | een | loer | gedraaid |
| He | is | a | lure | twisted |

"He is tricked"

82)
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Hij | wordt | een | rad | voor | de | ogen | gedraaid |
| He | is | a | wheel | in.front.of | the | eyes | turned |

"He is deceived"

Several of my informants accept the indicated readings of in (83) through (86) below, with *dronken* predicated of the passivized indirect object *hij*, although they note that the examples vary in well-formedness to them. Example (85), for instance, is a notable standout in that it is seen as very natural, whereas some informants have their doubts about, say, example (86).

[17] In addition, my informants also observe that *dronken* could be predicated of *Hannibal*, either when he is left implicit or expressed using the by-phrase *door Hannibal*.

83) Hij$_i$ wordt dronken$_i$ de les gelezen
He is drunk the lesson taught
"He is lectured while he is drunk"

84) Hij$_i$ wordt dronken$_i$ de deur gewezen
He is drunk the door pointed
"He is told to leave while he is drunk"

85) Hij$_i$ wordt dronken$_i$ een loer gedraaid
He is drunk a lure twisted
"He is tricked while he is drunk"

86) Hij$_i$ wordt dronken$_i$ een rad voor de ogen gedraaid
He is drunk a wheel in.front.of the eyes turned
"He is deceived while he is drunk"

Finally, I note that the sentence in (87a) below is also a perfectly grammatical example of a passivized indirect object, derived from the active sentence in (88). Some of my informants accept the indicated reading of (87b).

87) a. Hij wordt vergeven
He is forgiven

b. Hij$_i$ wordt dronken$_i$ vergeven
He is drunk forgiven
"He is forgiven while he is drunk"

88) Hij vergeeft hem zijn gebreken
He forgives him his flaws

Independent factors, such as the ban on the suppression of non-eroded Dative Case in Dutch, notwithstanding, secondary predication of passivized Dutch indirect objects is thus possible to some native speakers.[18] This finding supports hypothesis (ii) like Koizumi's (1994) examples from English do.

Staying within the domain of secondary predication, I turn now to resultative constructions to determine if, in Dutch, evidence involving numeral quantifiers suggests that movement into Θ-positions takes place in them, much like Ito (2008) argues for Japanese.

[18] I observe that, of the constructions given in which passivization of the indirect object is possible, all but (75) and (87) are part of idiomatic expressions, which could indicate that the erosion of the Dative Case on the indirect objects of idioms has progressed further/progresses more quickly than the erosion of the Dative Case on the indirect objects of non-idiomatic expressions. Perhaps this is because of the fixed nature of the expressions. If and why this should be, I leave for further research.

### 4.2.2. Resultatives

In section 3.2.2, we saw how Ito (2008) argues that Japanese stranded numeral quantifiers provide evidence suggesting that the argument of resultative phrases like *dairiigaa-ni* in (37a) (repeated as (89)) moves into the internal argument position of the verb *sodate-ta*. This is in line with Saito's (2001) analysis of English resultatives as involving movement into Θ-positions ((35), repeated as (90)). In this section, I take a look at Dutch resultative constructions to see if they too involve movement into Θ-marked positions.

89)

| | | | |
|---|---|---|---|
| Taro-ga | kodomo-o | dairiigaa-ni | sodate-ta |
| T-Nom | child-Acc | major player-as | raise-Past |

"Taro raised his child to be a major player"

90) He hammered the metal flat

The Dutch sentence in (91) parallels the Japanese example in (89) and the English example in (90). Dutch universal numeral quantifiers (UNQs) like *alle drie* (all three) (92) can be part of a larger DP (92a), or surface separated from the nominal they quantify (92b) (Corver, 2010). (92b) constitutes a case of Quantifier Floating.

91)

| | | | | |
|---|---|---|---|---|
| Hij | hamert | de | spijkers | krom |
| He | hammers | the | nails | crooked |

92) a.

| | | | | | | |
|---|---|---|---|---|---|---|
| Hij | hamert | alle | drie | de | spijkers | krom |
| He | hammers | all | three | the | nails | crooked |

b.

| | | | | | | |
|---|---|---|---|---|---|---|
| Hij | hamert | de | spijkers | alle | drie | krom |
| He | hammers | the | nails | all | three | crooked |

"He hammers all three of the nails crooked"

As we can see in (92b), the DP *de spijkers* (the nails) is dislocated to the left of the UNQ *alle drie*. Under Cirillo's (2009) analysis of floating quantifiers like *alle drie* in (92b), the DP *de spijkers* has moved out of the quantifier phrase through [Spec,QP], as in (93). The question of whether or not example (92b) involves movement into a Θ-marked position thus comes down to asking whether, in (92b), this QP external landing site of the DP *de spijkers* is Θ-marked, that is, is the internal argument position of V, just as Saito argues for *the metal* in (90). As I argue based on evidence from object scrambling, it is.

93) … de spijkers$_i$ [$_{QP}$ $t_i$ [[$_Q$ alle drie] $t_i$ ]] …

Adopting, with Cirillo (2009), Zeijlstra's (2004) (cited in Cirillo (2009)) analysis of Dutch sentential negation as occupying the specifier position of the highest verbal element, from (94) I conclude that the DP *de spijkers* can scramble to a position higher than [Spec,VP]: in (94), the DP *de spijkers* is found in some position to the left of negation. Cirillo (2009) assumes this position is one "just below TP", without specifying which position exactly he takes this to

be.[19] What is critical for our purposes about this, however, is that the floating UNQ strongly suggests that, although the DP *de spijkers* surfaces in a higher position to the left of negation, it must have originated below negation. The way Cirillo (2009) accounts for this displacement is by appealing to object scrambling, which, as the name implies, moves those DPs that occupy structural object positions to a higher position. In the case of (94), this object position is the internal argument position of the verb *hamert*, which, as an argument position, is Θ-marked. This means that, in order for the DP *de spijkers* to be able to scramble and get to the left of negation, it has to first move to this object position from [Spec,QP], only to scramble on higher from there. This means examples (91) through (94) all involve movement into a Θ-position.[20]

94)

| Hij | hamert | de | spijkers | niet | alle | drie | krom |
|---|---|---|---|---|---|---|---|
| He | hammers | the | nails | not | all | three | crooked |

"He does not hammer all three of the nails crooked"

I conclude that the Dutch evidence thus supports Saito's (2001) movement-into-Θ-position analysis of resultatives and, in turn, hypothesis (ii).

In the next section, I take a closer look at Dutch restructuring constructions, as evidence from Spanish (Bošković, 1994) and German (Gergel & Hartmann, 2009) suggests this is another potential area where movement into Θ-positions might be found in Dutch.

## *4.3. Dutch restructuring verbs*

In section 3.3, we saw examples of Spanish and German restructuring verbs that support hypothesis (ii). Bošković (1994) and Gergel and Hartmann (2009) argue that the dative Case on the subjects of the modals in (49) and (51) respectively (repeated as (95) and (96)) are telling of movement into Θ-positions. Here, I discuss Dutch restructuring verbs to see if they too support hypothesis (ii).

95)

| A | Juan | le | quiere | gustar | Marta |
|---|---|---|---|---|---|
| to | Juan | clitic | want-3SG | please-inf | Marta |

"Juan wants to please Marta"

[19] Note that an alternative analysis of the negation in (94) presents itself in the form of the negated quantifier *niet alle drie* (not all three), instead of as sentential negation. However, this is a case of sentential negation since, under Cirillo's (2009) assumption that quantifier negation is base-generated in [Spec,QP], the movement of the DP *de spijkers* out of the QP through [Spec,QP] should not be possible if this were a case of quantifier negation. Obviously, in (95), the DP *de spijkers* is able to move out of the QP, meaning [Spec,QP] must have been left vacant for it to move out of the QP.

[20] As Bošković (2004) argues, the analysis of the movement of the DP *de spijkers* in (94), sketched in (93), is incomplete: according to him, independent principles conspire to ban quantifiers from floating in Θ-marked positions. As a consequence, the position indicated by the right-most trace in (93) is not the base-generated position of *de spijkers*, but a derived position to which the DP moves after first having been Θ-marked by *krom* (see Bošković (2004) for a detailed explanation and motivation). However, Bošković's analysis is perfectly compatible with my argument, since nothing rules out the possibility of the extra movement step of *de spijkers*, nor the analysis of the QP as being outside the Θ-marking domain of the secondary predicate in (93). All that my argument for hypothesis (ii) requires, is that it be shown that the DP *de spijkers* originates below negation and has to undergo object scrambling from a derived object position to yield sentences like (94).

96)

| | | | | | |
|---|---|---|---|---|---|
| Dem | Großvater | wollte | dem | Mädchen | gefallen |
| The.DAT | grandfather | wanted | the.NOM | girl | please |

"The grandfather wants to please the girl"

Ter Beek (2008) discusses Dutch restructuring verbs and their properties at length, including the phenomena of movement of arguments, all from the embedded clause into the matrix clause. She distinguishes four different kinds of this movement: raising to subject position (97), raising to object position (or ECM) (70a, repeated as (98)), long passives (99) and long raising to object (100). If any of these constructions are to support hypothesis (ii), they have to Θ-mark a landing position of a moved argument. In section 4.1.2, I already discussed Dutch ECM verbs and concluded that they do not. Below, I determine whether or not the other constructions Ter Beek discusses Θ-mark such positions.

97)

| | | | |
|---|---|---|---|
| Jan | schijnt | te | slapen |
| Jan | seems | to | sleep |

98)

| | | | |
|---|---|---|---|
| Hannibal | zag | hem | koken |
| Hannibal | saw | him | cook |

99) a.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ??… | dat | de | auto | werd | geprobeerd | te | repareren |
| ??… | that | the | car | was | tried | to | repair |

" … that one tried to repair the car"

b.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ??… | dat | de | auto's | werden | geprobeerd | te | repareren |
| ??… | that | the | cars | were | tried | to | repair |

" … that one tried to repair the cars"

100)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| … | omdat | Jan | het | meisje | scheen | te | kennen |
| … | because | Jan | the | girl | seemed | to | know |

First, the raising verb *schijnen* (to seem) in (98) does not select an external argument and licenses expletive *het* in the matrix subject position, as in (101), provided the embedded clause is finite so *Jan* can check the nominative Case feature of *slaapt* (sleeps), causing the derivation to be well-formed. Expletive *het* is only licensed in non-Θ-marked positions since it is not referential and cannot bear a Θ-role. This all indicates that *schijnen*, like English *seem*, does not assign a Θ-role to the position to which *Jan* moves in (97). Raising-to-subject constructions thus are not an example of movement into a Θ-marked position.

101)

| | | | | |
|---|---|---|---|---|
| Het | schijnt | dat | Jan | slaapt |
| It | seems | that | Jan | sleeps |

Second, the long passives in (99), though degraded, are acceptable in some variaties of Dutch. In them, *de auto('s)* (the car(s)) is moved to the matrix clause of the control verb *proberen* (to try) and subsequently passivized (the difference in inflection on the passive auxiliary *worden* between (99a) and (99b) serves to indicate that it is really logical object of *proberen* that is

passivized and (99) thus indeed constitutes a long passive). However, passivisation does not move an element into a thematic position: it is a saturation operation of existential closure over the external argument variable in the semantics, leaving the syntax unable to express the original external argument (*Jan* in (102)) and absorbing the predicate's ability to assign any further external argument role. This means that the position *de auto('s)* moves into through passivization is not a Θ-marked position. The long passive thus is not an example of movement into a Θ-marked position either.

102)

| … | dat | Jan | de | auto('s) | probeerde | te | repareren |
|---|---|---|---|---|---|---|---|
| … | that | Jan | the | car(s) | tried | to | repair |

"… that Jan tried to repairs the car(s)"

Finally, Ter Beek (2008) analyses the raising of *het meisje* (the girl) to the object position of *scheen* in (100) to be licensed by a *v*P headed by a *v* that assigns accusative Case to its object but no Θ-role (external or internal). Under this analysis example (100) too falls away as a potential candidate for a construction in which movement into a thematic position could be attested, since raising predicates select only one (clausal) argument – and assign only one Θ-role – and do not Θ-mark the object position *het meisje* moves to.

Of the Dutch restructuring verbs that involve A-movement that Ter Beek discusses, none are suitable candidates for an example of movement into a Θ-marked position for lack of the right thematic structure, unlike Spanish *querer* in (95) and German *wollen* in (96).

Next, in chapter 5 I conclude this thesis by summarizing my findings and discussing their consequences. We will see that the implications of the results stretch out beyond the question of the nature of Θ-roles and into independent domains of the grammar.

# 5. Conclusion

This thesis is embedded in a rich literature on a domain of grammar whose importance to descriptive linguistics everyone seems to acknowledge, but which knows little consensus. Instead of aiming to answer the question of which of several major theories of thematic roles is correct, the goal I set here was a more modest one: to see which one of two possible implementations of thematic roles in generative theory is supported by Dutch data. The configurational account of Θ-roles sees them as privileged structural configurations, which rules out the possibility of syntactic movement of constituents into Θ-positions. The featural account, on the other hand, sees them as typical syntactic features that can in fact be checked under movement. Guided by cross-linguistic evidence in favor of hypothesis (ii), that Θ-roles are features, and inspired by a total lack of Dutch data taken in consideration in this debate, I tested the relevant Dutch data to see if movement into Θ-positions could be attested and, indeed, evidence from constructions involving Exceptional Theta Marking and secondary predication do show that such movement has taken place. These empirical findings, in addition to previous empirical support and conceptual arguments that the featural account is more parsimonious than the configurational account, lead me to conclude that the Dutch evidence favors hypothesis (ii) and, thus, that Θ-roles are best seen as syntactic features.

The direct consequence of this conclusion for the overall architecture of grammar is that Θ-roles should be implemented using the formal machinery already in place for other syntactic features like the ϕ-features, and that any technical apparatus uniquely dedicated to Θ-roles as structural configurations can be dispensed with. In Minimalist syntax, this is a welcome consequence indeed. Indirect consequences for the architecture of grammar, however, stretch out beyond the domain of Θ-theory, as other Minimalist lines of inquiry crucially hinge on the assumption that Θ-roles are features. Hornstein's (1999, *et seq.*) well-known Movement Theory of Control, for instance, reduces obligatory control structures to A-movement and thus does away with that part of the control module which is dedicated to OC. Hornstein (2001) does the same for binding, showing a way to reduce that to A-movement as well. Manzini and Roussou (2000) rework A-movement into what they argue is more Minimal movement of only those syntactic features that need checking, instead of movement of constituents as a whole. Since these Minimalist proposals need to assume that Θ-roles are features, any direct evidence in favor of Θ-features indirectly helps solidify the validity of these proposals, which have serious repercussions for a much larger part of the architecture of grammar and thus help achieve the Minimalist goal of formal elegance in a much broader sense. Further research will show just to what extent the conclusions of the present thesis will allow for more Minimalist leeway in generative linguistics.

Finally, I note that the evidence that has been taken into account, in this thesis and in the discussion on the exact technical nature of Θ-roles at large, mostly consists of evidence involving movement into Θ-positions of verbal or adjectival predicates. In this line of research, I have encountered no evidence put forward in support of the featural account of Θ-roles involving movement into Θ-positions of nominal predicates, or even seen any data involving nominal predication be taken into account. Obviously, it would be preferred to give Θ-roles of all predicates a unified analysis as features (or configurations for that matter). Given this, and in light of my conclusions here, then, I think it would be worthwhile to consider nominal predicates in this discussion as well to verify why no such data have been considered yet:

because they simply have not yet been looked at, or because they do not occur in any derivation involving movement into Θ-positions. In the latter case, the natural question this raises is to see why this should be so and if this poses a problem to the featural account to Θ-roles. This too I leave for future research.

## References


Ackema, P., & Marelj, M. (2012). To have the empty theta-role. *The theta system: Argument structure at the interface (eds. Everaert, M., Marelj, M., & Siloni, T.)*, 227-250.

Adger, D. (2010). A minimalist theory of feature structure. *Features: Perspectives on a key notion in linguistics*, 185-218.

Anderson, S. R. (1990). The grammar of Icelandic verbs in -st. In *Modern Icelandic Syntax* (pp. 235-273). Brill.

Andrews, A. D. (1990). Case structures and control in Modern Icelandic. In *Modern Icelandic syntax* (pp. 187-234). Brill.

Baker, M. C. (1988). Incorporation: A theory of grammatical function changing.

Belletti, A., & Rizzi, L. (1988). Psych-verbs and θ-theory. *Natural Language & Linguistic Theory*, *6*(3), 291-352.

Brody, M. (1993). θ-theory and arguments. *Linguistic Inquiry*, 1-23.

Bošković, Ž. (1994). D-structure, theta-criterion, and movement into theta-positions. *Linguistic analysis*, *24*(3-4), 247-286.

Bošković, Ž. (1997). *The syntax of nonfinite complementation: An economy approach* (No. 32). MIT Press.

Bošković, Ž. (2004). Be careful where you float your quantifiers. *Natural language & linguistic theory*, *22*(4), 681-742.

Broekhuis, H., & Corver, N. F. M. (2015). *Syntax of Dutch: Verbs and Verb Phrases Volume II*. Amsterdam University Press, Uitgeverij Salomé.

Carnie, A. (2013). *Syntax: A generative introduction* (3rd ed.). John Wiley & Sons.

Chomsky, N. (1981). Lectures on government and binding. Dordrecht: Foris.

Chomsky, N. (1986). *Knowledge of language: Its nature, origin, and use*. Greenwood Publishing Group.

Chomsky, N. (1995). The minimalist program. 1995. *Cambridge, MA: Massachusetts Institute of Technology*.

Chomsky, N. (2000). Minimalist inquiries: The framework (MITOPL 15). *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, 89-155.

Chomsky, N. (2001) Derivation by phase. In M. Kenstowicz. (Ed.) *Ken Hale : A life in language*. (pp. 1-52.) Cambridge, Mass.: MIT Press.

Cirillo, R. (2009). *The syntax of floating quantifiers: stranding revisited*. Netherlands Graduate School of Linguistics.

Corver, N. (2010). Dressed numerals and the structure of universal numeric quantifiers. *J.-W. Zwart and M. de Vries, eds., Structure Preserved: Studies in Syntax for Jan Koster*, 91-99.

Den Dikken, M., & Zwart, J. W. (1995). Very Exceptional Case-Marking. *Studies in comparative Germanic syntax*, *2*, 85.

Dowty, D. (1989). On the semantic content of the notion of 'thematic role'. In *Properties, types and meaning* (pp. 69-129). Springer, Dordrecht.

Dowty, D. (1991). Thematic proto-roles and argument selection. *language*, *67*(3), 547-619.

Eckardt, R. (2012). Hereby explained: an event-based account of performative utterances. *Linguistics and philosophy*, *35*(1), 21-55.

Fillmore, C. (1968). The case for case. Universals in linguistic theory, ed. by Emmon Bach and Robert T. Harms, 1-90. New York: Holt, Rinehart & Winston.

Folli, R., & Harley, H. (2005). Flavors of v. In *Aspectual inquiries*(pp. 95-120). Springer, Dordrecht.

Folli, R., & Harley, H. (2007). Causation, obligation, and argument structure: On the nature of little v. *Linguistic Inquiry*, *38*(2), 197-238.

Freidin, R. (2016). Chomsky's linguistics: The goals of the generative enterprise. *Language*, *92*(3), 671-723.

Gergel, R., & Hartmann, J. M. (2009). Experiencers with (Un)willingness: A Raising Analysis of German 'Wollen'. *Advances in comparative germanic syntax*, *141*, 327.

Gruber, J. S. (1965). *Studies in lexical relations* (Doctoral dissertation, Massachusetts Institute of Technology).
Hale, K., & Keyser, S. J. (1993). On argument structure and the lexical expression of syntactic relations. The View from Building 20. *MIT: A Festschrift for Sylvain Bromberger*, 53-108.
Hornstein, N. (1999). Movement and control. *Linguistic inquiry*, *30*(1), 69-96.
Hornstein, N. (2001). *Move!: A minimalist theory of construal*. Oxford: Blackwell.
Ishikawa, Y. (2004). Null DP and the Maximization Principle: A Study of Intransitive Resultative Constructions.
Ito, A. (2008). NP movement into theta-positions and unexpected behavior of numeral quantifier stranding.
Jackendoff, R. (1972). *Semantic Interpretation in Generative Grammar*, MIT Press, Cambridge Massachusetts.
Jackendoff, R. (1976). Toward an explanatory semantic representation. *Linguistic inquiry*, *7*(1), 89-150.
Jackendoff, R. (1983). Semantics and cognition. Cambridge, MA: MIT Press.
Jackendoff, R. (1987). The status of thematic relations in linguistic theory. *Linguistic inquiry*, *18*(3), 369-411.
Jackendoff, R. (1990). *Semantic structures* (Current studies in linguistics, 18). Cambridge, Mass.: MIT Press. (1990).)
Koizumi, M. (1994). Secondary predicates. *Journal of East Asian Linguistics*, *3*(1), 25-79.
Landau, I. (2009). *The locative syntax of experiencers* (Vol. 53). MIT press.
Levin, B. (1993). *English verb classes and alternations: A preliminary investigation*. University of Chicago press.
Levin, B. (2019). On Dowty's 'Thematic Proto-roles and Argument Selection'.
Manzini, M. R., & Roussou, A. (2000). A minimalist theory of A-movement and control. *Lingua*, *110*(6), 409-447.
Marelj, M. (2004). *Middles and argument structure across languages* (Doctoral dissertation, Netherlands Graduate School of Linguistics).
Marelj, M. (2013). Experiencing linking: Psych verbs at the interface. *E. van Gelderen, M. Cennamo, J. Barðdal (eds.)*, 135-168.
Marelj, M. (2019). The Unbearable Lightness of HAVE(ing).
Parsons, T. (1990). *Events in the Semantics of English* (Vol. 334). Cambridge, MA: MIT press.
Pesetsky, D. (1992). *Zero Syntax*. Vol 2. Ms., MIT, Cambridge, Mass.
Pesetsky, D. M. (1995). *Zero syntax: Experiencers and cascades* (No. 27). MIT press.
Pesetsky, D., & Torrego, E. (2007). The syntax of valuation and the interpretability of features. *Phrasal and clausal architecture: Syntactic derivation and interpretation*, 262-294.
Reinhart, T. (1991). Lexical properties of ergativity. In *Lecture presented at the conference on Lexical Structure, Utrecht*.
Reinhart, T. (2000). The theta system: Syntactic realization of verbal concepts. *OTS working papers in linguistics*.
Reinhart, T. (2016). *Concepts, syntax, and their interface: The theta system* (Vol. 72). MIT Press.
Rodrigues, C. (2004). Thematic chains. *DELTA: Documentação de Estudos em Lingüística Teórica e Aplicada*, *20*(1), 123-147.
Roehrs, D. (2005). Icelandic case fluctuation and movement into theta-positions. *The view from Arjona*, 195-229.
Rozwadowska, B. (1988). Thematic restrictions on derived nominals. In *Thematic relations* (pp. 147-165). Brill.
Saito, M. (2001, March). Movement and θ-roles: A Case Study with Resultatives. In *Proceedings of the second Tokyo conference on Psycholinguistics* (pp. 35-60).
Svenonius, P. (2006). Interpreting uninterpretable features. *Linguistic Analysis*.

Taalprof. (2010, December 12). Taalprof Plein: vragen 35 [Blog post]. Retrieved from: http://taalprof.blogspot.com/2006/02/vragen-35.html?showComment=1292188635000#c6981376511630502121 on May 29, 2020.

Talmy, L. (1985). Lexicalization patterns: Semantic structure in lexical forms. *Language typology and syntactic description*, *3*(99), 36-149.

Ter Beek, J. (2008). *Restructuring and infinitival complements in Dutch*. Netherlands Graduate School of Linguistics.

Van Belle, W., & Van Langendonck, W. (1996). The indirect object in Dutch. *The dative*, *1*, 217-250.

Van Langendonck, W. (1998). The dative in Latin and the indirect object in Dutch. *The dative*, *2*, 211-259.

Zaenen, A. E. (1988). *Unaccusative verbs in Dutch and the syntax-semantics interface* (Vol. 123). CSLI/SRI International.

Zeijlstra, H. (2004). *Sentential negation and negative concord*. Netherlands Graduate School of Linguistics.

Zwart, J. W. (1998). The Minimalist Program. Review article. *Journal of Linguistics*, *34*, 213-226.