**Chapter 5**

**The Syntax and Semantics of Basic Attitude Reports**

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Just as modal objects, on the view developed in this book, are at the center of the semantics of modals, attitudinal objects are at the center of the semantics of attitude reports. The semantics of attitude reports that this and the following two chapters are developing can thus be called *attitudinal-objects semantics*. Attitudinal objects, not propositions, on the present view, play the role of truth bearers. More precisely, on the present view, attitudinal objects are the bearers of truthmaker-based satisfaction conditions, which the clausal complement of attitude verbs such as *believe* and *claim* serves to ascribe.

 I will call attitude verbs like *claim* and *believe* ‘basic attitude verbs’. Basic attitude verbs are just the verbs with which the clausal complement acts as a predicate of the attitudinal object that the verb describes, attributing to it its satisfaction conditions. Attitude reports with such attitude verbs can be called ‘basic attitude reports’. Non-basic attitude verbs include factive verbs like *regret* and *realize* as well as what Cattell (1978) called ‘response-stance verbs’, such as *repeat*, *agree*, and *confirm*. Clausal complements have a different functions in the context of such non-basic attitude verbs, as will be discussed in Chapter 7, namely that of describing a modal object as an argument of the attitude verb (in an extended range of modal objects that includes facts and ‘thin assertions’).

 There are other verbs whose clausal complements act as predicates of the described content bearers, but which I will discuss separately in Chapter 6, namely verbs of saying. Verbs of saying take *that*-clauses as well as quotations as complements, both of which, I will argue, act as predicates of objects described by the embedding verb. But they act as predicates of an extension of the domain of attitudinal objects, consisting of locutionary and phatic objects.

 One considerable challenge that attitudinal-objects semantics faces is to allow for a compositional semantics of attitude reports based on an independently justified syntactic structure, just like any semantics of attitude reports that takes syntax seriously. What distinguishes the present approach from standard views of attitude reports is that it focuses on attitude reports with complex attitude predicates such as *make the claim that* S and *have the belief that* S. The view that is being pursued will be that complex attitude reports also underlie simple attitude reports with verbs like *believe* and *claim*.

 Another challenge any semantics of attitude reports faces is to give a semantic analysis of special quantifiers such as *something*, which can take the place of clausal complements of most attitude verbs. In earlier work, I had argued that special quantifiers as complements of basic attitude verbs are nominalizing quantifiers ranging over the same things as are semantic values of the nominalization of the attitude verb.[[1]](#footnote-1) In this chapter, I will propose a novel semantic analysis of special quantifiers as nominalizing quantifiers, making use of a complex-predicate analysis of attitude verbs and the theory of light nouns in Kayne’s (2005, 2010) sense.

 All the syntactic proposals in this and the next two chapters are cast within what I call ‘simplified syntax’. This means that the syntactic analyses make use only of basic syntactic notions that [1] should accessible with only a minimal background in generative syntax and [2] do not involve the adoption of syntactic views beyond what is motivated by the linguistic facts involving the ontology of attitudinal and modal objects.

 The main part of this chapter will consist in elaborating the syntax and semantics of basic attitude verbs, both when they take clauses as complements and when they take special quantifiers as complements. In addition, it will more briefly address further issues, such as the semantics of independent sentences, presuppositions in attitude reports and modal concord (‘harmonic modals’) in attitude reports. One appendix will propose a way of dealing with opacity in attitude reports. A second appendix will discuss the question whether clausal complements should be taken to give the full content (truthmaking conditions) of attitudinal (and modal) objects, as I assume in this book, or whether they should rather be taken to give only a partial content, as I had assumed in some of my previous work on attitudinal-objects semantics.

**1. Basic attitude reports**

**1.1. The semantics of basic attitude reports**

The present approach differs from standard approaches to the semantics of attitude reports by taking as its point of departure not simple attitude reports such as (1a), but complex attitude reports, as in (1b):

(1) a. John claimed that it will rain

 b. John made the claim that it will rain.

Complex attitude reports contain complex attitude predicates consisting of a light verb such as *make* and an NP that makes explicit reference to an attitudinal object such as *a claim*, an attitudinal-object NP. Languages often display both simple attitude verbs and corresponding complex attitude predicates, as English illustrates below:

(2) a. believe – have a belief

 b. assume - make an assumption

 c. intend – have an intention

 d. plan – make a plan

 e. order – give an order

But the complex-attitude predicate may also be the only option, as is the case for English *have the impression* as well as German *Angst haben* and French *avoir peur* ‘have fear’. Moreover, there are cases in which the simple attitude predicate does not come with a complex version, as is the case for English *say, whisper*, *hold,* and *maintain*.

 Setting aside differences in the availability of simple and complex attitude predicates in particular languages, what is important in the present context is the fact that complex-attitude predicates are a common (and sometimes the only) way of conveying propositional attitudes, and they involve explicit reference to attitudinal objects. Recall from Chapter 1 (and I will return to the issue in Section 2.2.) that not do only complex attitude predicates make explicit reference to attitudinal objects, special quantifiers range over such objects when they take the position of complements of basic attitude verbs.

 Complex attitude predicates display different light verbs (such as *have, do, make, give*). The choice of a light verb in a complex attitude predicate is to an extent semantically determined: *have* indicates possession, *do* and *make* causation, *give* transfer of an attitudinal object.[[2]](#footnote-2)

 Based on the ontology of attitudinal objects, the semantics of complex attitude reports is straightforward. In complex attitude reports, the embedded clause is a modifier of the attitudinal object NP and as such is to be interpreted by predicate modification (Moulton 2009). This yields the semantics of attitudinal-object nous modified by *that*-clauses in (3a) and of complex attitude reports such as (1b) given again as (4a) as in (4b):

(3) [*claim that* S] = λd[claim(d) & prop(S)(d)]

(4) a. John made the claim that it will rain.

 b. ∃d(make(John, d) & claim(d) & prop([*that it will rain*])(d))

The logical form in (4b) involves existential quantification, rather than a definite description of a kind of attitudinal object (‘the claim that it will rain’). There are two reasons for using existential quantification in (4b). First, that way (4b) will then represent the logical form of the simple attitude report (1a), which will not strictly be derived from (4a), but from *John made claim that it will rain*, without a determiner (Section 2.1.) Moreover, Srinivas/Legendre (2022) have argued that even in *the claim that it will rain* the definite determiner is in fact a weak determiner, to be interpreted existentially. But not too much hinges on this choice for the logical form of complex attitude reports.

 In (4b), *prop*(*S*) is a derived meaning of the sentence *S*, the property of modal and attitudinal objects defined in Chapter 3 and 4 and again below:

(5) Derived Meaning of Sentences as Properties of Modal and Attitudinal objects

 For a sentence *S*, prop(*S*) = λ*d*[pos(*d*) = pos(*S*) & (neg(*d*) ≠ Ø 🡪 neg(*d*) = neg(*S*))]

Recall from Chapter 3 that the underived meaning of a sentence *S* is a bilateral content consisting of the set *pos*(*S*) of verifiers of S and the set neg(*S*) of falsifiers of *S*. Thus, *prop*(*S*) is the property that holds of a satisfiable object *d* iff *d* shares its satisfiers with *S* and, in case *d* has violators, *d* shares its violators with *S*. I will assume that *that* has no particular semantic contribution to make, which means prop(*that S*) = prop(*S*).

 Making use of such a truthmaker-based meaning of *that*-clauses ensures that the content attributed to an attitude is sufficiently fine-grained to provide a notion of subject matter or aboutness, as well a notion of content ordered by the relation of partial content (as discussed in Chapter 3).

 Recall also that the derived meaning *prop*(*S*) of a sentence *S* is applicable both to attitudinal (and modal) objects with the force of necessity (that is, objects such as claims, demands, requests, and insistences) and to attitudinal (and modal) objects with the force of possibility (that is, objects such as hints, suggestions, proposals, and invitations). Thus, (5a) will have the same logical form as in (3b), namely as in (5c), based on the complex-predicate version in (5b):

 (6) a. John hinted that Bill is insane.

 b. John gave a hint that Bill is insane.

 c. ∃d(gave(John, d) & hint(d) & prop([*that Bill is insane*])(d))

 One manifestation of the difference in force among attitude verbs is the appearance of different harmonic modals in the complement clause. *Insist*, which conveys strong necessity, goes with the harmonic modal *must*, whereas *suggest*, which conveys possibility, goes with the harmonic modal *may*:

(7) a. John insisted that Bill *must* be at home.

 b. John suggested that Bill *might* be at home.

A semantic analysis of harmonic modals within attitudinal objects semantics will be given later (Section 3).

**1.2. Attitudinal-object nouns, clausal modifiers, and determiner choice**

In the last section, the assumption was made that clauses following an attitudinal noun have the status of modifiers, to be interpreted by predicate modification (with respect to the external argument of the noun). This requires further elaboration. It has long been observed that clauses modifying certain nouns like idea, hypothesis, story, theory, myth, belief, claim, assumption, and hope do not have the status of complements. One reason is that the clause can be dislocated from the noun in socalled specificational sentences:

(8) a. John’s claim / belief is that he won the election.

 b. The hypothesis / idea was that the world is round.

 c. John’s idea was to climb the mountain.

The nouns that permit dislocation in specificational snetences that are precisely the nouns that express one-place properties of attitudinal objects (the attitudinal object act as their only, external arguments). They contrast with nouns like happiness, realization, acknowledgment, likelihood, attempt, pretense, and refusal Clauses with those nouns do have the status of complements and do not allow for dislocation in specificational sentences:

(9) a. \* John’s happiness is that he won the election.

 b. \* Mary’s realization was that Bill lost the election.

 c. \* The likelihood was that John would win the election

 d. \* John’s attempt was to climb the mountain.

 e. \* Bill’s refusal was to leave the meeting.

Such clauses do not give the content of an attitudinal object, but rather stand for an entity the mental state (or attitudinal object) described by the noun is about or directed toward, an internal argument of the noun. Such nouns take two arguments: an external argument that the NP itself will refer to, and an internal argument given by the clausal complement.

 There are also nouns like *proof* and *explanation*, which permit two clauses in specificational sentences, one appearing after the noun and one after the copula:

(10) a. The explanation that there was no water was that the pipes broke.

 b. The proof that Joe is at home is that the light in his house is on.

The generalization here is that the clause after the copula cannot have complement status, but can only give the content of the attitudinal object, whereas the clause after the noun provides an internal argument (a fact).

 Another difference between the two sorts of clauses with nouns is due to Moulton (2009). Nouns that take complements generally allow for an argument to be given by an NP with insertation of *of*:

(11) a. the brother of John

 b. the construction of the house.

This is also possible with nouns that take clausal complements, which permit *of* NP and in particular *of that* instead:

(12) a. the likelihood of John’s election win

 b. Joe’s realization of that.

As expected with explanation and proof, an of-phrase can only stand for an internal argument not a content of the attitudinal object:

(13) There is no explanation / proof of that

Such data substantiate the now widely accepted view that clausal modifiers of attitudinal object nouns such as claim, belief, and idea act semantically as predicates of the described content bearer (Elliott 2017, Moulton 2009, 2015, Moltmann 2014, Bondarenko 2021a, 2022). Syntactically, it goes along well with syntactic views according to which *that*-clauses are relative clauses (Kayne 2008, 2010, Arsijenevic 2015), though it is compatible with other views about the syntactic types of the clausal modifier as well. The semantics of specificational sentences will then consist in the attribution of the propositional content given by the postcopula clause to the attitudinal object denoted by the subject. This means, in present terms, the logical form of (14a) will be as in (14b):

(14) a. John’s belief is that S.

 b. prop[that S](ιd(belief(d, John))

 There are also challenges, though, for the view that clausal modifiers act semantically as predicates. One of them is the choice of the determiner. With a range of nouns such as *fact* and *idea* *that*-clause modifiers require a definite singular determiner (*the fact that* *it was raining*, \* *the facts that it was raining*, \* *a fact that it was raining*; *the idea that the problem is unsolvable*, \**the ideas that the problem was unsolvable*, \* *an idea that the problem is unsolvable*). In general, state-related attitudinal object nouns need to be definite and singular, even if there could have been different (say, temporally separated) states or state-related attitudinal objects:

(15) a. Mary’s belief that she won the race

 b. ??? Mary’s two beliefs that she won a race

(16) a. Everyone had the belief that something unusual would happen.

 b. ??? Everyone had a belief that something unusual would happen.

(17) a. Mary’s intention to write a book is wellknown.

 b. ??? Mary’s various intentions to write a book are wellknown.

This might suggest that the construction noun-clausal modifier conveys in fact an identity between the semantic value of the clause (however it is conceived) and the attitudinal object. That is *Mary’s belief that* *she won the race* would be of the logical form ιd[belief(d, Mary) & d = [*that she won the race*]].[[3]](#footnote-3)

 But there are also certain types of nouns that do not require the definite (singular) determiner with a clausal modifier, but permit an indefinite article or the plural. Nouns describing act-related attitudinal objects generally are of that sort, as in (18), as are nouns describing teleological or physical possibilities, as in (19) and (20):

(18) a. Mary’s repeated claims that John is guilty

 b. a rumor that Joe is sick

 c. Mary’s various decisions to write a book

(19) a. Mary mentioned another possibility of opening the window

 b. numerous possibilities of avoiding liabilities

(20) a. an offer to buy the house

 b. a special ability to convince everyone

A syntactic explanation of the difference has been suggested by Mikkelsen and Hankamer (2020), who argue that when a noun with a clausal modifier requires a definite determiner, the construction has a syntactic structure on which the definite determiner syntactically selects the CP. That is, *the belief that* S has the underlying structure [*belief* [ *the that*-S]DP]NP with subsequent raising of the determiner *the* to yield [*the* [*belief* [e *that* S]]NP]DP. Since only the definite determiner is able to syntactically select a CP, it is obligatory.[[4]](#footnote-4) The proposal does not explain, though, the correlation of state-related attitudinal objects with the requirement of a definite determiner; it only gives a proposal how the requirement is to be understood.

**1.3. Backgrounded attitudinal objects**

Like modal objects, attitudinal objects may come with a background, an attitudinal object or modal itself. The background represents presuppositions and may account for at least some of the roles the common ground plays on standard semantic views that derive from Stalnaker (1984). I will not develop an account of presuppositions and of other dynamic phenomena in any detail. The following points are just as an indication of how such phenomena may be treated within the overall approach of attitudinal-objects semantics.

 The background of a claim may be a belief or perhaps just an attitudinal object of ‘acceptance’, a constative object with a weaker degree of commitment than an assertion or a belief. The background of a request, for example, may be an acceptance or a previous request. Thus, in (21a, b), the *that*-clause applies to an attitudinal object whose background supports the situation in which Bill failed the exam before:

(21) a. Mary claimed that Bill repeated the exam.

 b. Mary requested that Bill repeat the exam.

Like modal objects with a background, an attitudinal object d with a background *d’* can be taken to be a complex, backgrounded object of the form *d*/*d’*, with the verification and falsification conditions below:

(22) For a backgrounded attitudinal object *d*/*d’* with background *d’*,

 for any situation s, s ╟ d/d’ iff ∃s’∃s’’(s = s’ ⊕ s’’ and s’ ╟ d and s’’╟ d’)

 for any situation s, s ╢ d/d’ iff ∃s’∃s’’(s = s’ ⊕ s’’ and s’ ╟ d and s’’ ╢ d’).

That is, a situation satisfies a backgrounded attitudinal object just in case it consists of two situations one of which satisfies the background and one of which satisfies the attitudinal object that is the foreground. A situation violates a backgrounded attitudinal object just in case it consists of two situations one of which satisfies the background and the other violates the foregrounded attitudinal objects.

 Backgrounded attitudinal objects promise an account of dynamic semantic phenomena, by being subject to a (antisymmetric) operation of dynamic fusion below:

(23) Dynamic fusion for backgrounded attitudinal objects

 For attitudinal objects *d* and *d’* with background *b*, d/b **⊕** d’/b = d’/ d ⊕ b.

That is, two backgrounded attitudinal objects *d/b* and *d’/b* undergo dynamic fusion **⊕** by applying fusion in the ordinary sense to *d* and the background b to obtain a new background *d* ⊕ *b* for *d’*. This will account for well-known facts about presuppositions in conjunctions as below:

(24) a. Mary claimed that Bill once took the exam and (she claimed that) he now repeated it.

 b. Mary requested that Bill take the exam and repeat it in case he fails the first time.

 This will have to suffice as an indication of the semantic role of backgrounds in a yet to be developed full account of presuppositions and other dynamic semantic phenomena within object-based truthmaker semantics. Backgrounds may also figure in the treatment of opacity in attitude reports (Appendix 1).

**1.4. The semantics of independent sentences and performative attitude verbs and modals**

Attitudinal-objects semantics is meant to apply not only to embedded sentences but, as a general theory of sentence meaning, to independent sentences as well. Independent sentences will naturally be regarded as predicates of utterances, which in turn are part of, or better ground, the attitudinal objects produced through the utterances. Thus, declarative sentences will, on a literal use, act as predicates of utterances that are the basis for illocutionary objects with a word/mind-to-world direction of fit, produced through the utterance of the sentence. Thus, the meaning of (25a) will be the property of utterances in (25b), where ‘M’ stands for ‘world/mind-world direction of fit’ (see Chapter 3):

(25) a. Mary is a genius

 b. λu[∃d(u ∠ d & M(d) & prop([*Mary is a genius*])(d)]

Imperatives will act as predicates of utterances on which illocutionary objects are based that come with a world-to-word/mind direction of fit. Taking ‘W’ to stand for the property of having a world-to-word/mind direction of fit and ‘∠’ for the by-relation, the relation of level-generation or grounding, that holds between phatic objects (utterances) and locutionary or illocutionary objects (as well as between locutionary and illocutionary objects), the meaning of (26a) will be as in (26b):

(26) a. Leave!

 b. λu[∃d(u ∠ d & W(d) & prop([*Leave*])(d)]

Declaratives and imperatives can be assigned the same truthmaker-based meaning as *that*-clauses, but they presuppose different conditions of direction of fit of the attitudinal object of which they are predicated.

 Attitudinal-objects semantics allows for a straightforward account of performative sentences. On that account, the meaning of (27a) will be the property of utterances in (27b):

(27) a. I am hereby making the claim that John is guilty.

 b. λu[∃d(u ∠ d & make(S(u), d) & claim(d) & prop([*that John is guilty*])(d))]

Here ‘S(u)’ stands for the speaker of the utterance u. (27b) as the meaning of (27a) amounts to the following: when a speaker utters (27a), on a literal meaning and having a performative use of *make the claim* in mind, then by that utterance a claim is produced whose content is given by *John is guilty*. The presence of the relation ∠ in (27b) can be attributed to the adverbial modifier *hereby*, which states that the by-relation obtains between the utterance and the described illocutionary object, and which can be taken to be implicit when it does not appear overtly on a performative use of the sentence. With a constative use of an illocutionary predicate, in the absence of overt or silent *hereby*, no grounding relation between the utterance and the illocutionary object is established.

 The utterance of an imperative may at the same time produce a modal object which shares its satisfiers and violators with the illocutionary object. This permits an account of performatively used modals, namely on which sentences with such a modal will express properties of modal objects, as below:

(28) a. John may leave

 b. λu[∃d(u ∠ d & may(d) & prop([*John leave*](d))]

That is, (28a) expresses the property of an utterance of producing a (deontic) modal object of possibility with the content of *John leaves*. I will make use of that account of performatively used modals later for the semantics of harmonic modals (Section 3).

**2. Compositional semantics of basic attitude reports**

**2.1. The syntax and semantics of complement clauses**

The present approach is to consider attitude reports with complexattitude predicates as (roughly) in (29a) as basic and to syntactically derive from them attitude reports with simple attitude predicates as in (29b):

(29) a. John made the claim that he won the election.

 b. John claims that he won the election.

This will permit interpreting simple attitude reports from complex ones whose semantics obviously involves reference to attitudinal objects rather than propositions.

 For present purposes I will adopt a very simple proposal along the lines of Harves / Kayne (2012). On Harves and Kayne‘s analysis, which was been motivated by purely syntactic considerations, (30a) has the underlying structure in (30b):

(30) a. John needs to sleep.

 b. John has [need to sleep].

In (30b), *need* is the head of a determinerless NP modified by what is taken to be a relative clause (*to sleep*). (30a) is obtained from (30b) by raising *need* and incorporating it into the verb. (30b) involves explicit reference to a modal object and as the underlying structure of (30a) that is input to semantic interpretation it suits the present semantics based on modal objects perfectly. Assuming that the NP *need to sleep* is interpreted by existential quantification over modal objects, the literal interpretation of (30b) below is then also the interpretation of (30a):

(31) ∃d(have(John d) & need(d) & prop([*John to sleep*])(d))

.

On that analysis, the complement clause, being treated as a relative clause modifying a noun, is not a referential term referring to a proposition.

 In the same spirit, (32a) will be derived from (32b), with subsequent movement of *claim* into SPEC(VP)) and incorporation into the verb, as in (32c). The interpretation of (32a) will then be as in (32d):[[5]](#footnote-5)

(32) a. John claims that S.

 b. John made [NP claim] [CPthat S]

 c. John [[claim] made [NP ~~claim~~ [CPthat S]]

 d. ∃d(make(John d) & claim(d) & [*that* S](d))

Such an analysis of attitude verbs matches the theory of lexical decomposition in syntax of Hale / Kayser (2002), according to which a verb like *walk* is derived from a light verb-noun combination *take walk.*

 One question (32b) raises is the absence of the determiner with *claim*. Harves and Kayne take *need* to be derived from *have need* (light verb NP), without determiner, an analysis that was taken over in (32b), which means that (29a) is not strictly derived from (29b).

 The analysis in (32c) (within simplified syntax) raises one important issue, and that is to explain the obligatoriness of the clause. Clausal modifiers of nouns are optional, but clausal complements of verbs are often obligatory, for example with the verbs *claim* and *believe*. This requires a clarification as to the nature of the obligatoriness of clausal complements with attitude verbs. One might think that any attitude verb describing a content-bearer, an attitudinal object, requires a clausal complement. However this is not the case.[[6]](#footnote-6) *Lie, confess*, and *agree* always describe contentful acts, but they do not require a clausal complement, and neither does *think*; *talk*, a verb that describes content-bearers of the locutionary sort (Chapt. 6) does not even allow for CP complements. Those verbs contrast with *whisper* and *scream*, which describe content bearers only with a CP complement, not in the absence of it (in which case, they just describe acts of making noises). Thus the obligatoriness of clausal complements with attitude verbs appears to be a matter of syntactic selection, not semantic selection.

 A simple way of casting the obligatoriness of a clausal complements with verbs like *claim* and *believe* may be as follows: the CP involves a functional projection FP hosting a feature [+prop] (‘propositional content’), which needs to be selected by the noun *claim*. The noun *claim* in turn carries the same feature [+prop], as does the verb, which in turn may enforce movement of the noun *claim* into the specifier position of the VP (or adjunction to the verb):

(33) John [[SPEC(VP) claim [+prop]] [made [F+prop]][NP ~~claim~~ [F +prop]] [CPthat [[F+prop] S]]]]

 There is an alternative proposal in the literature that would be able to explain the obligatoriness of the clause, namely the analysis of attitude reports by Arsijenevic (2009). Arsijenevic takes clausal complements of attitude verbs to be special relative clauses involving an attitudinal noun in the specifier projection of a functional projection FP, which is taken to be the force projection (following Rizzi 1997 and others) and to be headed by a feature [+assert]. Simplifying and slightly modifying Arsijenevic’s proposal for current purposes, the syntactic structure underlying (34a) would be the one in (34b), with subsequent phrasal movement of the NP into the complement position and then the specifier position of the VP, as in (34c): [[7]](#footnote-7)

(34) a. John claims that S.

 b. John make [NP ] [CP that [FP [NPclaim] [F’[F +assert] [CPS]]]]]

 c. John [SPEC(VP) claimi] [V’ make [NP[claim] [CP that [FP ~~claim~~ [+assert] S]]]]

In (34b), *claim* occupies the specifier position of the force projection. The presence of an attitudinal object noun like *claim* in the specifier position of the force projection is required by feature [+assert], which explains why verbs like *claim* that result from incorporation require complement clauses.[[8]](#footnote-8) There is one major issue with Arsijenevic’s analysis, however, and that is the lack of an independent justification of the assumption that nominal roots of attitude verbs generally originate in the left periphery of the embedded clause.

 Let us then assume that the interpretation of (29b) will be based on (29a) on a syntactic analysis along the lines of (32). The interpretation of (29b) is then obtained as follows. First of all, the sentence *S* will have its truthmaker-based bilateral content as its denotation, that is, a pair consisting of a set of verifiers *A* and a set of falsifiers *B*. The feature [+prop] itself will denote a function prop from such bilateral contents (pairs consisting of a set of verifiers and a set of falsifiers)to properties ofattitudinal or modal objects, as below:

(35) [+prop] = prop = λAλBλd[A = pos(d) & (neg(d) ≠ Ø 🡪 neg(d) = B)]

That is, [+prop] denotes the function mapping the set (of verifiers) *A* and the set (of falsifiers) *B* onto a property of attitudinal or modal objects d such that *A* is the set of satisfiers of *d* and *B* is the set of violators of *d*, if *d* has violators. The noun and the *that*-clause will then be interpreted by predicate modification, as in (36a), and the entire sentence (29a) will have the logical form in (36b):

(36) a. [the claim that [+assert] S] = λd[claim(d) & [+prop](<pos(S), neg(S)>)(d)]

 b. ∃d(make(John, d) & [the claim that [[+prop] S]](d))

That is, the *that*-clause *that* S denotes the property of attitudinal (and modal objects whose content is given by *S*, and *John claimed that* S states that there is a claim by John falling under the property denoted by the *that*-clause. Again, on this analysis, *that* does not make a particular semantic contribution, and existential quantification is taken to be associated with the bare NP modified by the *that*-clause (a special relative clause).

 There is one apparent difficulty for the derivation of simple attitude predicates from complex ones, and that is the considerable number of verbs that are not obviously derived from a corresponding noun, such as *think*, *assume, assert* (*thought* is derived from *think*, *assumption* from *assume*, and *assertion* from *assert*). In order to apply the analysis in full generality to all attitude verbs, it is necessary to posit a more abstract nominal root that is distinct from the apparent deverbal nominalization (say a nominal root *assum* for *assume* / *assumption*). The deverbal nominalizations of those verbs would then be based on a more complex structure such as [[[assum-MAKE]V] ion]N. Positing more abstract lexical roots is a move that is entirely legitimate syntactically given the development of Distributive Morphology (Halle / Marantz 1993, Harley / Noyer 1999), where a-categorical abstract roots are posited in the lexicon from which both verbs and nouns (and other lexical categories) are derived when they appear in a particular place in a morpho-syntactic structure.

 If syntactic analyses like this are to be generalized, then all attitude and modal verbs that take clausal complements are underlyingly complex predicates of the form light verb-noun (for satisfiables). This is not entirely implausible given certain theoretical view in syntax. The generalization about attitude verbs would go along well with the lexical decomposition approach to non-attitudinal verbs of Hale and Kayser (2002), which derives verbs like *walk* from *take a walk* and *nap* from *take a nap* etc. It would also go along well with an overall syntactic view on which nouns are the primary syntactic category and there are only a small number of light verbs, an exploratory view put forward by Pawley (2006).

 Still it may look like the semantics of attitude reports that I have proposed is based on rather thin grounds, supported only by quite particular views regarding lexical decomposition of verbs in syntax and the primacy of particular syntactic categories. But then little is certain about the right syntactic analysis of clausal complement structures in the first place, and there is no particular reason to hold onto the standard view on which clausal complements are referential terms referring to propositions when that view faces a range of serious problems of both linguistic and philosophical sorts.

 However, it should be pointed out that there is another option for an analysis of clausal complements of attitude verbs that does not rest on the decomposition of attitude verbs and may yet just involve attitudinal objects, rather than propositions. This is the analysis proposed by Moulton (2009, 2017). Moulton takes clausal complements to act as predicates of content bearers that occupy an argument position of the embedding predicate. On that view, the clausal complement (or subject) itself does not occupy an argument position, but is only linked to an empty element in argument position (which may but need not be a DP). Thus (37a) has the syntactic structure in (37b) and the logical form in (37c):

(37) a. John claims that S.

 b. John claims ei [that S]i.

 c. ∃d(claim(John, d) & [*that* S](d))

What is unsatisfactory about the view, though, is that it does not draw a distinction between clausal complements of basic attitude verbs and of other clause-embedding predicates such as factive predicates (as well as predicates applying to states of affairs and to contextually given claims discussed in Chapter 7). This distinction that is very clear semantically as well as syntactically (as will be discussed in Chapter 7). All clausal complements would play the same semantic role, on Moulton’s analysis, with the only difference being the kind of content bearer that is argument of the embedding predicate. However, there are significant semantic differences between clausal complements of basic attitude verbs and other clause-embedding predicates (see Chapter 7).

**2.2. The syntax and semantics of special quantifiers as complements of attitude verbs**

An important fact about attitude verbs is that with most of them the clausal complement can be replaced by what I call ‘special quantifiers’. In English, special quantifiers comprise quantifiers like *something, everything,* *several things*, *a lot*, and *little*, the deictic pronoun *that* and the interrogative and relative pronoun *what*. Special quantifiers and pronouns are clearly DPs. What makes them special is that when they take the place of clausal complements of attitude verbs, they generally do not lead to the Substitution Problem. They are thus unlike ordinary DPs such as *some proposition*, *some entity*, or *some thing*, which, with most attitude verbs display the Substitution Problem (exceptions being a few verbs like *believe, assert*, *accept, prove*).[[9]](#footnote-9) *Claim* is representative of attitude verbs accepting special quantifiers but not ordinary DPs:

(38) a. John claimed something / nothing / several things / a lot.

 b. John claimed that.

 c. John claimed what Mary claimed.

 d. ??? John claimed some proposition / some entity / some thing / some content.

The semantic behavior of special quantifiers is an important additional motivation for attitudinal objects being at the center of the semantics of attitude reports. Special quantifiers and pronouns generally stand for just the sorts of things that the corresponding nominalizations of the embedding verb stand for (which is also why they can be called ‘nominalizing’ quantifiers, see Moltmann 2003a, b, 2013a, 2014, 2017a).

 On the standard, Relational Analysis of attitude reports, special quantifiers as complement of basic attitude verbs are taken to stand for propositions. Only if they stand for propositions, according to the underlying assumption, can they validate inferences such as those in (39a) and in (39b):

(39) a. John thinks that Mary is happy.

 John thinks something.

 b. Mary believes everything Bill believes.

 Bill believes that it is raining.

 Mary believes that it is raining.

However, the actual semantic behavior of special quantifiers and pronouns indicates that such quantifiers and pronouns do not stand for propositions, but rather for attitudinal objects or kinds of them (as was already pointed out in Chapter 1).

 First, restrictions and predicates of special quantifiers cannot generally be understood as predicates of propositions; rather what they are predicated of is attitudinal objects (or kinds of them):

(40) a. John said something nice (namely that S).

 b. John thought something daring (namely that S).

 c. John claimed something that made Mary very upset.

 d. Joe overheard what Mary requested.

It is not a proposition that is said to be nice in (40a), but rather something like John’s remark or John’s claim. It is not a proposition that is said to be daring in (40b), but a thought. It is not a proposition that could have made Mary upset according to (40c), but rather a claim. Finally it is not a proposition that Joe overheard according to (40d), but Mary’s request.

 Second, constraints on reports of the sharing of the content of different attitudes indicate that special quantifiers or pronouns in such reports stand for kinds of attitudinal objects rather than propositions:

(41) a. John believes what Mary believes, namely that Bill was elected president.

 b. ?? John screamed what Mary believes, namely that Bill was elected president.

 c.?? John expects what Mary believes, namely that Sue will study harder.

 d. ?? John assumes what Mary expects, namely that it will rain.

The sentences in (41b-d) are just as unacceptable as statements of identity or sameness with the corresponding nominalizations:

(42) a. ?? John’s scream was / was the same as Mary’s belief.

 b. ?? John’s expectation is / is the same as Mary’s belief.

 c. ?? John’s assumption was / was the same as Mary’s expectation.

This indicates that the free relative clause *what Mary believes* stands in fact for a belief, a (kind of) attitudinal object, rather than an abstract proposition; similarly, *what Mary expects* stands for a (kind of) attitudinal object that is an expectation.

 Data of this sort support the view that special quantifiers range over the sorts of things that the nominalization of the verb would stand for, namely attitudinal objects or kinds of them, rather than what could be the semantic values of a *that*-clause.[[10]](#footnote-10)

 Special quantifiers are not only special semantically. They are also special syntactically in that they contain a light noun in the sense of Kayne (2005, chap. 4, 8, 7, 10).[[11]](#footnote-11) This is the morpheme *thing* in *something, everything*, and *several things*. Light nouns are a syntactic category distinct from ordinary nouns. One characteristic feature of light nouns is that they can stay silent in the absence of an antecedent, unlike ordinary nouns (which can be unpronounced only through deletion under identity). The silent version of *thing* is also arguably part of *a lot*, *what, that, little* and *a lot* (Moltmann 2022b). Thus, if THING is the light noun in its silent or pronounced version, the underlying structure of those quantifiers will be *a lot THING,* *what THING,* and *that THING.* Other languages, such as German, have even fewer light nouns appearing in special quantifiers. For example, no light noun appears in German *alles* ‘everything’, *nichts* ‘nothing’, and *etwas* ‘something’. But that does not mean that a silent version of THING is not present there as well.

 The meaning of the light noun -*thing* is distinct from that of the full noun *thing*. The latter describes enduring material objects, the former any entity whatsoever (which makes light quantifiers such as *everything* particularly suited for the expression of absolute generality). Other light nouns than THING include PERSON (which is an unpronounced part of *everyone*), TIME (which is part of *sometimes*), and PLACE (which is a pronounced part of *someplace else* and an unpronounced part of *everywhere*). Unlike the light nouns PERSON, TIME and PLACE, THING can have a particular nominalizing function, allowing it to occur in nonreferential positions.

 Light nouns form a universal inventory and serve to classify things, either just as entities (THING) or as entities of a particular type. In their general classificatory semantic function, light nouns are on a par with classifiers in languages such as Chinese or nouns like *piece* or *amount* in English (*a piece of bread, an amount of water*). Their ability to act as classifiers appears crucial for understanding their semantics when they take the place of clausal complements. Let us consider (43):

(43) John claimed something.

Using simplified syntax, the light noun *thing* here acts as a classifier selecting an NP headed by *claim*, as in (44), where ‘ClP’ stands for ‘classifier phrase’:

(44) John make [QP some [ClP thing [NP claim]]]

*Claim* subsequently moves up, into specifier position of the VP:

(45) John [SPEC(VP) claim]i [V’ makes] [QP some [ClP thing [NP ~~claim~~]]]]

This allows *claim* to incorporate into the verb, resulting in the verb *claim*.

 This analysis immediately accounts for the fact that the Substitution Problem arises with ordinary NPs, but not light NPs. *John claimed some thing* and *John claimed some proposition* are impossible because the full nouns *thing* and *proposition* do not act as classifiers selecting NPs, which would provide a position for *claim* to originate in.[[12]](#footnote-12) The light noun THING as a classifier selects NPs, and it is the only light noun that can select an NP like *claim* since light nouns such as PERSON, PLACE, TIME cannot form special quantifiers.

 Given that special quantifiers as complements of attitude verbs range over attitudinal objects, their restrictions will be predicates applied of attitudinal objects. Constraints on reports of the sharing of contents of different attitudes are also straightforwardly accounted for. The only thing that gives rise to complications is the syntactic structure of such reports. Let us take (46):

(46) John claimed what Mary claimed.

There is no unanimity about the syntax of free relative clauses such as *what Mary claimed* in (46). To the contrary, there is a major debate about their syntactic analysis as well as significant crosslinguistic variation.[[13]](#footnote-13) For present purposes I will adopt the view of that free relatives are ordinary relative clauses restricting the silent quantifier ALL. In (46), *what* will be the head of a DP that consists also of a silent classifier THING and a nominal root *claim*. I will assume that the classifier *thing* is polysemous, being able to map the content of an attitudinal noun like *claim* both onto a property of individual claims (THING1) (as in the examples in (40), e.g. (40c), *John claimed something that made Mary very upset*) and to a property of kinds of claims (THING2) as in (46). Reports of sharing of the content of attitudes obviously involve THING2.

 (46) then is derived from the structure in (47a), with subsequent phrasal movement of the two occurrences of *claim* as in (47b), which permits *claim* to be incorporated into *made* in the embedded clauses as well as *made* in the matrix clause:

(47) a. John made [DP ALL [CP [DP what [ClP THING2 [NP claim]]] [Mary made what

 [THING2 claim]]]

 b. John [SPEC(VP) claim [V made] ALL [CP [what [ClP THING2 ~~claim~~]] [Mary [claim

 [V made]] [QP what [ClP THING2 ~~claim~~]]]]]]]]

 If the wh-phrase [*what* [THING2 *claim*]] is the head of the relative clause, *claim* in the upper position will be able to move into the specifier position of VP in the main clause. Moreover, *claim* in the complement inside the relative clause can move into the specifier position of the VP in the embedded clause. What is crucial in this syntactic structure is that there are two copies of the wh-phrase [*what* [THING2 *claim*]]. This conforms with a common assumption about syntactic movement in contemporary generative syntax, namely the Copy Theory of movement (Chomsky 1993).

 If the free relative is interpreted as standing for the maximal entity satisfying the relevant open sentence, the logical form of (48a) will be as in (48b):

(48) a. John claimed what Mary claimed.

 b. made(John, max d[[THING2 claim](d) & make(Mary, d)])

That is, the making relation obtains between John and the maximal entity consisting of (kinds of) claims made by Mary. The interpretation of (46) based on THING2 ensures that what is shared is a kind whose instances are attitudinal objects.

 There are well-known exceptions to the generalization that sharing requires the same kind of attitudinal object, often involving focusing on the use of adverbials (e.g. *John actually believes what Bill just assumes*, *Joe finally said what everyone just thought*). This appears due to a reanalysis of the verb into a more general concept (e.g. acceptance) and a modifier, as I proposed in Moltmann (2003a, 2013a). It is then the more general concept that describes the (kind of) attitudinal object.[[14]](#footnote-14)

 The proposed semantics of special quantifiers faces certain challenges, namely data that suggest that special quantifiers do not stand for attitudinal objects but rather only their content. Davis (2022) notes that *acquire* is applicable to *Mary’s belief*, but not to things referred to as *what Mary believes*, where *what* is a special pronoun (??? *Mary did not acquire what she believes* *yesterday* vs. *Mary did not acquire her belief yesterday*). Likewise *break* is applicable to promises, but not to what is referred to as *what Bill promised*. The reason does not seem to have to do with the kind of meaning conveyed by such predicates. *Come to share* is applicable to the same free relative clauses with attitude verbs (*Joe came to share what Bill believes*), as are predicates of satisfaction (*Mary fulfilled what she promised*, *Sue kept what she promised*, *Sue complied with what Joe requested, Bill carried out what he decided to do*). Instead the reason is that the fact that the predicates *acquire* and *break* ordinarily apply to material objects and have a derivative or idiomatic reading when applied to ordinary NPs standing for attitudinal objects, a reading that is available only in the presence of a full DP, not a light DP.[[15]](#footnote-15)

**3. Harmonic modals**

Attitudinal-objects semantics has a particular application to modals in embedded contexts when they exhibit modal concord with the embedding verb, that is, harmonic modals (to use Kratzer’s 2016 term).[[16]](#footnote-16) Attitudinal-objects semantics provides a straightforward semantics of harmonic modals and avoids difficulties that arise for the standard semantics of modals when applied to the phenomenon.

 Harmonic modals such as *should* and *must* below occur in clauses embedded under speech act verbs in a way in which they do not contribute to the content of the reported speech, but rather just reflect the inherent modality associated with the embedding predicate:

(49) a. John requests that Mary *should* leave.

 b. The general demands that the troops *must* leave.

There are also harmonic uses of modals of possibility, with suitable embedding verbs:

(50) a. John suggested that Bill *might* leave.

 b. The document indicates that Bill *might* be guilty.

 c. John thought / hoped that the package *might* have been for him (when he opened it).

 Given possible-worlds semantics, it is tempting to consider harmonic modals as devices that spell out the inherent modality of the attitudinal object of which the clause is to be predicated (Kratzer 2016). The harmonic modal in the embedded clause in (49a, b) then spells out universal quantification over the possible worlds that make up the content *cont*(*d*)(*w*) of the attitudinal object d, as below, where w is the actual world:

(51) λd[∀w’(w’ ∈ cont(d)(w) → Mary leaves in w’)]

However this could not carry over to modals of possibility.[[17]](#footnote-17) In (50a-c), the modal *might* should spell out existential quantification, which would yield the following meaning of the *that*-clauses:

(52) [*that* S] = λd[∃w’(w’ ∈ cont(d)(w) & S is true in w’)]

But in (50a), the *that*-clause does not just specify what is the case in some world in which John’s suggestion is taken up; it specifies (at least) what is the case in all the worlds in which the suggestion is taken up. Similarly in (50b), the *that-*clause does not just say what is the case in some world compatible with what the document says, but what is the case in all such worlds, and likewise for John’s thought or hope in (50c).

 Attitudinal-objects semantics is able to account for harmonic modals of both necessity and possibility. The idea is that harmonic modals act as performative uses of modals in embedded contexts.[[18]](#footnote-18) Recall that a sentence with a performatively used modal such as (53a, b) will express properties of modal objects meant to be produced by uttering the sentence, as in (54a, b)

(53) a. You must leave!

 b. You may leave!

(54) a. λu[∃d(u ∠ d & must(d) & [*leave!*](d)]

 b. λu[∃d(u ∠ d & may(d) & [*leave!*](d)]

With a harmonic modal acting as a performative modal in an embedded context, (49a) will have the logical form in (55a) based on the meaning of the embedded clause in (55b), now formulated as the property of objects in virtue of which there is a modal object of weak necessity that shares its truthmaking with the prejacent of the modal:[[19]](#footnote-19)

(55) a. ∃d(make(John, d) & request(d) & [*that Mary should leave*](modal-part(d)))

 b. [*that Mary should leave*] = λd[ ∃d’(d ∠ d’ & should(d’) & [*Mary leave*](d’)]

Similarly, (50a) will have the logical form in (56a), based on the meaning of the embedded sentence in (56b):

(56) a. ∃d(make(John, d) & suggestion(d) & [*that Bill might be guilty*](modal-part(d)))

 b. [*that Bill might leave*] = λd[∃d’(d ∠ d’ & might(d’) & [*Bill be guilty*](d’))]

Here ‘modal-part(d)’ picks out the modal object that is a non-temporal part of the attitudinal object d, an object that shares the very same satisfaction conditions with d. An act of demanding produces a demand as well as possibly an obligation with the very same satisfaction conditions. An act of permitting produces an illocutionary and a modal product of permission with the same satisfaction conditions.

 Harmonic modals are another phenomenon where object-based truthmaker semantics has a significant advantage over possible-worlds semantics with its quantificational analysis of modals.

**Appendix 1**

**Truthmaker-based content of attitudinal objects and opacity**

A semantics of attitude reports needs to be able to account for opacity, the failure of substitutivity of co-extensional terms, such as the failure for (1a) to imply (1b):

(1) a. The joker believes that Bruce Wayne is a wimp.

 b. The joker believes that Batman is a wimp.

While attitudinal-objects semantics does not make a specifically novel contribution to the issue, here is a way of taking care of opacity within the approach.

 Opacity may arise with the choice of one term over a different, coreferential one, but it may also arise with a particular use of the same coreferential name and with different coreferential uses of a pronoun, so that substitution itself won’t make a difference. Relevant cases are familiar from the philosophical literature (Kripke’s 1979 Paderewski case, Crimmins and Perry’s 1989 phone-booth case). In all cases of substitutional or referential opacity, what is commonly considered a ‘mode of presentation’ associated with a name or use of a name or pronoun is part of the content of a described attitude and bears on the overall truth conditions of the attitude report.[[20]](#footnote-20)

 Let us first of all note that the semantics so far predicts the non-identity of beliefs that have the same truthmaking conditions, but would involve different modes of presentation. Thus, given the truth of (2a, b), (2b) is predicted to be false:

(2) a. Pierre believes that Londres is pretty.

 b. Pierre believes that London is not pretty.

 c. Pierre’s belief that London is pretty is Pierre’s belief that Londres is pretty.

That is because beliefs as attitudinal objects do not just have a truthmaker-based content; they may be more specific than that and involve various components or features that, as cognitive particulars, would amount to modes of presentation. However, this would not account for the way modes of presentation may influence the truth conditions of the overall attitude report on a particular intended meaning, that is, the difference in truth conditions between (1a) and (1b).

 The following is a way of accounting for the way ‘modes of presentation’ figure in the intended meaning of an attitude report involving an attitudinal object and its satisfaction conditions. It involves making use of the background attitudinal object. Thus, an agent may have different background beliefs regarding a particular object, and those may involve the use of a particular name as in (2a, b). Also two agents may have different background beliefs regarding a particular object. It is when such background beliefs are part of the intended meaning of the utterance that modes of presentation come into play.

 This will not account, though, for potential differences in modes of presentation associated with different occurrences of the same pronoun or the same name when those occurrences stand for the same individual, as on the variant of (2a, b) when the same version of the name *London* is used. For that purpose one may take modes of presentations to be cognitive particulars that are components of background beliefs.[[21]](#footnote-21) Those elements, moreover, may be connected to elements in what the belief is about, the subject matter of the belief. This is, formally, the fusion of the set of the truthmakers and the set of falsity makers of the belief *d*, *fus*(*pos*(*d*) ∪ *neg*(*d*)) (Chapter 3). Modes of presentation will be associated with elements in such a belief content in the sense of those elements being individuals playing particular roles in situations, not just individuals per se (in order to account for the various cases of opacity).

 Very generally, then, for (3a)there will be a relation Ru(S) determined by the intentions of the speaker when uttering *S* (*u*(*S*)) and which holds of *fus*(*pos*(d) ∪ *neg*(*d*)).[[22]](#footnote-22) The logical form of a belief report *John* *believes that* S will then be as in (3b):

(3) a. John believes that S.

 b. ∃d(have(John, d) & belief(d) & Ru(S)(d, fus(pos(d) ∪ neg(d))) & prop([*that* S])(d))

That is, for a belief *d* had by John that has the satisfaction conditions given by *S*, features or components of *d* relate to elements in what *d* is about in the way intended by the speaker when uttering the *that*-clause.

 Where should the condition Cu(S) come from, that is, what is its syntactic basis? A plausible view is that it is associated with the head of the functional projection (‘force projection’) FP, just like the feature [+prop] that mediates between truthmaker-based bilateral content of the clause and the property of attitudinal or modal objects denoted by the *that*-clause as a whole. This would explain why not only attitude verbs set up an opaque sentential context, but also attitudinal adverbials (*According to Pierre, London is pretty; Reportedly, John smokes*) (Section 2.2.), as noted by Bach (1997). Attitudinal adverbials, as pointed out by Arsijenevic (2009), can occupy the specifier position of the functional projection FP in both embedded and independent sentences. In fact Cu(S) can be considered part of the interpretation of the feature [+prop], as proposed in Section 2.1., and thus would be part of a compositional, syntax-based semantics (rather than added as a matter of pragmatics).[[23]](#footnote-23) However the proposal may be elaborated further, what is certain is that a truthmaker-based and attitudinal object-based semantics of attitude reports allows for an account of opacity.[[24]](#footnote-24)

**Appendix 2**

**Do clauses give the complete content or a partial content of a content bearer?**

 Both in Chapter 3 and in this chapter, the assumption was made that a clause when predicated of an attitudinal or modal object gives its precise satisfaction conditions, that is, it is subject to an equal-content condition. There are some data that may seem problematic for that assumption, data have been discussed in particular by Fara (2013) with examples such as (1):

(1) Fiona wants to catch a fish.

Fiona’s desire is not satisfied if she catches some fish or another, but only if she catches, let’s say, a fish she can eat. Fara argued that such data show that the satisfaction conditions of a reported desire are underspecified by the complement clause, which means that the equal-content condition would not obtain.

 The phenomenon is not limited to desire. The same kind of underspecification can arise for modal objects like *need*, as in the statement about the telic modality corresponding to (1) below:

(2) Fiona needs to catch a fish (in order to have something to eat for dinner).

For that reason, in previous work (Moltmann 2014, 2017a, 2020a), I had imposed the a partial-content condition on clausal complements:

(3) The Partial-Content Condition

 For a sentence *S* and a satisfiable object *d*, part-prop([S])(d) iff the content of *S* is a partial

 content of the content of *d*.

Recall from Chap. 4 that a set of situations *A* is a partial content of a set of situations *B* iff every element in *A* is contained in an element of *B* and every element of *B* has an element of *A* as a part.[[25]](#footnote-25)

 Not all satisfiable objects display this sort of underspecification, though. What appears to play a role is a difference in the direction of fit among between attitudinal and modal objects. Needs and desires come with a world-to-word/mind direction of fit and as such permit an underspecification of their satisfaction conditions by the clausal complement. By contrast, beliefs, claims, epistemic states which come with a word/mind-to-world direction of fit, do not seem to display the same sort of underspecification:

(4) a. Fiona believes that she caught a fish.

 b. Fiona claims that she caught a fish.

 c. Fiona might have caught a fish.

Fiona’s belief and Fiona’s claim in (4a, b) intuitively are true just in case Fiona caught a fish, whether edible or not. The same holds for the likelihood or probability in (4c) for Fiona to have caught a fish.

 The lack of underspecification also holds for the existence conditions of facts (that is non-worldly facts as denotations of explicit fact descriptions): the fact that Fiona caught a fish obtains regardless of whether she caught a fish she can eat or not. It moreover holds for the realization conditions of states of affairs.[[26]](#footnote-26) The state of affairs in which Fiona caught a fishobtains just in case she caught any fish whatsoever.[[27]](#footnote-27)

 Another semantic argument against the partial-content condition is the reading of *completely* below:

(5) John completely agrees that Joe is incapable of doing the job.

If the *that*-clause specified just part of the content of the object of agreement, then *completely* could have a reading relating to a richer, in part contextually given, content; but it just cannot have such a reading. The same holds for *completely* with factive verbs:

(6) John completely understood that the problem is unsolvable.

With *that-*clauses specifying a partial content it would also be hard to make sense of *namely* as below, which requires displaying the entity or plurality mentioned by the preceding indefinite in its entirety:

(7) a. ?? John invited some women, namely Mary and Sue. (He in fact invited Mary, Sue, and

 Anna.)

 b. ?? John expects something, namely that Mary will be invited (in fact he expects that

 Mary and Joe will be invited).

 Yet another argument against partial content is that *that*-clauses cannot be stacked, as seen in (8a), unlike relative clauses, as in (8b) (Moulton 2009 p. 29-30, Elliott 2021):

(8) a. \* John believes that it is raining that it is cold.

 b. John saw the woman that he met yesterday that has impressed him so much

The semantic explanation would be that *that*-clauses give the full content of the described attitude, which can be achieved*that*-clause.[[28]](#footnote-28) There may be an alternative, syntactic explanation, though, for the impossibility of stacking. For example, it can be accounted for on Arsenijeviç’ (2009) analysis on which clausal complements require raising of an attitudinal noun from the left periphery of the clause into a position within the main clause, an operation that would be inapplicable to two or more stacked clausal complements. Stacking of clausal complements of nouns would moreover be excluded by Mikkelsen and Hankamer’s (2020) account, on which the definite determiner syntactically selects the clausal complement.[[29]](#footnote-29)

 Given the validity of the other arguments, the challenge then is to account for why the complement of *need* and *desire* appears to give only a partial specification of the content of the need or the desire. One might suggest that what matters is the infinitival form of the complement of *need* and *desire* that is responsible. But in fact the choice of a finite or an infinitival complement does not seem to matter. The underspecification effect obtains in (9b) in the same way as it does for (9a, c), and it fails to obtain in (10b) in the same way as it fails to obtain for (10a) and (10c):

(9) a. Fiona must catch a fish.

 b. Fiona needs to catch a fish

 c. Fiona hopes that she will catch a fish.

(10) a. John must have caught a fish.

 b. Mary claims that John caught a fish.

 c. Mary claims to have caught a fish.

Of course, it is implausible that clausal complements should express different properties of content-bearers depending on the directions of fit of the attitudinal or modal object that the embedding predicate describes. In fact, some of the diagnostics for an equal-content condition apply to predicates involving a world-to-word/mind direction of fit as well, such as the impossibility of stacking and the understanding of *namely*-phrases:

(11) a. \* Fiona wants [to catch a fish] [to buy some wine].

 b. Fiona wants something, namely to catch a fish.

Clearly, for satisfiable objects with a world-to-word/mind direction of fit (such as a desire or a need) the completion of the satisfaction conditions conveyed by the clause must come from the context. But it can’t be a background belief or common ground that would provide the completion. Rather what completes an incomplete specification of an attitudinal or modal object with a world-to-word/mind direction of fit is conditions constitutive of an ideal situation in which what is desired or needed is fulfilled. Only with those conditions as background can the clausal complement give the full satisfaction conditions of the desire or need. This suggestion, of course, needs to be spelled out in detail, a task that will have to be left for another occasion.

1. See Moltmann (2003a, b, 2013a). [↑](#footnote-ref-1)
2. There is also interlinguistic variability as to the choice of a light verb (*make a judgment*, in German *ein Urteil faellen* ‘to make fall a judgment’, though the verb *faellen* does not look like a light verb. There is also intralinguistic variability, e.g. English *conclude* - *draw* / *reach the conclusion*. [↑](#footnote-ref-2)
3. An alternative view that has been proposed is that the relation between clausal modifier and attitudinal noun is one of identification with the clause and the attitudinal nouns standing for the same proposition (de Cuba 2017). [↑](#footnote-ref-3)
4. The present approach allows for an interpretation of such a structure, of very roughly the following sort. *The*+*that* S is first interpreted as the most general modal object determined by *S*, the state of affairs in which *S* (see Chap. 7). Subsequently, the noun in the higher position will trigger a mapping of that modal object onto a belief, fact, or thin generic assertion with the same truthmaking conditions. [↑](#footnote-ref-4)
5. I will it open whether incorporation should be based on phrasal movement of the NP *claim* into the verbal specifier position or on adjunction of the noun *claim* to the verb, the more traditional view of incorporation. [↑](#footnote-ref-5)
6. Thanks to Keir Moulton for pointing the generalization out to me. [↑](#footnote-ref-6)
7. See also Arsenijeviç (2020) in the context of a discussion of attitudinal objects. [↑](#footnote-ref-7)
8. The force projection is meant to be able to host evidential, attitudinal, modal material as features in its head or as phrases in its specifier position. Arsijenevic argues that the specifier position of FP can also be occupied by adverbials that introduce an intensional context (*reportedly, according to Joe*):

(i) Reportedly, John left the competition.

Just like the noun *claim* in (23a), such adverbials will act as predicates of epistemic attitudinal objects whose content is given by the sentence they modify and thus seem to play the very same role as the attitudinal noun. [↑](#footnote-ref-8)
9. The few verbs in English that permit the substitution of the clausal complement by an ordinary NP are *believe, prove*, and *accept.* This means that those verbs can be used as ordinary transitive verbs denoting a relation between agents and content bearers. [↑](#footnote-ref-9)
10. This generalization has been made first in Moltmann (2003a, b, 2013a). [↑](#footnote-ref-10)
11. See also Kishimoto (2000) on light nouns. [↑](#footnote-ref-11)
12. The analysis might provide a novel account why adjectives need to follow *something (something nice, \* some nice* thing), ggiven the underlying structure [QP *some* [ClP*thing* [AP *nice* [NP *claim*]]]. See the discussion of the phenomenon in Kishimoto (2000) and Larson / Marusic (2004). [↑](#footnote-ref-12)
13. There are two major views in the contemporary syntactic literature on free relatives. One view, takes free relatives to be light headed relatives, modifying a pronominal element PRO or pro (Grosu 2003, Chierchia/ Caponigro 2013). Another view takes the wh-category to be directly selected by the matrix verb, which means that free relatives are headless. Cecchetto and Donati (2011) propose a version of that view according to which words, but not phrases, have the power to change the label of the category they attach to. This is meant to explain why free relatives are introduced only by wh-word: a wh-word can turn a CP into a nominal constituent whereas a wh-phrase cannot. The problem is that the free relative *what Mary claimed* on the analysis in (47a) involves wh-phrases (*what* THING *claim*), not just wh-words, and so their analysis is not applicable. [↑](#footnote-ref-13)
14. In Moltmann (2003a, b, 2013a), I suggested a different analysis, on which the morpheme *-thing* in (ia) moves up from its lower position and incorporates into the verb *think*, as in (ib), leading to the logical form in (ic). Making use of the logical form of attitude reports with clausal complements in (ib), V-*thing* will express the relation between events, agents and attitudinal objects in (id):

(i) a. John claimed something.

 b. John claim-thingi [some ei]

 c. Some x: claim-thing(e, John, x)

 d. [claim-thing] = λexd[claim(e, x) & d = att-obj(e)]

This gives the logical form of (iia) in (ib):

(ii) a. John claimed something daring.

 b. ∃e ∃e’(claim(e, John) & daring(e’) & e’ = att-obj(e))

However, the movement of -*thing* was not further justified and independently motivated. [↑](#footnote-ref-14)
15. One might speculate that *acquire* and *break* on the idiomatic reading become light verbs and that the combination of light verb – light DP is ruled out as a matter of general principle. Thus, (ib) as an inference from (ia) is likewise impossible, *make* being a light verb:

(i) a. John made Mary happy.

 b. John made something.

Thanks to Clementine Raffy for suggesting this explanation to me. [↑](#footnote-ref-15)
16. See Portner (1997), Zeijstra (2007).Yalcin (2007), and Yanovich (2007) for a discussion of harmonic modals of various sorts. [↑](#footnote-ref-16)
17. See Moltmann (2018b, 2020a). [↑](#footnote-ref-17)
18. Modals can be used performatively also in other contexts, most obviously in sentences embedded under verbs of saying. Thus, (i) can report a demand by John, uttering *Mary must leave* and using *must* performatively:

(i) John said that Mary must leave. [↑](#footnote-ref-18)
19. In Moltmann (2017a, 2018a), I took modal objects described by performatively used embedded modals to be products produced by the very same illocutionary acts as the attitudinal objects. This led to slightly different logical forms, involving Davidsonian events and two different product functions applying to them. [↑](#footnote-ref-19)
20. There is also a pragmatic tradition pursued by Soames and Salmon among others that takes modes of presentation not to be part of the intended meaning of attitude reports, but to be implicated by them. I will set that tradition aside in this appendix. [↑](#footnote-ref-20)
21. See Crimmins and Perry (1989) for a related approach. [↑](#footnote-ref-21)
22. A simpler condition, suggested to me by Gary Ostertag, would be the one below, where Φ\* is a mode-of-presentation property selected by the speaker.

(i) ∃d(have(John, d) & belief(d) & Φ\*(d) & [that S](d))

However, that condition is less constrained than that in (3b), which restricts intended (types of) modes of presentation to what an attitudinal object *d* is about and modes of presentation to what is contained in *d*. [↑](#footnote-ref-22)
23. This differentiates the proposal from that of Crimmins and Perry (1989) and Crimmins (1992), who take modes of presentation to make up an additional argument position of the belief relation and thus adopt a hidden-indexical theory. [↑](#footnote-ref-23)
24. For the particular case of verbs of saying, the ontology of attitudinal objects provides yet another way of dealing with hyperintensionality, if the complement involves quotation. In that case it serves to (also) characterize the form of a phatic object. See Chapter 6. [↑](#footnote-ref-24)
25. The partial-content condition had been defined with non-quantificational conjunctive sentences in mind: the content of A is a partial content of the content of A & B. Even though it seems intuitive, it is not obvious how to actually apply the partial content condition formally to the set of satisfiers of *Fiona catches a fish* and of *Fiona catches an edible fis*h. *Fiona catches a fish* will have as the set of its verifiers possible situations of Fiona catching a particular fish. Some of those situations will contain actual fish that are not edible by nature. This requires making use of impossible situations as extensions, in which those fish are edible. [↑](#footnote-ref-25)
26. See Chapter 7, Section 2, for more on the ontology and semantic role of facts and states of affairs. [↑](#footnote-ref-26)
27. Braun (2015) argues that underspecification arises for all attitudes, including beliefs. He argues in favor of an agent having multiple attitudes as a solution to the underspecification problem. That is, in (1) Fiona has both the desire to catch any fish whatsoever as well as a desire to catch an edible fish. [↑](#footnote-ref-27)
28. Note that a that-clause may be chosen that report a content is more specific than the *that*-clause. That is the case for a specific use of an indefinite, e.g. when Mary’s belief that Bill stole the picture is reported as:

(i) Mary believes that someone stole the picture. [↑](#footnote-ref-28)
29. Elliott himself observes that CP-complements can be conjoined:

(i) John claimed that he solved the problem and that he solved the problem this morning.

Semantically, (i) should be allowed since the verb describes two events associated with two different attitudinal objects. Note that conjoined CPs can modify plural nouns as in (iia), though not singular nouns as in (iib):

(ii) a. John’s claims that he solved the problem and that he solved the problem this morning.

 b. ?? John’s claim that he solved the problem and that he solved the problem this morning.

Conjunctions of *that-*clauses appear to be better with singular *belief*, as pointed out to me by Bob Matthews:

(iii) John has the belief that it is raining and that he is not dressed for the weather.

This seems related in some way to the fact that *belief* relates to a state, rather than an act. [↑](#footnote-ref-29)