**Chapter 5**

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

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Just as modal objects, on the present view, 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 truthbearers. 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 with 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 which take clausal complements that act as predicates of the described content bearers, but which I will discuss separately in the next chapter, namely verbs of saying. Verbs of saying take *that*-clauses as well as quotes 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 in fact 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. Such complex attitude reports, it will be suggested, also underlie simple ones with the verbs *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) 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 semantic facts involving the ontology of attitudinal and modal objects.

 In what follows this chapter will first elaborate the syntax and semantics of basic attitude verbs, both when they take clauses as complements and when they take special quantifiers as complements. It will also address a range of issues that any semantics of clauses embedded under attitude verbs faces, namely the treatment of opacity and presuppositions, the semantics of independent sentences, and modal concord (‘harmonic modals’) in attitude reports. An 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 a claim that it will rain.

Complex attitude reports contain complex attitude predicates consisting of a light verb such as *make* and a NP a claim and a (definite or indefinite) NP that makes explicit reference to an attitudinal object, 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, what is important in the present context is the fact that complex-attitude predicates are a common 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 only complex attitude predicates make explicit reference to attitudinal objects; also special quantifiers range over them 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* a relation of causation, *give* transfer of possession of the attitudinal object.[[2]](#footnote-2)

 The semantics of complex attitude reports is straightforward when making use of attitudinal objects. In complex attitude predicates, the embedded clause is a modifier of the attitudinal object NP and can be interpreted by predicate modification. This yields the simple semantics of attitudinal object nous modified by *that*-clauses below:

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

Here prop(S) is a derived meaning of the sentence S. (Recall from Chapter 4 that the underived meaning of a sentence S is a bilateral content consisting of the set of verifiers of S and the set of violators of S.) prop(S) is the property of modal or attitudinal objects as defined below (see Chap. 3):

(4) Truthmaker-based meaning of *that*-clauses

 For a clause S, prop(S) = λd[pos(d) = pos(S) & (neg(d) ≠ Ø 🡪 neg(d) = neg(S))]

Here *pos* is a function that maps an object onto the set of its satisfiers and *neg* is a function that maps an object onto the set of its violators. That is, prop(S) is the property that holds of an attitudinal or modal object d iff d shares its satisfiers with S and, in case d has violators, d shares its violators with 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). I will assume that *that* has no particular semantic contribution to make, which means prop(*that* S) = prop(S).

 Recall that the derived meaning prop(S) of a sentence S is applicable to both attitudinal (and modal) objects with the force of necessity, that is, object 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 semantics in (5c), based on the complex-predicate version in (5b):

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

 b. John gave a hint that Bill is insane.

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

One manifestation of the difference in forces of attitudinal objects is the appearance of 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*:

(6) 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**

The view that clausal modifiers of attitudinal object nouns act as predicates of the described content bearer is a view that is being received increasing acceptance (Elliott 2017, Moulton 2009, 2015, Moltmann 2014, Bondarenko 2021a) and it goes along well with syntactic views according to which *that*-clauses are relative clauses (Kayne 2008, 2010, Arsijenevic 2015). It gives justice to the various arguments that *that*-clauses are not complements of the noun (Stowell 1980) and thus do not serve to provide an argument of a relation expressed by the noun.[[3]](#footnote-3)

 What may also bear on the semantic status of clausal modifiers of nouns 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 is 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:

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

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

(9) a. Everyone had the belief

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

(10) a. Mary’s intention to write a book

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

This might suggest that the construction noun-clausal modifier construction conveys in fact an identity between the semantic value of the clause (however it is conceived) and the attitudinal object.

 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 (11), as are nouns describing teleological or physical possibilities, as in (12) and (13):

(11) 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

(12) a. a possibility of opening the window

 b. three possibilities of opening the window

(13) a. an offer to buy the house

 b. an ability to convince everyone

There may be a syntactic explanation of the difference. Mikkelsen and Hankamer (2020) argue that when a noun with a clausal modifier requires definite determiner is required, 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* [DP *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. Background attitudinal objects**

Like modal objects, attitudinal objects may come with a background, a background attitudinal object. The background represents presuppositions and may account for at least some of the roles the common ground plays on standard semantic views.

 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. The background of a request, for example, may be a state or acceptance or a previous request. Thus, in (14), the *that*-clause applies to a compound attitudinal object whose background supports the situation in which Bill failed the exam before:

10) a. Mary claimed that Bill repeated the exam.

 b. Joe must pay a fine for speeding.

Like modal objects with a background, an attitudinal object d that comes with a background d’, simplifying, to be a pair <d, d’>,(

More complex conditions on applying sentence meanings to an attitudinal object d that comes with a background d’, simplifying, a pair <d, d’>:

(11) For a complex attitudinal object <d, d’> with a (simple) attitudinal object d and

 a background d’,

 for a sentence S with presupposition S’, prop(S)(<d, d’>) = true iff prop(S)(d) and

 prop(S’)(d’) and prop(S)(<d, d’>) = false iff prop(S)(d) = false and prop(S’)(d’) = true.

 is subject to more complex truthmaking conditions:

(15) For a complex attitudinal object <d, d’> with a (simple) attitudinal object d and

 a background d’,

 for any situation (or action) s, s ╟ <d, d’> iff s ╟ d and s╟ d’,

 for any situation (or action) s, s ╢ <d, d’> iff s ╢ d and s╟ d’.

That is, a backgrounded attitude makes a sentence true or false only if the background makes the sentence’s presupposition true. Of course this is quite obviously a far too simple account of presuppositions. (15) is just meant to indicate the semantic role of backgrounds for presuppositions in a yet to be developed account of presuppositions within attitudinal-objects semantics. Backgrounds will also be used for the treatment of opacity in attitude reports in the next section.[[5]](#footnote-5)

**1.4. 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 (16a) to imply (16b):

(16) 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 phenomena within the approach.

 Opacity may arise with the choice of one term over a different, coreferential one, but it may also arises with a particular uses 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 Paderewski case, Crimmins-Perry’s 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.

 Let us first of all note that the semantics so far predict the non-identity of beliefs that have the same truthmaking conditions, but would involve different modes of presentation. Thus, (17) is predicted to be false:

(17) 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 (16a) and (16b).

 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 (17). Also two agents may have different background beliefs regarding a particular object. It is when such background belief 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 (17) 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.[[6]](#footnote-6) 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 (in order to account for the various cases of opacity).

 Very generally, then, for *John believes that* S, there will be a relation Cu(S), determined by the intentions of the speaker when uttering S (u(S)), which relates John’s belief d (that is, relevant components or features of d) to what d is about, fus(pos(d) ∪ neg(d)) (Cu(S)(d, fus(pos(S) ∪ neg(d)))). That is, if Cu(S)(d, fus(pos(S) ∪ neg(d))) obtains, then the speaker of u(S) associates components or features of d with individuals that are part of fusion(pos(d) ∪ neg(d)). The logical form of a belief report *John* *believes that* S will then be as in (18a), which takes into account the actual syntactic structure of the sentence as discussed Section 2.2. and is equivalent to (18b):

(18) a. ∃d(belief-have(John, d) & Cu(S)(d, fus(pos(d) ∪ neg(d))) & [CPthat [FPbelief

 [FC]S]]](d))

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

That is, for an attitudinal object d had by John that is a belief and 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 force projection FP, just like the feature [+assert] 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 force projection in both embedded and independent sentences. In fact Cu(S) can be considered part of the interpretation of the feature [+assert] and thus would be part of a compositional, syntax-based semantics (rather than added as a matter of pragmatics).[[7]](#footnote-7) However the proposal may be elaborated further, the main point was to indicate how a truthmaker-based and attitudinal object-based semantics of attitude reports allows for an account of opacity.[[8]](#footnote-8)

**1.5. 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 attitudinal objects produced through the utterance of the sentence. Thus, declarative sentences will, on a literal use, act as predicates of illocutionary objects with a word-to-world/mind direction of fit, produced through the utterance of the sentence. Imperatives will act as predicates of illocutionary objects with a world-to-word direction of fit. Declaratives and imperatives can be assigned the same truthmaker-based meaning as that-clauses, but they impose 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 (19a) will be a property of utterances, as in (19b):

(19) a. I hereby make the claim that John is guilty.

 b. λd[make(S(u), d) & claim(d) & [*that John guilty*](d)]

Here S(u) is the speaker of the utterance u.

 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:

(20) a. John may leave

 b. λu[may(d) & [*John leave*](d)]

That is, (20a) expresses the property of a (deontic) modal object of possibility with the content that 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 (21a) as basic and to syntactically derive attitude reports with simple attitude predicates as in (21b) from them:

(21) a. John made a claim that S.

 b. John claims that S.

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). Harves and Kayne ‘s analysis was been motivated by purely syntactic considerations. According to that view, (22a) has the underlying structure in (22b):

(22) a. John needs to walk.

 b. John has [need to walk].

In (22b), *need* is the head of an object NP modified by what is taken to be a relative clause (*PRO to walk*). (22a) is obtained from (22b) by raising *need* and incorporating it into the verb. (23b) involves explicit reference to a modal object and as the underlying structure of (22a) suits the proposed semantics based on modal objects perfectly. Harves and Kayne (2012) posit a determinerless NP *need to walk*. Assuming that such an NP is interpreted by existential quantification over modal objects, the literal interpretation of (22b) in (23) is then also the interpretation of (22a):

(23) ∃d(have(John d) & need(d) & [John to walk](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, (21b) will be derived from (24a), with subsequent movement as in (24b), which means left-adjoining claim to the verb (or movement into SPEC(VP)):

(24) a. John made [NP claim] [CPthat S]

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

This proposal within simplified syntax may raise one important issue, and that is to explain the obligatoriness of the clause. Clausal modifiers of nouns are optional, but clausal complements of verbs often obligatory. A simple proposal to account for the obligatoriness of the clause in (21b) it to assume that the CP involves a functional projection hosting a feature [+assert], which needs to be selected by the noun *claim*. The noun *claim* in turn carries the same feature, as does the verb, which is what triggers adjunction of the noun to the verb:

(24) c. John [[claim] [made [asser] ]][NP ~~claim [+assrt]~~ [CPthat [F+assert] S]]

There is an alternative proposal related to that in (22) that would be able to explain the obligatoriness of the clause. This is the analysis of Arsijenevic (2009), who takes clausal complements of attitude verbs to be special relative clauses involving an attitudinal noun in the specifier projection of a force projection. Simplifying and slightly modifying Arsijenevic’s proposal for current purposes, the syntactic structure underlying (22a) would be the one in (23a), with subsequent movement phrasal movement of the NP into the NP complement position and then the specifier position of the VP, as in (23b): [[9]](#footnote-9)

(23) a. John make [DP that [FP [NPclaim] [F’[F +assert] [CPS]]]]

 b. John [SPEC(VP) [claimi] [vmake [DP[ei] [CP that [FP ei [+assert] S]]]]]

In (23b) *claim* occupies the specifier position of the functional projection in the left periphery of the embedded clause. Arsijenevic calls this the ‘force projection’ (FP) following Rizzi (1997). This projection hosts features such as the feature [+assert], which in the case of (23a) requires the presence of an attitudinal object noun like *claim* in its specifier position, as in (23b). [[10]](#footnote-10) The issue with Arsijenevic’s analysis, though, is to independently justify that nominal roots of attitude verbs generally originate in the force projection of the embedded clause.

 Assuming then that the interpretation of (25a) will be based on (22b), it will proceed 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 truthmakers A and a set of falsity makers B. The feature [+assert] itself will denote a function from such bilateral contents (pairs consisting of a set of truthmakers and falsity makers)to properties ofattitudinal or modal object, as in (24):

(24) [+assert] = λABλd[A = pos(d) & (neg(d) ≠ Ø 🡪 neg(d) = B)]

That is, [+assert] denotes the function mapping the set (of truhmakers) A and the set (of falsity makers) 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 predicate modification, as in (25), and the entire sentence (21a) will have the logical form in (25b):

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

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

That is, the *that*-clause *that* S denotes the property of claims whose content is partially given by S, and *John claimed that* S states that there is a claim by John falling under that denotation of the *that*-clause. On this analysis, *that* does not make a particular semantic contribution. Existential quantification is taken to be associated with the bare NP modified by the *that*-clause (a special relative clause).

 There is one difficulty for the derivation of simple attitude predicates from complex ones, and that is the considerable number of verbs that cannot be considered derived from corresponding nouns, 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, it is necessary to posit a nominal root that is distinct from the deverbal nominalization (say nominal roots *assum*, *think*, and *assert*). The deverbal nominalizations of those verbs would then be based on a more complex structure, such as [[[assum-MAKE]V] ion]N.

 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 (a noun for attitudinal or modal objects). This is not entirely implausible from an overall syntactic view. 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 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 that has been put forward by Pawley (2006).

 Still it certainly looks like the semantics of attitude reports that I have proposed is based on a highly speculative syntactic assumption, and of course the supporting views regarding a more general lexical decomposition of verbs in syntax and the priority of syntactic categories are at least as speculative. Of course, 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. But 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), who takes clausal complements to act as predicates of content bearers that occupy an argument position of the embedding predicate. The clausal complement (or subject) itself does not occupy an argument position, on that view, but is only linked to an empty element in argument position (which may but need not be a DP). Thus (28a) has the logical form in (28b):

(28) a. John claims ei [that S]i.

 b. ∃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 non-basic predicates (such as factive predicates, predicates applying to states of affairs, and predicates applying to contextually given claims), a distinction that is very clear semantically (if not syntactically). All clausal complements play the same semantic role, with the only difference being the kind of content bearer that is argument of the attitude predicate. However, there are significant semantic differences between clausal complements of basic and of no-basic attitude verbs, as will be discussed in 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 like *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*).[[11]](#footnote-11) *Claim* is representative of attitude verbs accepting special quantifiers, but not ordinary DPs:

(30) 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 pronouns 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 and pronouns 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 (31a) and in (31b):

(31) 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):

(32) 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 (32a), but rather something like John’s remark or John’s claim. It is not a proposition that is said to be daring in (32b), but a thought. It is not a proposition that could have made Mary upset according to (32c), but rather a claim. Finally it is not a proposition Joe overheard according to (32d), 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:

(33) a. John believes what Mary believes 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 (33b-d) are just as unacceptable as identity statements with the corresponding nominalizations below:

(34) 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 claim was / was the same as Mary’s expectation

This indicates that a free relative clause like *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.[[12]](#footnote-12)

 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). 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, a lot*, etc. 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* (Kayne 2005, Moltmann 2022). 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, TIME, and PLACE. Unlike the light nouns PERSON, TIME and PLACE, THING can have a particular nominalizing function.

 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 to appears crucial for understanding their semantics when they take the place of a clausal complement. Let us consider (35):

(35) John claimed something.

Using simplified syntax, the light noun *thing* here acts as a classifier selecting an NP headed by *claim*, as in (36a), where ‘ClassP’ stands for ‘classifier phrase’:

(36) a. John make [DP some [ClassP thing [NP claim]]]

*Claim* subsequently moves up adjoining to the verb, as in (36b):

(36) b. John [NP claim]i [Vmake] [DP some [ClassP thing [N ei]]

This allows *claim* to incorporates 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 and would not provide a position for *claim* to originate in.[[13]](#footnote-13) The light noun THING as a classifier selects NPs. It is the only light noun that can select an NP like *claim* since light nouns such as PERSON, PLACE, TIME are not applicable.

 Restrictions of special quantifiers in place of clausal complements of attitude reports will be predicates predicated of attitudinal objects. Also constraints on reports of the sharing of contents of different attitudes are straightforwardly accounted for. The only additional assumption needed is 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) and to a property of kinds of claims (THING2). I will adopt the view of free relatives on which the wh-phrase is a head of a DP, followed by a relative clause (Bresnan and Grimshaw (1978) and subsequent literature). Thus (37a) is derived from the structure in (37b), which involves subsequent movement of *claim* as in (37c):

(37) a. John claimed what Mary claimed.

 b. John made [what [THING2 claim] [Mary made what [THING2 claim]]]

 c. John [claim [Vmade]] [DP what [ClassP THING2 ~~claim~~]] [Mary [claim

 [Vmade]] [DP what [ClassP THING2 ~~claim~~]]]]]]]]

If the *wh*-phrase is the head of the relative clause, *claim* in the upper position will be able to move into the specifier position of the main verb. Moreover, *claim* in the complement inside the relative clause likewise can move into the specifier position of the VP in the embedded clause. If the free relative is interpreted as standing for the maximal entity satisfying the relevant open sentence, as in (38), the interpretation of (37a) is straightforward:

(38) [what [THING2 claim] [Mary made what [THING2 claim]] ] =

 max d[[THING2 claim](d) & make(Mary, d)]

The interpretation of (37a) based on (38) 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 may be due to a reanalysis of the verb into a more general concept (e.g. acceptance) and a modifier, as I proposed in Moltmann (2003a). 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, 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 *whatMarye 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* and *keep* are 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 special 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*). Rather it seems to have to do with 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. Such a reading is available only 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 that 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 occur in clauses embedded under speech act verbs, where they do not contribute to the content of the reported speech, but rather appear to just reflect the inherent modality associated with the embedding predicate:

(39) 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:

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

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

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

Given possible-worlds semantics, it is tempting consider harmonic modals 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 (39a, b) then spells out universal quantification over the possible worlds that make up the content cont(xc)(w) of the attitudinal xc, as below, where w is the actual world:

(41) λxc[∀w’(w’ ∈ cont(xc)(w) → Mary leaves in w’)]

However this could not carry over to modals of possibility.[[17]](#footnote-17) In (40a-c), the modal *might* should spell out existential quantification, which would yield the meaning of the *that*-clauses:

(42) [*that* S] = λxc[∃w’(w’ ∈ cont(xc)(w) & S is true in w’)]

But in (40a), 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 (40b), 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 (40c).

 Attitudinal-objects semantics can 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 performative use of a modal such as (43a, b) will express properties of modal products meant to be produced by uttering the sentence, as in (44a, b)

(43) a. You must leave!

 b. You may leave!

(44) a. λd[must(d) & [(*addressee*) *leave*](d)]

 b. λd[may(d) & [(*addressee*) *leave*](d)]

With a harmonic modal acting as a performative modal in an embedded context, (39a) will have the logical form in (45b) based on the meaning of the embedded clause in (46a):

(45) a. [*that Mary should leave*] = λd[should(d) & [*Mary leave*](d)]

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

Similarly, (40a) will have the logical form in (46b), based on the meaning of the embedded sentence in (46a):

(46) a. [*that Bill might leave*] = λd[might(d) & [*Bill be guilty*](d)]

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

Here ‘modal-part(d)’ pick out the modal object that is a nontemporal part of the attitudinal object d, an object that shares the very same satisfaction conditions with d.[[19]](#footnote-19) 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: Do Clauses give the Complete Content or a Partial Content of a Content Bearer?**

 Both in Chap. 3 and in this chapter I made the assumption that a *that*-clause when predicated of a modal or attitudinal object gives its full satisfaction conditions. There are some data that may seem problematic for that assumption. Such data have been discussed by Fara (2013) with examples such as (1):

(1) Fiona wants to catch a wish.

Fiona’s desire is not satisfied if she catches some fish or another, but only if she catches, say a fish she can eat. Fara argued that such data show that the satisfaction conditions of a desire are underspecified by a complement clause.

 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 papers (Moltmann 2014, 2017, 2020), I had imposed the partial content condition on clausal complements:

(3) The partial content condition on clausal complements

 For a sentence S and a modal or attitudinal object d, [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.[[20]](#footnote-20)

 There are reasons not to impose the partial content condition as a general condition on the predication of clauses of modal and attitudinal objects. Not all modal and attitudinal objects display this sort of underspecification, though. There seems to be a difference between attitudinal and modal objects of different directions of fit. 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, and other attitudinal objects with a word/mind-world direction of fit do not seem to display the same sort of underspecification. Consider the following:

(3) 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 intuitively are true just in case Fiona caught a fish, whether edible or not; likewise for the likelihood or probability for Fiona to have caught a fish. This also holds for the existence conditions of facts: 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 or situation types: *that Fiona caught a fish is not the case* is true just in case she catches any fish whatsoever.[[21]](#footnote-21)

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

(4) John completely agrees that Joe is incapable to do 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:

(5) 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 appears to explicate an entity in its entirety:

(6) a. ?? John invited some women, namely Mary.

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

 Mary and Joe will be invited).

Another argument against partial content suggested by Elliott (2021) is that *that*-clauses cannot be stacked, unlike relative clauses:

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

Elliott takes the reason to be semantic (see also Moulton 2009): *that*-clauses give the full content of the described attitude and thus there can be only a single *that*-clause. There may be a syntactic explanation, though, for the impossibility of stacking. It would follow from 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.[[22]](#footnote-22)

 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 (8c) in the same way as it holds for (8a, b), and it fails to obtain in (9b) in the same way as it fails to obtain for (9a) and (9c):

(8) a. Fiona must catch a fish.

 b. Fiona needs to catch a fish

 c. Fiona hopes that she will catch a fish.

(9) 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:

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

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

Clearly, for attitudinal and modal 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, 2013). [↑](#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 a judgment’, though here there is a question whether the verb *faellen* is in fact a light verb. This also holds for English conclude - draw / reach the conclusion. [↑](#footnote-ref-2)
3. The view is not entirely uncontroversial, and the view has been held 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 that S (see Chap. 7). Subsequently, noun in the higher position will trigger a mapping of that modal object onto a belief, fact, or claim with the same truthmaking conditions. [↑](#footnote-ref-4)
5. They may also be used for dynamic semantic analyses of phenomena if truthmaker-based content itself is conceived dynamically. Such a potential development of attitudinal-objects semantics will have to be pursued in a different context, though. [↑](#footnote-ref-5)
6. See Crimmins and Perry (1989) for a related approach. [↑](#footnote-ref-6)
7. This differentiates the proposal from that of Crimmins and Perry (1989), 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-7)
8. 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 Chap. 6. [↑](#footnote-ref-8)
9. See also Arsenijeviç (2020) in the context of a discussion of attitudinal objects. [↑](#footnote-ref-9)
10. 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-10)
11. 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-11)
12. This generalization has been made first in Moltmann (2003a, b, 2013a). [↑](#footnote-ref-12)
13. The analysis also immediately explains why adjectives need to follow *something*, given the underlying structure *some nice claim*, where *claim* (as an NP) movies up from within the adjective phrase. [↑](#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), Yanovich (2007) for a discussion of harmonic modals of various sorts. [↑](#footnote-ref-16)
17. See Moltmann (2017a, 2019, 2020). [↑](#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 such modal objects to be products produced by the very same illocutionary act 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. 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 as edible fish. 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-20)
21. 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 whatoever as well as a desire to catch an edible fish etc. [↑](#footnote-ref-21)
22. Elliott himself (Fn 13) observes that CP-complements can be conjoined:

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

Syntactically, (i) should be possible on Arsenijevic’ analyses if it involves across-the-board extraction of the attitudinal noun. Semantically, (i) should be allowed as well, 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 B. Matthews:

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

This seems related to the fact that *belief* relates to a state, rather than an act. [↑](#footnote-ref-22)