**Chapter 7**

**Clauses in Functions other than as Predicates of Attitudinal Objects**

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Not all clauses have the function of being predicates of the attitudinal object described by the embedding predicate. There are various clauses (or rather functions of clauses) for which this is implausible both syntactically and semantically. As has often been observed, such clauses have nominal status (in a sense to be made precise) and thus can be called ‘nominal clauses’. Nominal clauses serve to describe an object that acts as an argument of the embedding predicate, such as a fact, a state of affairs, or what I call a ‘thin assertion’, an assertion without a phatic part. Despite their nominal status, such clauses are different from referential DPs in their syntactic and semantic behavior.

 Nominal clauses do not require a deviation from the attitudinal objects semantics, or more generally a semantics based on attitudinal or modal objects. Rather there are good reasons to subsume the objects they serve to characterize under the category of s-objects (modal and attitudinal objects). In particular, facts and states of affairs are naturally conceived as modal objects. Facts and states of affairs do not, intuitively, have truth or satisfaction conditions, but they have realization conditions, with concrete situations acting as their realizers.

 This chapter will also discuss cases where clausal complements have the apparent function of standing for truthmakers, namely with verbs of occurrence such as *happen* and *occur*. I will argue that verbs of occurrence do not involve a distinct semantics, but rather take nominal clauses that stand for states of affairs realized by a situation that is an ‘occurrence’, a Davidsonian argument of the verb of occurrence. I will also propose an account of language- particular differences between English, German, and Russian as regarding the ability of DPs standing for situations in their role of truthmakers of clausal modifiers.

 This chapter will finally discuss verbs like explain, criticize, and praise as well as locutionary verbs like comments and remark, which do not permit a replacement of the clausal complement by a light DP. I will argue that all those verbs involve a topic argument (such as a fact), which can be described by a clausal complement (*explain, criticize* ) or else may have to remain silent (comment, remark). With such verbs light DPs cannot take the place of clausal complements acting predicatively for reasons of case assignment.

 The chapter will start with nominal clauses standing for facts and states of affairs as well as thin assertion. Then it will turn to the semantics of verbs of occurrence and topic-related locutionary verbs.

**1. Facts as modal objects**

Factive verbs like *regret* and *realize* differ from basic attitude verbs like *claim* and *think* in the semantic role of their complement clause. With factive verbs the complement clause does not serve as a predicate of an attitudinal object described by the verb. This has to do with the observation that the objects that correspond to verbs like *regret* and *realize*, regrets and realizations, do not have truth or satisfaction conditions. Rather they are emotive and epistemic states directed towards facts which are described by the clausal complement. Nominalizations of factive attitude verbs resists satisfaction predicates of any sort:

(1) a. ??? John’s regret that he was late was true / correct / satisfied.

 b. ??? The realization that it project was manageable was true / correct / fulfilled.

The clausal complement of factive predicates rather applies to facts, which are thus bearers of content. The status of facts as content bearers is also supported by the observation that factive predicates allow for a reading of *partly* on which it relates to the fact being described by picking out partial content:

(2) a. John partly realized that the students failed the exam.

 b. John partly regrets that that it rained on those days.

(2a) can have the reading on which John realized for some of the students that they failed the exam, and (2b) that he regrets for some of those days that it rained then. Basic attitude verbs do not permit a reading of *partly* relating to the parts (partial contents) of the described attitudinal object:

(3) a. ??? John partly thinks that the students failed the exam.

 b. ??? John partly claims that it rained on those days.

That’s because attitudinal objects are not arguments of the embedding attitude verb. Basic attitude verbs differ in that respect not only from factive verbs, but also ordinary transitive verbs as in (3c):

(3) c. John partly ate the cake.

Both factive verbs and transitive verbs take objects described by the complement as arguments, but not so basic attitude verbs.

 Also factive predicates with subject clauses allow for the relevant reading of *partly*:

 (4) a. That the collection was sold was partly predictable

 b. That John solved the problem is partly surprising.

This also holds for clausal complements of factive adjectives:

(5) John is partly happy that Mary sold her art collection.

(5) has a reading on which John is, say, happy about the part of the collection he did not like having been sold.

 The understanding of adverbials like *partly* with factive predicates shows that facts are entities whose part structure is ordered by partial content, not, say, temporal precedence or relations of constituenthood, which would apply to situations conceived as structured complexes.

 The nominalization of factive adjectives give further evidence that clauses do not act as predicates of a content bearer described by the predicate. Nominalizations of factive adjectives rather denote particular qualities of agents regarding a fact, as in (6a), or else a quality of a fact, as in (6b):

(6) a. John’s happiness that Mary sold her art collection

 b. the predictability that John would pass the exam

Another piece of evidence is that nominalizations of factive adjectives do not permit specificational sentences in which the postcopula clause would give the content of the entity denoted by subject:[[1]](#footnote-1)

(7) a. John’s happiness is that he passed the exam.

 b. The unexpectedness was that John passed the exam.

 Attitudinal-objects semantics can be extended to factive clauses by conceiving of facts as modal objects and taking factive clauses to stand for such facts. The complement of factive predicates will then still be considered a predicate of content bearers, but this time of a fact.

 How can facts be understood as entities whose content can be given by *that*-clauses and that come with a part structure ordered by partial content? Of course, a fact is not a cognitive content bearer, and thus it is not an attitudinal object. But facts can be viewed as modal objects of a sort, which, of course, also come with a part structure ordered by partial content. The relevant notion of a fact will be that of an entity corresponding to true sentences, rather than that of a truthmaker of a sentence (a situation). It corresponds to what we refer to with the explicit fact description *the fact that* S, which is the notion of a worldly fact. A non-worldly fact can be quantificational and disjunctive, unlike a fact acting as a truthmaker.[[2]](#footnote-2) Thus ‘the fact that everyone left’ is universally quantified, not reducible to a sum of particular facts; ‘the fact that someone left’ is existentially quantified, not involving any particular person, and ‘the fact that John won or Mary won’ is disjunctive.

 Even though facts in that sense do not have truthmakers or satisfiers, non-worldly facts have realization conditions. Non-worldly facts are realized by the situations in virtue of which the non-worldly fact obtains or could obtain, situations which are also the actual truthmakers of the fact-introducing clause. This motivates the following construal of non-worldly facts as modal objects: ‘the fact that S’ is the modal object whose satisfiers are the actual situations that are truthmakers of S and that does not have violators. The postulate in (8a) ensures that there is exactly modal objects for a true sentence (not carrying itself a norm (of truth) nor imposing one on its satisfiers). The denotation of *the fact that* S relative to the world w of the utterance context will thus be as in (8b):

(8) a. For a sentence S true in a world w, there is exactly one (non-normative) modal object d

 such that pos(d) = pos(S) ∩ {s | s < w} and neg(d) = ∅.

 b.[*the fact that* S]w = ιd[pos(d) = pos(S) ∩ {s | s < w} & neg(d) = ∅}]

What enables *that-*clause complements of factive verbs to describe facts? Here the syntax of factive clauses comes into play.

 There is a long syntactic tradition that argues that factive clauses are nominal in some sense. The notion of a nominal clause, however it is to be conceived, is to account for the fact that factive clauses differ syntactically from complements of basic attitude verbs. Among the properties distinguishing factive clauses from clausal complements of basic attitude verbs are the following. Factive clauses are weak islands: they do not allow the extraction of adjuncts and subjects, and they do not permit topicalization (*John believes that this man Mary is going to marry*, \**John regrets that this man Mary is going to Mary*). Factive clauses do not allow for the proform *so* (*John believes so*, \* *John regrets so*). Finally, factive clauses allow for extraposition, clausal complements of basic attitude don’t without a change in a discourse semantic effect (*John regrets it that he lost*, \**John things it that he lost,* ?*John believes it that he lost*).

 The notion of a nominal clause, as a clause that displays those syntactic properties, actually comprises more than factive clauses. It comprises also clausal complements of response-stance verbs and subject clauses on their various interpretations (Cattell 1978, Kastner 2015). In fact, it is widely held that subject clauses are nominal clauses.[[3]](#footnote-3) Thus, it has been argued that predicates that permit clauses in subject position (*is believable, is likely, is surprising, occurred never before*) select DPs, whereas verbs like *seem* and *appear*, which require a clause to be in exposed position (*It seems that S,* \* *That* S *seems*, *It appears that* S, \* *That S appears*), select CPs (Alrenga 2005). Moreover, nominal clauses can generally be replaced by special quantifiers, but not so for complements of certain verbs of saying such *remark, complain, comment* (Section 6).

 There has been a tradition according to which factive clauses are in fact DPs, headed by a silent noun *fact* (Kiparski/Kiparsky 1970, Kayne 2008, 2010).[[4]](#footnote-4) A related proposal is that of Kastner (2015), who argued that factive clauses are ‘reduced’ DPs of the form [D CP], consisting of a silent definite (discourse-related) determiner and a CP. Other proposals take factive clauses to be referential CPs, conceiving of a syntactic difference between referential and nonreferential CPs (Haegeman / Ueroegdi 2010, Shaheen / Hinzen 2011).

 There are well-known problems for the view that nominal clauses are DPs. Complement clauses cannot appear after prepositions (\* *John talked about that he will resign*). Complement clauses cannot appear as complements of verbs that only take DPs (\**Bill captured that* S). They can be complements or modifiers of adjectives and nouns, which DPs cannot (*happy that* S, *the fact that* S, *happiness that* S), and they can be extraposed, which DPs cannot. (*John knows very well that* S / *knows very well the fact that* S).

It would predict that substitution of the clause by a full DP should be possible, but that is not generally the case. Some do (*regret that* S – *regret the fact that* S), some don’t (*know that* S – *know the fact that* S, *see that* S, \* *the fact that* S).

 It is actually not clear what sorts of a properties a syntactic analysis of factive clauses needs to explain. Extraction from weak islands and topicalization may very well be explained semantically, as some recent research suggests.[[5]](#footnote-5) But the semantic properties need to be accounted for, that is, the presupposition of truth, the understanding of *partly*, the unavailability of specificational sentences, and the semantics of nominalizations of factive predicates (as standing for qualities of facts).

 I will adopt simply the generalization that whereas CPs that are complements of basic attitude verbs are semantically predicates of the described content bearer, nominal CPs serve to describe an entity that acts as an argument of the embedding verb. I will refrain from further assumptions as to the syntactic position of CPs and potential DPs they may relate to or be part of. I will leave out syntactic details that do not directly bear on the semantic issues, and which may be developed in different ways given a particular syntactic approach. I will adopt a simple syntactic account for nominal clauses in general and factive clauses in particular on which nominal clauses involve a nominal element that ensures their interpretation, namely a light noun, a functional element that is head of a functional projection FP in the left periphery of the embedded clause (one may call it Force Projection following Rizzi (1997), but the term would be quite misleading). Factive CPs thus contain the light noun FACT as head of FP, both in subject and complement position, ensuring the interpretation of the CP as a fact. Thus, we have:

(9) a. That Joe lost the election is interesting.

 b. [That [FP FACT] Joe lost the election] is interesting.

(10) a. John regrets that Joe lost the election.

 b. John regret [CP that [FACT] Joe lost the election].

The complement position of a factive clause can be occupied by the pronouns *it*, with the clause being extraposed (*John knows it / regrets it that* S). Instead of a clausal complement, it can also be filled by special quantifiers:

(11) John regretted / saw / realized something / that / just one thing.

It is an important fact, though, that it cannot generally be filled by ordinary DPs. Factive verbs like *see* and *realize* only permit light DP, not explicit fact-referring DPs:[[6]](#footnote-6)

(12) a. Joe saw / realized that it was raining.

 b. ??? Joe saw / realized the fact that it was raining.

The Substitution Problem with factive predicates like *know* is thus explained by the fact that *know* selects only a light DP. *Regret* does take full DPs (*regret the fact that* S), which means that regret selects both light and full DPs.

 The interpretation of a factive clause will be the very same as DPs of the sort *the fact that* S:

 (13) The Interpretation of Factive Clauses

 a. [*The fact that* [+fact] S] = ιd[pos(d) = pos(S) ∩ {s | s < w0} & neg(d) = ∅]

 b. [+fact]([S]]) = ιd[pos(d) = pos(S) ∩ {s | s < w0} & neg(d) = ∅]

On this account, uniqueness and reference to a fact is already built into the interpretation of the CP. The overt noun *fact* is semantically redundant, as is the definite determiner.

The interpretation of (14a) will then be as in (14b):[[7]](#footnote-7)

(14) happy(John, [that [[*fact*]([S])])

**2. States of affairs as modal objects**

The range of modal objects should also be extended so as to include states of affairs or situation type. States of affairs as modal objects are like facts except that they may have nonactual realizers. They are the denotations of subject clauses with predicates like *is likely*, *certain*, and *desirable*:

(15) That it will rain is likely / certain /desirable.

As with factive adjectives, the nominalization of an adjective like *likely* serves to describe a quality of a state of affairs, rather than introducing a new bearer whose satisfaction conditions would be given by the clause modifier. This is reflected in the inapplicability of predicates of satisfaction, as in (16) and the impossibility of specificational sentences, as in (17):

(16) ??? The likelihood / certainty / desirability that it will rain is true / satisfied / correct.

(17) \* The likelihood / certainty / desirability is that it will rain.

For a sentence S, the state of affairs in which S (or the situation in which S) can be conceived as a modal object whose satisfiers are just the situations that make S true. That there should be a unique such modal object is ensured by the conditions on modal objects given in Chapter 4.

 Like modal objects in general, states of affairs display a part relation ordered by the relation of partial content, as the understanding of *in part* below makes clear:

(18) That the students will fail the exam is *in part* certain (since several of them are

 completely unprepared).

The denotation of an NP explicitly referring to a state of affairs or situation type will then be as below, where *sit* is the function mapping the bilateral content of a sentence S to a situation whose manifestations are just the satisfiers of S:

(19) a. [*the state of affairs in which* S] = ιd [sit([S])] = ιd[pos(d) = pos(S) & neg(d) = ∅}]

 b. For a sentence S, sit([S]) = ιd[pos(d) = pos(S) & neg(d) = ∅}]

 Not only subject clauses with predicates like *likely* can stand for states of affairs. Also clausal complements may stand for states of affairs, for example those of *imply* and *indicate*:

(20) a. That Mary met Bill in Munich implies that Bill was in Munich.

 b. That Mary is nervous indicates that she is unprepared.

The syntactic structure of embedded clauses describing states of affairs should be parallel to that of factive clauses. The only difference is that the light noun will now be a light noun for states of affairs, let’s call it ‘SIT’. Thus the structure of (20b) will be:

(21) [That FACT Mary is nervous] indicates [that SIT she is unprepared]

States of affairs and facts thus serve as the denotations of both subject and complement clauses, based on the presence of corresponding light nouns in the force projection.

**3. Thin assertions and predicates of truth**

There is another option for interpreting nominal clauses, namely as generic thin assertions. This option manifests itself in the way a predicate like *correct* is understood when it applies to a clausal subject. Recall from Chapter 3 that *correct* on the reading on which it coveys just truth cannot apply to a proposition, but only a truth-directed attitudinal object. With a subject clause, this attitudinal object is a claim or suggestion that pertains to the context of conversation and whose content is given by the *that*-clause. Thus (23a) is understood not as (23b), but rather as in (23c):

(23) a. That John is the director is correct.

 b. The proposition that John is the director is correct.

 c. The claim / suggestion that John is the director is correct.

With a subject clause, *correct* also permits modification by *partly*, requiring access to the partial content of a truth-directed attitudinal object:

(24) That John is in charge is partly correct.

*That*-clauses with predicates like *correct* serve to describe constative attitudinal objects. Again, a that-clause should be able to stand for such an attitudinal object in virtue of a light noun ASSERT in the left periphery of the *that*-clause.

 The claim or suggestion that such a *that*-clause stands for need not be an actual one. It may be a kind of claim or suggestion, the sort of thing that could be referred to as ‘the claim that John is the director’ or ‘the suggestion that John is the director’ (permitting the possible truth of *Is it certainly not correct that John is the director, which no one has actually claimed*).

 Furthermore, the attitudinal object is a thin illocutionary or locutionary object, which means it does not contain a phatic part. This is because, as Moulton (2020) observed, predicates of concreteness are inapplicable to *that*-clauses in subject position on a reading on which the clause stands for an attitudinal object. Subject-clauses differ in that respect from DPs referring explicitly to attitudinal objects:[[8]](#footnote-8)

(25) a. ??? That John will lose his job was overheard by many.

 b. The remark that John will loose his job was overheard by many.

(26) a. ??? That Joe won the election, which caused a commotion, is correct.

 b. The claim that Joe won the election, which caused a commotion, is true.

How is a thin constative object to be understood? It is just like an ordinary constative object except that it does not have properties of concreteness. Thus, it is a illocutionary or locutionary object that comes with a word-to-world direction of fit and thus is associated with an inherent norm of truth. It can have satisfiers as well as violators. Unlike particular constative objects it lacks properties of concreteness.

 Thin particular assertions are dependent on an agent. By contrast, thin generic assertions do not depend on a particular agent. Rather, as kinds, they have instantiation conditions: a thin generic assertion d is instantiated by a thin or ordinary particular assertion d’ just in case d’ shares its satisfiers and violators with d.

 It is reasonable to assume that *that*-clauses with predicates like *correct* are always interpreted as standing for thin generic constative objects, which will just be made more easily available through the presence of a particular thin assertion in the context of discourse.

 There are then three light nouns associated with nominal CPs: FACT, SIT, and ASSERT. These light nouns play an additional syntactic role with respect to the embedding verb, which appears to underlie an interpretive difference between full DPs with a *that*-clause modifier and nominal CPs. The observation is that *that-*clauses in subject position are not referentially independent. That is, what kind of entity a nominal CP stands for depends strictly on the embedding predicate. This is illustrated by the understanding of the evaluative predicate *nice* below:

(28) a. That Mary got elected is nice.

 b. The fact that Mary got elected is nice

 c. The situation which Mary gets elected is nice.

(28a) allows only for a reading on which *nice* evaluates a fact, making it equivalent to (28b) even though *nice* could in principle evaluate a state of affairs as well, as (28c) makes clear. Other predicates may apply only to states of affairs (or possibilities), for example *exclude*. (29a) can only be understood as equivalent to (29b), even though there is a sense in which facts and claims can be excluded too, as in (29c):

(29) a. That John might get elected is excluded.

 b. The possibility that John might get elected is excluded.

 c. The fact / The claim that John got elected is excluded (from the discussion).

Only in the presence of a suitable predicate can a *that*-clause in subject position stand for a contextually given claim or suggestion, for example with *true* or *correct*. This means that with (apparent) subject clauses the silent head noun of the subject DP cannot be freely chosen, unlike the overt head noun in the construction *the claim that* S. Also causal predicates make the point. *Caused surprise* is applicable to both facts and claims. But when applied to a clausal subject it could not apply to a contextually given claim; rather it triggers a reading applying to a fact only.

 The same observation hold for nominal clausal complements of factive and response stance verbs:[[9]](#footnote-9)

(30) a. John recognized / appreciates that Mary is talented.

 b. John recognized / appreciates the fact that Mary is talented.

 c. John recognized / appreciates the assertion that Mary is talented.

(30a) has only a fact-related reading on which John recognized or appreciates a fact, as in (30b), not one on which he appreciates a contextually given claim, as in (30c).

 The interpretation of a clause as describing a fact, state of affairs, or assertion is thus not due to semantic selection, but appears a matter of strict syntactic selection by the embedding verb. Even if a predicate could apply to different types of entities describable by a clause, a given predicate-clause relation can determine only a single kind of entity for the predicate to apply to. This generalization is what I called the ‘Unique Determination Property’ in Moltmann (2003a):

(30) The Unique Determination Property (of the interpretation of clauses)

 With a given predicate an embedded clause has a single interpretation, describing a

 unique type of entity.

Given the present view, this means that a clause-embedding predicates selects a CPs with a particular light noun (FACT, SIT, or ASSERT).Evaluative adjectives select nominal CPs with the light non FACT, predicates of probability nominal CPs with the light noun SIT, and truth nominal CPs with the light noun ASSERT. In the case of complements of basic attitude verbs, one may furthermore assume that no light verb is selected, which should then require a CP with an attitudinal noun in the specifier position of FP.

 Some clause-embedding predicates select only light DPs, that is special quantifiers like *something* and pronouns like *that*; others allow both light DPs and ordinary DPs such as explicit fact-referring, situation-referring, and assertion-referring DPs. Epistemic *see* and *realize* are examples of the former; *regret* is an example of the latter:

(31) a. John saw / realized that it was raining.

 b. John saw / realized something.

 c. ??? John saw / realized the fact that it was raining.

(32) a. John regrets that it is raining.

 b. John regrets something.

 c. John regrets the fact that that it is raining.

Thus, a substitution problem arises also with nominal clauses and not just with clausal complements of basic attitudes. The solution to this kind of substitution problem appears simply one of syntactic category selection of a complement that serves to provide an argument of the embedding predicate.

**4. Clauses as predicates of truthmakers?**

The truthmaker-based properties of attitudinal and modal objects that sentences have been taken to denote are derivative with respect to the more basic bilateral contents of sentences as pairs consisting of a set of verifiers and a set of falsifiers. This raises the question whether a sentence S could not also be used with a simpler content, consisting just of the property of being a truthmaker of S, i.e. λs[s ╟ S].

 It may look like this is the case for *that-*clauses that are complements of what ‘verbs of occurrence’, that is, verbs like *occur, happen,* and*,* in certain contexts, *be* (Moltmann 2015, 2021b):

(33) a. It has never *occurred* that John was late.

 b. It has twice *happened* that John was late.

 c. Could it *be* that John is late? [[10]](#footnote-10)

 d. That John is nervous is often / not the case.[[11]](#footnote-11)

 e. That *is* so.

Here the *that*-clause *that John was late* appears to act as a predicate of truthmakers of *John was late*, which are also Davidsonian event arguments of the verbs *occur, happen*, or *be*. The logical form of (33a) would then be simply as in (34b), based on the simpler derivative meaning of the clause in (34a), denoting the property of being a truthmaker of the clause:[[12]](#footnote-12)

(34) a. tm([*that John was late*])= λs[s ∈ pos(S)]

 b. ¬∃e[occur(e) & tm([*that John was late*])(e)]

A problem for that analysis, however, is that nouns of occurrence in English generally do not take *that*-clauses as modifiers, in contrast to attitudinal nouns. This holds for both definite and indefinite determiners:

(35) a. \* the occurrence that John was late

 b. \* an event that John won the race

 c. \* a being that John was late

Tanya Bondarenko (2020a) points out that this is different in Russian. Russian allows clausal modifiers of nouns of propositional attitudes as in (36) as well as of nouns of occurrence as in (37a, b):

(36) Mne to. prišla v in golovu mysl’ [cto ˇ COMP belki s”eli vse orexi].

 ‘I had a thought that squirrels ate all the nuts.’

(37) a. Na on prošloj nedele byl was slucaj ˇ [cto ˇ COMP belki s”eli vse orexi].

 ‘Last week there was an event of squirrels eating all the nuts.’

 b. Vcera ˇ proizošla /slucilas’ ˇ /situacija [CP cto ˇ COMP moj zakaz zaderžali].

 ‘Yesterday a situation that my order was delayed happened /occurred.’

Russian verbs of occurrence *byvat’* ‘happen’, *sluˇcatsja* ‘occur’, and *proisxodit’* ‘take place’ likewise take *cto*-clauses, as of course do attitude verbs.[[13]](#footnote-13)

 There is a difference between English and German clausal modifiers of nouns of occurrence. English *that*-clauses can denote properties of content bearers, including modal objects that are states of affairs:

(38) That it is raining is likely.

But in English only *in which*-clauses can denote properties of situations or kinds of situations that are truthmakers of the clause in question:

(39) a. The cases in which a student passed the exam are rare.

 b. \* The case that a student passed the exam is rare.

 c. \* The case that a student passed the exam is rare.

The cases referred to in (39b) are truthmakers of the sentence *a student passed the exam*, and so are the instances of the kind of case referred to in (39d). By contrast, German  *dass*-clauses can modify definite singular *case*-NPs that stand for to kinds of cases, as in (40a), though not indefinite case NPs that stand for particular cases, as in (40b):[[14]](#footnote-14)

 (40) a. der Fall, dass sein Student das Examen besteht

 the case that a student passes the exam

 ‘the case in which a student passes the exam’

 b. \* ein Fall, dass ein Student das Examen besteht

 a case that a student passes the exam.

The difference between Russian, English and German event nouns with clausal modifiers suggests that it is not predicates that differ in their ability to convey truthmaking. Rather, clausal complements across languages differ in their ability to denote properties of truthmakers. An English *that*-clause can denote only a property of attitudinal and modal objects. A German *dass*-clause can also denote a property of kinds of situations that are truthmakers of the clause. A Russian *cto*-clause can in addition denote a property of situations that are truthmakers of the clause.

 This does not explain yet why *that*-clauses are possible with verbs of occurrence in English (as well as in Russian and in German). The reason is that *that*-clauses with verbs of occurrences are subject clauses. Subject clauses, being nominal clauses, can denote modal objects of the sort of states of affairs. Modal objects that are states of affairs will be able to be arguments of verbs of occurrence. How would this allow for the apparent role of the Davidsonian event argument being a truthmaker of the subject clause? This may be traced to a lexical condition on verbs of occurrence, namely that their Davidsonian event arguments be satisfiers of their modal object argument, the state of affairs described by the subject clause. Given this, (41a) will have the logical form in (41b) or equivalently (41c), with the lexical condition imposed by *occur* in (41c):[[15]](#footnote-15)

(41) a. That a student failed the exam never occurred.

 b. ¬∃e(occur(e, [*that* SIT *a student failed the exam*]))

 c. ¬∃e(occur(e, sit([*a student failed the exam*]))

 d. For an event e and a state of affairs d, occur(e, d) iff e ╟ d.

The fact that clauses embedded under verbs of occurrence are subjects (rather than complements) and thus are nominal CPs is incompatible with their potential status as predicates (of Davidsonian events), just as subject clauses cannot be predicates of attitudinal objects. Rather subject clauses with verbs if occurrence are nominal clauses denoting states of affairs.

 There is another candidate of a construction in which clausal complements act as predicates of truthmakers, namely perception verbs when they take bare infinitives as complements:

(42) a. John saw [Mary leave].

 b. John heard [Mary sing].

Perception verbs with bare infinitival complements, which generally describe events of direct perception, were of course a motivation for introducing situations in the Situation Semantics of Barwise and Perry (1983). On their view, situations act as denotata of bare infinitives as well as arguments of perception verbs. On the alternative, Davidsonian semantics of perception verbs of Jim Higginbotham (1983), events in such perception reports act both as the implicit arguments of the infinitival verb and of the embedding perception verb. Truthmaker semantics offers yet another alternative for the semantics of perception verbs when they take bare infinitives. On that semantics, a perception verb would take as its argument a situation that is the truthmakers of the bare infinitive, as in the logical form of (42a) below:

(43) ∃e(see(John, e) & tm([*Mary leave*])(e))

In this construction we would thus have a clausal complement taking as its semantic value the property of being a truthmaker of the clause in (34a). However, perception reports with bare infinitives do not make a particularly good argument for clausal complements as predicates of truthmakers. Bare infinites are syntactically distinct from *that*-clauses and are selected by only few verbs. Perception verbs moreover do not share the same reading with bare infinitives and when they take a clausal complement (*John saw that Mary left* can describe indirect perception). Thus, they hardly give evidence for a general function of clauses acting as predicates of truthmakers.[[16]](#footnote-16)

 Besides simple attitude verbs, there seem to be just verbs of appearance such *appear* and *seem* with which the clause is not nominal (as it cannot appear in subject position).:

(44) a. It appears that it is raining.

 b. It seems that it is raining.

Appearances and seemings are entities, which have satisfaction (or better success conditions), since they can be ‘correct’. With verbs of appearance, it is entirely plausible that the clausal complement acts as predicate of content bearers, entities of the sort of appearances or seemings, giving their truthmaker-based satisfaction conditions

**5. Topic-related locutionary verbs**

What I call ’topic-related locutionary verbs’ are verbs that describe a locutionary act that is about a particular issue, a fact, or topic under discussion in the context of the utterance. Such verbs include *explain, criticize* and *praise* on one of their two readings, as well as *complain*, *boast*, *comment* and *remark*, verbs that are known not to take any DPs, not even special quantifiers, as complements[[17]](#footnote-17)

 Topic-related locutionary verbs like *explain, criticize* and *praise* allow for two readings of their clausal complement: a topic-related reading one on which the complement serves to describe the topic that the speech act is about, and a content-related reading one on which the complement gives the content of the speech act. The most obvious reading of (45a) is a content-related reading, whereas (45b) with an explicit fact-referring term displays the topic-related reading only:

(45) a. John explained that there was no water.

 b. John explained the fact that there was no water.

However, (45a) also allows for a topic-related reading, as is made clear by *how*-questions as below, asking for a specification of content:[[18]](#footnote-18)

(45) c. How did John explain that there was no water?

Likewise complement clauses of *criticize* and *praise* allow for both a content-related and a topic-related reading. Below the content-related reading is enforced by indicating the topic in (46a), and the topic-related reading by the *by*-phrase, making (46b) equivalent to (46c) and (46d):

(46) a. Looking at the well, John criticized that there was not enough water

 b. John criticized that there was no water, by saying that without water the project cannot

 be done.

 c. John criticized the water shortage / the fact that there was not enough water.

In specificational sentences only the content-related reading is available:

(47) a. John’s explanation was that there was no water.

 b. John’s criticism was that there was no water.

That is because it is the function of the postcopula clause in specificational sentences to give the content of the attitudinal object referred to by the subject.

 Under passivization, by contrast, only the topic-related reading is possible:

(48) That there was not enough water was not explained / criticized.

Thus, *explain* and *criticize* permit both nominal and non-nominal clauses. The nominal clause serves to describe a fact as an argument of the verb; the non-nominal clause gives the content of the locutionary object that is described, the explanation or critique..

 The verbs *complain, comment,* and *remark* only permit a content-related reading of their complement clause and not a reading of a *that*-clause specifying the topic that the locutionary act is about:

(49) John complained / commented / remarked that there was no water (??? by saying that

 without water the project could not be done).

However, there are reasons to assume that such verbs always syntactially realize a topic argument as well. What is peculiar about topic-related locutionary verbs and what distinguishes them from other locutionary verbs is that they do not permit special quantifiers in place of a clausal complement:

(50) a. John complained that it rained.

 b. \* John complained something.

 (51) a. John commented that the idea was good.

 b. \* John commented something.

(52) a. Mary remarked that she would come.

 b. \* Mary remarked something.

This can be connected to the observation is that with *explain* and *criticize* a special quantifier or pronoun can replace the clausal complement only on the topic-related reading:

(53) a. John explained something, that there is no water.

 b. What did John explain?

(54) a. John criticized something.

 b. What did John criticize?

The impossibility of special quantifiers on the content-related reading can be explained if clausal complements of *explain* and *criticize* occupy different positions on the two readings. On the topic-related reading, the complement clause occupies the direct object position, a receiver of structural, accusative case. On the content-related reading, the complement clause occupies the indirect object position, which cannot receive structural case, excluding any DP in that position.

 Now if locutionary verbs such as *comment* and *remark* always involve a topic (a fact, suggestion or claim) as an additional argument, this allows for an explanation why special quantifiers are impossible in place of their clausal complement. The only additional assumption that is required is that the topic argument is syntactically realized by a light DP even if it is not (or even cannot be) filled by a *that*-clause on the content-related reading:

(55) John [[remarked] [DP e]][that S]

In (55) the clausal complement is not in direct object position, but in indirect object position where no (structural) case can be assigned. This means that the *that*-clause complement of *remark* and *comment* and of *explain* and *criticize* (on the content-related reading) cannot be replaced by a special quantifier because it would not be in a position to receive case. The two readings of *explain that* S will thus correspond to two different syntactic structures as below:

(56) a. John [V’explained [DP e]] [that there is no water]

 b. John [V’explained [that there is no water]]

The complex predicate analysis should also apply to *explain*. This means that *explain* would be derived from a complex-predicate of the sort *give explain(ation)* with an abstract noun *explain*. Given that, (56a) and (56b) will have the logical forms in (57a) and (57b) respectively, where the nominal *explain* will denote a two place relation between an attitudinal objects and a fact, an explanans, and tc is the contextually given topic:

(57) a. ∃d(give(John, d) & [explain(ation)](d, tc) & [*that there is no water*](d))

 b. ∃d(give(John, d) & explain(ation)(d, fact([*that there is no water*])))

Topic-related locutionary verbs thus display the different roles of complement clauses, as predicates and as nominal clauses standing for a modal object, They also point to the syntactic presence of implicit topic arguments.

**6. Conclusion**

In this chapter we have seen that attitudinal-objects semantics can naturally be extended to clausal complements and subject that have nominal status, standing for facts or states of affairs conceived as modal objects, or for thin assertions conceived as kinds of constative attitudinal objects.

 There appeared to be additional evidence for truthmaker semantics, namely from verbs of occurrence, which take subject clauses. However, I have argued that it is not the relation between the subject clause clause and verb of occurrence that conveys truthmaking, but rather truthmaking is a lexical condition on the relation between the Davidsonian event argument and a state of affairs argument provided by the subject clause. Topic-related illocutionary verbs display the two roles of clauses in two distinct ways, particularly, that of being a content bearer and that of describing a fact, a state of affairs, or a thin assertion.

 There lots of issues concerning the syntax of factive and presuppositional verbs that had to be skipped. I adopted a simple syntactic view of nominal clauses, invoking the theory of light verbs. However, the main semantic and ontological contributions of attitudinal objects semantics could very well be stated within other syntactic views.

1. The latter, though, does not hold for certain factive verbs that describe mental states such as *regret*:

(i) John’s only regret was that he did not try harder.

This suggests that clausal complement of *regret* has in fact a double function: specifying both the content of a fact (as the object of regret) and the content of the regret as a mental state. [↑](#footnote-ref-1)
2. There is the historic debate between Strawson and Austin about the nature of facts. Strawson (1950) takes facts to be non-worldly, but Austin (1979) takes them to be worldly situations. See also Fine (1982) for a discussion of the distinction. [↑](#footnote-ref-2)
3. There is also the view, though, that subject clauses are in fact in topic position, coindexed with an operator in subject position (Koster 1978). [↑](#footnote-ref-3)
4. Kayne (2008, 2010) proposes that factive clauses involve raising a noun *fact* from a PP *in fact* inside the *that*-clause: [NPfact [that it is raining in ~~fact~~]]. [↑](#footnote-ref-4)
5. See, for example, Abrusan (2014). [↑](#footnote-ref-5)
6. German makes the occurrences of light pronouns particularly clear in the appearance of the morpheme *da-* with prepositions:

(i) Er ist froh darueber dass es regnet

 he is happy that about that it raining

 ‘He is happy that it is raining.’ [↑](#footnote-ref-6)
7. Factive attitude reports could not involve existential quantification over facts as in the potential analysis below

(i) a. John regrets that S.

 b. ∃d(regret(e, John d) & [[+fact]*that* S](d))

That is because otherwise negation and other scope-taking expressions should be able to take wide scope over the existential quantifier ranging over facts, which is impossible since factivity is a presupposition. Instead the clause should serve to characterize the unique entity the light DP stands for that is linked to the CP. [↑](#footnote-ref-7)
8. Moulton gives the example below:

(i) a. ??? That bike lanes hurt business was overheard by many

 b. The claim that bike lanes hurt business was loud.

However, *loud* is particularly good with claims, presumably because claims accept only content-related predicates of concreteness, such as *overhear.* [↑](#footnote-ref-8)
9. This is a problem for an account of Kastner’s (2015) account of factivity, which tries to derive factivity as a special case of a general presuppositional, discourse-related determiner. Nothing on that view should exclude an assertion-related reading for verbs like *recognize* and *appreciate*. [↑](#footnote-ref-9)
10. *Be*  on the occurrence use is subject to restrictions, generally requiring a context of epistemic uncertainty (question or epistemic modal):

(i) a. \* It was yesterday that John was ill.

 b. Might it have been yesterday that John was ill.

 c. It can’t be that the problem has been solved

But this is not so, for example, in German:

(ii) a. Daβ es im Winter kalt ist, ist einfach so.

 ‘That it is cold in winter is simply so.

 b. Daβ es im Winter kalt ist, war schon immer so.

 ‘That it is cold in winter was always so. [↑](#footnote-ref-10)
11. In Moltmann (202b1), I have argued that the predicate *is the case* subject to a particular condition that requires the presence of adverbials or particles like *often* or *not* in (33d) namely the Case Space Condition, which means *is the case* involves a set of linguistically or epistemically given alternative situations. [↑](#footnote-ref-11)
12. *Occur* also imposes lexical presuppositions on its implicit argument, since it accepts only *that*-causes with eventive verbs:

(i) a. In John’s family, it is not the case that children respect their parents.

 b. ?? In John’s family, it does not occur that children respect their parents. [↑](#footnote-ref-12)
13. Bondarenko (2020a) posits two distinct meanings of cto-clauses, as predicates of content bearers and as predicates of events, and points out that the second meaning can occur with an optional modifier *takoe* ‘such’, but not with the first meaning:

(i) a. Slucilos’ /proizošlo / (takoe) (such) cto ˇ COMP belki s”eli vse orexi. lit.

 ‘That the squirrels ate all the nuts occured /happened.’

 b. \* Maša dumaet /somnevaetsja / takoe cto ˇ COMP belki squirrels s”eli vse orexi.

 ‘Masha thinks /doubts that the squirrels ate all the nuts.’ [↑](#footnote-ref-13)
14. See Moltmann (2021). [↑](#footnote-ref-14)
15. Note that the *that*-clause can be replaced by a special quantifier:

(i) a. Nothing special has occurred, except that John gave a speech.

 b. John gave a speech. That has never happened before.

This is unproblematic on the view on which clausal subjects of verbs of occurrence stand for modal objects. By contrast, it would not be obvious how special quantifiers in place of clausal subjects were be treated if the clausal subject was a predicate of truthmakers. [↑](#footnote-ref-15)
16. Bondarenko (2020a) points out that the Russian verbs *pomnit’* ‘remember’, *zameˇcat’* ‘notice’, *videt’* ‘see’ display a direct perception reading only with *takoe* modifying the complement clause:

(i) Lena pomnit {takoe such cto} ˇ COMP /{kak} /COMP.DIRECT Mitja kuril.

 ‘Lena remembers M.’s smoking.’ ⇒ Lena directly perceived M. smoking.

Without modification by *takoe* ‘such’, there is no direct perception requirement:

(ii) Lena pomnit (to) (that.DEM) cto ˇ COMP Mitja Mitya kuril, xot’ ona i CONJ ne NEG

 videla ego ni razu kurjašcim. ˇ smoking ‘

 ‘Lena remembers the fact that Mitya smoked, despite not seeing him’

Given that *takoe* can occur with complements of verbs of occurrence this does give some evidence for perception verbs taking truthmakers as arguments. [↑](#footnote-ref-16)
17. Grimshaw (2015) calls *complain* and *praise* ‘verbs of speaking with an attitude ‘and *comment* and *remark* ‘verbs with a discourse function. This may look like a different classification. However, her labels capture the topic-relatedness implicitly: emotional attitudes are generally about something and so are locutionary acts with a discourse function. [↑](#footnote-ref-17)
18. Pietroski (2000) incorrectly assumes that there is a single, content-related reading of the clausal complement of *explain*. Bondarenko (2021b) shows that Russian allows for both readings with a much greater range of topic-related locutionary verbs. [↑](#footnote-ref-18)