

Situations, Alternatives, and the Semantics of ‘Cases’

Situations have come to play a significant role in semantic theory. They have been advocated as an alternative to possible worlds, giving a more fine-grained notion of sentence meaning (in situation-semantic (Barwise/Perry1981, Kratzer 2014) or, more recently, truthmaker semantics (Fine 2012, 2014, to appear)) or else for the analysis of particular phenomena, such as perception reports, definite descriptions, E-type pronouns, conditionals, adverbs of quantification and generic sentences. Yet while situations are generally considered important for semantics, their semantic role is generally considered an implicit one, with situations acting as implicit arguments, parameters of evaluation, or truthmakers of sentences, not as semantic values of referential NPs.

This paper is about constructions that do involve explicit reference to situations, more precisely to ‘cases’, situations acting as truthmakers within a space of alternatives. These are constructions with the noun *case* in English (and corresponding constructions in other languages) such as NPs with *case* as head noun and a clausal modifier (a *case*-clause) as in (1), case anaphora as in (2), and the predicative construction *is the case*, as in (3):

Clausal *case*-NPs

- (1) a. the case in which it might rain
 b. the case in which a student fails the exam

Case anaphora

- (2) a. John might go to the party. In that case, I will go too.
 b. If John has lost, Mary is happy. In that case, she will celebrate.
 c. Mary claims that John has won the race. In that case, we will celebrate.

The predicate *is the case*

- (3) It is sometimes the case that S.

The paper argues that the semantics of *case*-constructions involves both truthmaker semantics and alternative semantics, the view that a sentence stands (may) stand for several alternatives at once. First, *case*-constructions involve situations in their role as truthmakers of sentences in

the sense of Fine (2012, 2014, to appear). That is, they involve possible or actual situations entirely relevant for the truth of sentences.¹ Second, situations are referred to as cases only within a space of alternative situations (or kinds of situations). Such a space of alternatives is either determined by a *case*-clause or else by a background attitude, which can be linguistically indicated in a variety of ways. The semantic analysis of *case*-constructions will be cast within a development of truthmaker semantics in the sense of Fine (2012, 2014, to appear) as well as a truthmaker-based version of alternative semantics (Hamblin 1973, Rooth 1982, Kratzer/Shimoyama 2002, Aloni 2007, Ciardelli/Roloefsen/Theiler 2017, Santorio to appear).

Case-constructions bear on a range of further important issues in philosophy of language that will be discussed. One of them is the intimate relation between *case*-constructions and conditionals, which supports the view that situations play the very same role in both constructions. Another is the relation of the predicate *is the case is* to the truth predicates *true*. The former involves quantification over truth makers and thus differs fundamentally in its semantics from the latter, unlike what has been held by deflationists.

In addition to the clausal *case*-constructions in (1-3), there are nominal *case*-constructions, such as *the case of the stolen statue*, *a case of flu*, and *in a case of defeat*, which share significant similarities with clausal case-NPs and invite the same sort of analysis. These will be discussed in an appendix to the paper (Appendix 1).

While *case*-constructions do not appear in all languages, a noun for ‘case’ appears in more or less the very same constructions in a range of European languages, including German (*Fall*), French (*case*), Italian (*caso*), and Spanish (*caso*). Some of the important properties are displayed more transparently by a *case*-construction in other languages than English, which this paper will then make use of.

The paper will first argue for the involvement of situations as exact truth makers in *case*-constructions and present an outline and extension of truthmaker semantics. Second, it will show the involvement of a case space in all *case*-constructions and give the semantics of *case*-constructions of the various sorts based on a truthmaker-based version of alternative semantics. One appendix will discuss the extension of that semantics to nominal *case*-

¹ Fine’s notion of a truthmaker in ‘truthmaker semantics’ differs from the notion of a truthmaker in metaphysics. The former has a purely semantic purpose, the latter a metaphysical one of grounding truth. See Appendix 2 for discussion.

construction; a second appendix will discuss the relation of the notion of a truthmaker involved in *case*-constructions to the philosophical truthmaker debate.

1. Situations, quantification over cases and reference to kinds of cases

The overall view this paper develops is that cases, the entities *case*-constructions make reference to, are situations in their role as truthmakers, and that within a space of alternatives, what I will call a *case space*.² This section will focus on the first part, situations in their role as truth makers; the next section will focus on the involvement of a case space in the semantics of *case*-constructions.

Let us start with a few words regarding the ontology of situations in the role of truthmakers. Situations will be considered primitive and fully specific parts of actual or possible worlds. As such, they involve entities having properties or standing in relations to other entities, at a particular time or time-independently. The situations that may be cases need not involve a continuous and restricted location and do not have a duration. Cases in particular are not states or events, and in fact they are treated rather differently from the latter in natural language (see Appendix 1).³

The situations that *case*-constructions make reference to are situations that are fully specific parts of possible (or even impossible) worlds. They are thus on a par with worldly facts in the sense of Austin (1950, 1961b), rather than non-worldly facts in the sense of Strawson (1949).⁴ Non-worldly facts are entities that stand in a 1-1-relation to true propositions and are described by fact descriptions of the sort *the fact that S* (however they may be conceived ontologically).⁵ Clearly, *case*-NPs do not stand for possible non-worldly facts. *Case*-NPs with existentially quantified *case*-clauses as below make this particularly clear:

² More precisely, *case*-constructions involve reference to situations in the role of truthmakers of sentences or else reference to *kinds* of situations acting that way.

³ Fine calls the entities that play the truthmaker role ‘states’ rather than ‘situations’. Fine’s notion of a state is a technical one and has little to do with states as referents of state-referring terms (*the state of John’s being tired*) and the entities stative predicates describe.

⁴ For the distinction between worldly and non-worldly facts, see also Fine (1982).

⁵ For an ontological account of non-worldly facts as pleonastic entities or entities abstracted from true sentences see Moltmann (2013, Chap. 6).

- (4) a. several cases in which a student passed the exam
 b. the three cases in which a student passed the exam

If several students passed the exam, then there are several cases in which a student passed the exam, not a single case in which a student passed the exam. This permits a suitable quantifier domain for (4a) and a suitable plural referent for (4b). By contrast, if several students passed the exam, there will still be only a single non-worldly fact described by *the fact that a student passed the exam*.

Case quantifiers as in (4a) range over situations that are truthmakers of the *case*-clause, and in fact they range over exact truthmakers of the *case*-clause. (4a) ranges over those and only those situations in which exactly one student passed the exam and nothing else happened, that is, situations wholly relevant for the truth of the sentence *a student passed the exam*. It will not range over sums of such situations or larger situations which make the sentence true, but which include other things that are not relevant for its truth.

Fine's relation of exact truthmaking is the relation that holds between a situation *s* and a sentence *S* just in case *s* is wholly relevant for the truth of *S*. If *s* is an exact truthmaker of a sentence *S*, then a larger situation properly including *s* need no longer be an exact truthmaker of *S*, namely if that situation involves 'information' not relevant for the truth of *S*. The notion of an exact truthmaker is similar to, yet distinct from that of a minimal situation supporting a sentence (Kratzer 2002, online). There are two important reasons for using the notion of an exact truthmaker rather than that of a minimal truth maker (Fine, to appear). First, there are sentences that have exact verifiers, but lack minimal verifiers (e.g. *there are infinitely many natural numbers*).⁶ Second, a sentence such as *it is windy or it is rainy and windy* has two exact verifiers, a situation in which it is (just) windy and a situation in which it is (just) windy and rainy, but it would have only one minimal verifier (a situation in which it is windy) (Fine, to appear). *Case*-constructions clearly involve exact verifiers, rather than minimal verifiers. Thus, the first case does not prevent *case*-constructions from applying (*the case in which there infinitely many prime numbers*), and the second permits reference to a plurality of two

⁶ See also Kratzer (2002, 2014) and Yablo (to appear) for discussion.

cases (*the two cases in which it is windy or it is rainy and windy*), which should be excluded if cases were minimal truthmakers.⁷

Case quantifiers as in (4a, b) range over actual situations, not merely possible ones. I will call this the *actuality condition*. Where does the condition come from? It will not come from the truthmaking relation itself since the truth making relation, in truthmaker semantics, is a relation that holds between a merely possible situation and a sentence. Rather the actuality condition is a general condition on ‘ordinary’ argument positions of nouns, to be imposed once possible or nonexistent objects are admitted into semantics and allowed as arguments of certain non-ordinary argument positions (intensional transitive verbs, existence predicates) (Priest 2006 pp. 59-60, Moltmann 2013b, 2015).⁸ In the present context, it can be formulated as a condition that the (external) argument of *case* be an element of the domain D_c of objects considered actual in the context c . This is given below, where $\text{proj}^n(P)$ is the n -th projection (argument position) of the predicate P :

(5) For an ordinary, n -th argument position of a predicate P in the context c ,

$$d \in \text{proj}^{n,c}(P) \rightarrow d \in D_c.$$

Also disjunctions make the difference between cases and non-worldly facts apparent and show that cases take the role of truthmakers rather being constituted by true propositions. A true disjunction such as *Mary has received an invitation or John has received one* will correspond to exactly one non-worldly fact, describable as *the fact that Mary has received an invitation or John has received one*. By contrast, there will be as many cases as there are possible situations making either disjunct true. This then permits the use of the plural and a numeral in the following examples:

(6) a. the cases in which Mary has received an invitation or John has received one

b. the three cases in which n is smaller than 10, equal to 15 or larger than 20

⁷ The notion of an exact truthmaker has a range of further application, for example adverbials (Moltmann 2007) and intensional definite descriptions (*the book John needs to write*, cf. Moltmann to appear). More generally it should be applicable to all the semantic phenomena for which situations have been invoked, including restrictions of the domain of quantifiers and definite NPs and perception reports.

⁸ Priest (2006) is not specific as to what predicates are subject to the condition; Moltmann (2015) takes existence predicates as well as intentional and intentional predicates (or rather predicate positions) to be exempt from the condition.

c. the two cases in which it rains or it snows

Cases as truthmakers, being fully specific, cannot be disjunctive or existentially quantified.

Case-NPs as in (5) and (6) that stand for particular cases and need to be distinguished from singular definite descriptions that describe *kinds of cases*, such as the following:

- (7) a. the case in which a student passes the exam
 b. the case in which it is rainy on a Sunday.

Generic case descriptions as in (7a, b) are kind terms in the sense of Carlson (1977). Even though they are not of the form of bare plurals or mass nouns, they are semantically on a par with terms like *gold* or *giraffes* when used as kind terms. Thus, generic case descriptions allow for the application of typical kind predicates:

- (8) a. The case in which someone passes the exam is rare / unusual.
 b. The case in which someone passes the exam does not occur often.
 c. The case in which someone passes the exam has never occurred before.

Furthermore, generic case descriptions exhibit an existential reading with episodic predicates such as *encounter*, a reading characteristic of bare plurals and mass nouns acting as kind terms (Carlson 1977):

- (9) I have never encountered the case in which a candidate was unable to speak during the oral exam.

As (9) makes clear, the kinds that *case*-NP may stand for have as their instances both actual and merely possible situations and thus are not subject to the restriction to actual situations

Unlike case descriptions, fact descriptions of the sort *the fact that S* are never kind terms, that is, terms that would permit typical kind predicates such as *rare* or *widespread*. Thus, ‘the fact that a student passes the exam’ or ‘the fact that it is rainy on a Sunday’ could not possibly be ‘rare’ or ‘common’. *The fact that a student passes the exam* and *the fact that it is rainy on a Sunday* stand for single quantificational facts, not a kind whose instances are particular facts involving particular individuals or days.

Case-NPs of the form of disjunctions may also stand for pluralities of kinds of cases as in (10a), though the same case description, though may give rise to a single kind of case as in (10b):

- (10) a. the two cases in which someone arrives late or someone cannot come
 b. the case in which someone arrives late or someone cannot come
 c. the cases in which a man gives a woman a flower or a book

In the first case, kinds act as truthmakers of the complex sentence and then a plurality of those kinds of cases serves as the referent of the entire NP. In the second case, a kind as a referent of the entire NP is formed from the particular situations that are truthmakers of the complex sentence. Reference to a single kind of case is a general option for disjunctive case descriptions, as also below:

- (11) the case in which John is sick or arrives late

(11) refers to a kind of case whose instances consist in situations in which John is sick and situations in which he is late.

3. Outline of truthmaker semantics

3.1. Basic of truthmaker semantics

The following gives an outline of truthmaker semantics for the main purpose of the semantics

Truthmaker semantics involves a domain of situations containing actual, possible as well as impossible situations. This domain is ordered by a part relation and is closed under fusion.

The following standard conditions on the truthmaking of sentences with conjunctions, disjunctions, and existential quantification then hold (Fine 2012, 2014, to appear):⁹

⁹ The truthmaking condition for sentences with universal quantification and conditionals are less obvious and in fact controversial. I will not give truthmaking conditions for them here since they won't be specifically relevant for the semantics of *case*-constructions. See Armstrong (2004) and Fine (to appear) for discussion and somewhat similar proposals concerning universal quantification.

- (12) a. $s \models S \text{ and } S'$ iff for some s' and s'' , $s = \text{sum}(s', s'')$ and $s' \models S$ and $s'' \models S'$.
 b. $s \models S \text{ or } S'$ iff $s \models S$ or $s \models S'$
 c. For a one-place property P , $s \models \exists x S$ iff $s \models S[x/d]$ for some individual d .

As in Fine (to appear), I take the truthmaking conditions for disjunction to be exclusive, which means disjunctions won't have as truthmakers sums of situations that are truthmakers of the disjuncts. Plural *case*-NPs with disjunctive *case*-sentences reflect that in the choice of a numeral modifier:

- (13) a. the two cases in which Mary has received an invitation or John has receives one
 b. ??? the three cases in which Mary receives an invitation or John receives one

The unacceptability of *three* in (13b) means that a sum of situations in which Mary and John have received an invitation won't count as a truthmaker of the disjunction.

Truthmaking conditions for negative sentences are a matter of controversy. Negative sentences are generally considered a challenge to the truthmaking idea since it is not obvious what sort of entity there is in the world that could make the sentence *John failed to show up* or *no one is satisfied* true. On some views of truth-making, negative sentences do have truthmakers; on others, they don't.¹⁰ The semantics of *case*-NPs itself bears on the issue. Negative *case*-clauses generally do not pose an obstacle for the referentiality of definite case descriptions, including of the generic sort:

- (14) a. We discussed the case in which John fails to show up.
 b. The case in which no one is satisfied is not a good prospect.
 c. The cases in which either John did not show up or he did not pay attention are numerous.

Clearly, *case*-constructions require a notion of truthmaking that assigns truthmakers to negative sentences. Fine's (2012, 2014, to appear) truthmaker semantics accomplishes that by assigning sentences not only truthmakers or verifiers, but also falsifiers. This allows a straightforward formulation of the truthmaking conditions of negative sentences: a truthmaker

¹⁰ See Mulligan/Simons / Smith (1984), Armstrong (1997, 2004) for discussion.

for $\neg S$ is a falsifier for S . With \Vdash as the relation of (exact) falsification, the condition is given below:

(15) $s \Vdash \text{not } S$ iff $s \not\Vdash S$

Also complex sentences are assigned both truthmaking and falsemaking conditions. For conjunctions and disjunctions the false-making conditions are those below:¹¹

(16) a. $s \Vdash S \text{ and } S'$ iff $s \Vdash S$ or $s \Vdash S'$

b. $s \Vdash S \text{ or } S'$ iff for some s' and s'' , $s = \text{sum}(s', s'')$ and $s' \Vdash S$ and $s'' \Vdash S'$

A sentence S is then has as its meaning a pair $\langle \text{pos}(s), \text{neg}(S) \rangle$ consisting of a *positive denotation*, the set $\text{pos}(S)$ of verifiers of S , and a *negative denotation*, the set $\text{neg}(S)$ of falsifiers of S . In what follows, I will make use only of the positive denotation of sentences, which will be denoted by ' $[S]$ ' for a sentence S .

3.2. Extensions of truthmaker semantics

3.2.1. Kinds of situations as truthmakers

For purpose of the semantics of *case*-constructions, Fine's truthmaker semantics needs to be extended so as to allow kinds of situations to be truthmakers, the referents of kind-referring *case*-NPs. Kinds of situations as truth makers correlate with maximal situations s that are truthmakers of a sentence. Thus, in addition to its ordinary semantic value, a sentence will have a kind-based semantic value, as below, where 'I' stands for the relation of being an instance of:

¹¹ Another kind of sentence that has been considered problematic for truthmaking is sentences expressing the predication of essential properties. A quick look at clausal *case*-NPs shows that with an epistemic modal such sentences are perfectly suited for forming referring *case*-NPs:

- (i) a. We should not exclude the case in which 388767 might be a prime number.
 b. We took into consideration the case in which Sasha might be a cat.

See the next section on the role of epistemic modals in *case*-constructions.

(17) The kind-based positive semantic value of sentences

For a sentence S , $[S]_{\text{kind}} = \{k \mid \forall s (s \text{ I } k \leftrightarrow s \Vdash S)\}$

Kinds by nature inherit relevant properties and relations from their instances. This also holds for relations of truthmaking applied to kinds of situations:

(18) Truthmaking inheritance condition for kinds

For a sentence S and a kind of situation k , $k \Vdash S$ iff for every situation s , if $s \text{ I } k$, then $s \Vdash S$.

Sentences will thus be polysemous, having both simple meanings and kind-based meanings. The number of their kind-based meanings will increase with the complexity of the sentence. For example a disjunctive case-clause as in (19a, b) leads to the two meanings in (20a, b) respectively:

(19) a. the two cases in which someone arrives late or someone cannot come

b. the case in which someone arrives late or someone cannot come

(20) a. $\{[some\ one\ arrives\ late]_{\text{kind}}, [some\ one\ cannot\ come]_{\text{kind}}\}$

b. $[some\ one\ arrives\ late\ or\ some\ one\ cannot\ come]_{\text{kind}}$

Kind-based meanings obviously permit reformulating standard alternative semantics in terms of truthmaker semantics if kinds of situations are identified with propositions. In alternative semantics questions are assigned sets of propositions that are possible answers, which now would be sets of kinds of situations. In particular, a disjunctive question (which I return to in the context of *case*-constructions) can be assigned as its meaning the set of kinds of situations that are truthmakers of the disjuncts, so that (19b) will also be the meaning of (21):

(21) Did someone arrive late or did not come?

Kind-based meanings thus serve different semantic purposes, being involved in the semantics of *case*-NPs as well as that of disjunctive questions.

3.2.2. Context and truthmaker-based sentence meaning

Truthmaker semantics as outlined in the previous section needs to be supplemented by an account of context-dependency. For the purposes of this paper, I will make use only of the following assumptions. A sentence will be valuated with respect to a *local context*, the context associated with the speaker or the relevant described agent whose propositional attitude the sentence serves to report. Such a context will consist of various elements, in particular an agent, a time, a domain of objects considered actual (or else conditions on objects considered relevant), possibly a doxastic attitudinal object, representing relevant beliefs or considerations of the agent at the time, and perhaps conditions on what options are considered relevant. Formally, a context will be conceived as an n -tuple for some number n of such elements. Local contexts may shift when a sentence is in the scope of an attitude report, a modal or temporal operator. I will call the context associated with the utterance situation the *primary context* and a shifted context a *secondary context*. A simple sentence such as *John left* then has a (positive) meaning relative to a context c , $[John\ left]^c$, which consists in the set of situations prior to the time of c that are wholly relevant for the truth of *John left*. Such sentence meanings can be obtained compositionally. Thus, *left* may be assigned a denotation $[left]^c$ relative to a context c that is a function mapping an individual d to the set of situations s in which d left prior to the time of t_c of c . The meaning of *John left* is then obtained by function application: $[John\ left]^c = [left]^c([John]^c)$

Another extension of truthmaker semantics that this paper will make use of consists in the application of the truth making relation to situations and *attitudinal objects*. Attitudinal objects are entities like beliefs, judgments, inquiries, and considerations, that is they are mental states or the non-enduring products of mental acts (or illocutionary acts) (Moltmann 2013a, 2014, 2017). They have a content consisting of truth- or satisfaction conditions, yet share the particularity and concreteness of events. Thus, the belief that John left has as truthmakers, situations which John left that are prior to that belief. Moreover, the belief that John won the race or Mary did has two types of truth makers: the kind of situation in which John won and the kind of situation in which Mary won. These are the very same situations that resolve a state of an inquiry whether John won the race or Mary did. Disjunctive beliefs

thus share their truthmakers with corresponding states of uncertainty or acts of inquiry. The truthmaker relation \Vdash will thus be extended so as to apply to attitudinal objects as well.

4. The semantics of *case*-nominals with clausal modifiers: the simple case

Based on the notion of truthmaking, the semantics of *case*-nominals describing particular cases can, in a preliminary version, be given as follows:

(22) The semantics of *case*-nominals describing particular cases (preliminary version)

For a context c , $[case\ in\ which\ S]^c = \{s \mid s \in [case]^c \ \& \ s \in [S]^c\}$

The semantics of *case*-nominals describing kinds of cases, similarly, will be as below, where $case_{kind}$ holds of kinds of situations k just in *case* of holds of all instances of k :

(23) The semantics of *case*-nominals describing kinds cases (preliminary version)

For a context c , $[case_{kind}\ in\ which\ S]^c = \{k \mid k \in [case_{kind}]^c \ \& \ k \in [S]_{kind}^c\}$

Here only the kind-based semantic value of the *case*-clause can apply; the ordinary semantic value would be inapplicable.

In (22) and (23), the semantic contribution of the *in which*-clause is treated as that of an intersective modifier of the noun *case*, denoting the set of truthmakers of S , the meaning it shares with S (or *that S*). This means that the preposition *in* in that construction has a purely syntactic purpose and does not contribute semantically.¹² Independent evidence for that is that in other languages, for example German (as well as in French, Italian, and Spanish), clausal modifiers of *case* may be formed without a preposition, with what corresponds to a *that*-clauses rather than an *in which*-clause:

(24) der Fall, dass jemand zu spaet kommt

the case that it rains

‘the case in which it rains’

¹² The syntactic purpose may consist in the need to allow the assignment of Case to *which*. Note that semantically in *case*-nominals like *case in which it rains*, *in* could only express the identity relation among situations. But *in* never expresses identity elsewhere.

Case-nominals in German thus look like English nominals with *fact*, *possibility*, *idea*, *proof* etc.) as head, which select *that*-clauses rather than *in which*-clauses. Note that with other determiners than the definite one, German switches to *in which*-clauses:

- (25) a. ein Fall, in dem / * dass es regnet
 a case in which / that it rains
 b. mehrere Faelle in denen es regnete
 ‘several cases in which it rains

This indicates that *that*-clauses are syntactically selected by certain nouns and in addition need to be licensed by the definite determiner, whereas *in which*-clauses appear when those two conditions are not fulfilled. The alternation between *that*-clauses and *in which*-clauses thus is a syntactic one and not indicative of a semantic difference.

One might think that one difference between *that*-clauses and *which*-clauses is that the latter but not the former are relative clauses. However, this view is not universally accepted. Thus, Kayne (2010) argues that *that*-clauses are also relative clauses, a view that would support the present semantics of *that*-clauses and *in which*-clauses in *case*-constructions as intersective modifiers.

5. The Case-Space Requirement

The semantics of *case*-nominals given so far requires an important modification: a situation or kind of situation can be a case only within a *case space*, a set of at least two alternatives. This *Case-Space Requirement*, as I will call it, is part of the lexical meaning of the noun *case*. The Case-Space Requirement is of particular theoretical interest in that it connects truthmaker semantics to alternative semantics.

The Case-Space Requirement is reflected in the semantics of all types of *case*-constructions: *case*-NPs with clausal modifiers, *case*-anaphora, and the predicate *is the case*, as we will see. Case spaces may be determined either by a sentence (*sentential case spaces*) or by an epistemic state (*epistemic case spaces*)

5.1. Sentential case spaces

The Case-Space Requirement manifests itself first of all in that sentences cannot be used for case reference that have as truth makers single particular facts in the past or present or single time-less facts:

- (26) a. ??? We discussed the case in which John returned yesterday.
 b. ??? The case in which I have solved the problem was unexpected.
 c. ??? The case in which it is raining outside bothers us.
 d. ??? The case in which 3 is a prime number is wellknown.

The unacceptability of such examples contrasts with the acceptability of corresponding fact descriptions:

- (27) a. the fact that 3 is a prime number
 b. the fact that John wo the race

Cases thus are not just isolated actual situations, but rather situations within a space of alternative situations.

There are other ways in which the Case-Space Requirement may be satisfied by a case-description than by using existentially quantified or disjunctive sentential modifiers. First, it may be satisfied by using a sentence that is true at different times and thus has different time-related truthmakers:

- (28) the cases in which John won the race

Also a definite NP may lead to a case space, namely if it has different referents at different times at which the sentence is true:

- (29) a. the cases in which the president was a democrat
 b. the cases in which the number of students was less than 1000

Another way to meet the Case-Space Requirement is for a sentence to describe a part of a mathematical case distinction, involving variables in a mathematical extension of English:

(30) the cases in which *n* is a prime number

These sorts of clausal modifiers also permit instead of a plural *case*-NP, referring to several particular cases, *case*-NPs referring to a single kind whose instances are the truthmaking situations (*the case in which the number of students is less than 100 is are, the case in which *n* is a prime number*). In addition, the different truthmaking situation may play a role for the semantics of cardinal and superlative adjectival modifiers of *case*-NPs, as below:

- (31) a. the first case in which Gereon won the race
 b. the worst case in which the two people had a dispute

Here the adjectival modifier imposes an order on the truthmaking situation, permitting the *case*-NP to refer to a unique element in that order. The Case-Space Requirement thus is not a requirement that the *case*-NP refer to a plurality of cases.

Another way for a *case*-NP to refer to a single case involves contrastive focusing:

(32) The case in which Géreon won the race was totally unexpected.

Contrastive focusing of the NP sets up a range of alternative situations in which someone other than the semantic value of the focused constituent satisfies the predicate (Roots 1992). These situations form a background of alternatives that are taken into consideration in the context of the utterance. They together with the situation referred to make up the case space.

A case space induced by focusing is also involved in the semantics of the *case*-NPs with *only* as modifier, a modifier that associates with focus:

(33) Mary remembered the only case in which Géreon won the race

Here the case space will interact with *only*, providing a range of situations of someone winning the race among which there will be just one, involving Gereon, for *only* to select.

Contrastive focus as well as expressions associating with focus is one of the phenomena that has given rise to alternative semantics, a semantic approach on which a sentence is interpreted by a set of propositions, rather than a single proposition, a set of (relevant)

alternatives. Thus, Rooth (1992) assigns a focused sentence a focus-semantic value, the set of propositions that are the meanings of the sentence obtained by replacing the focused constituent by other (contextually relevant) expressions. The ordinary meaning of the sentence will be a proposition, and the sentence presupposes that that proposition be part of the focus-semantic value.

Alternative semantics has also been applied to questions, which have been assigned as their semantic value the set of true and false answers, the same as the focus value of their answers (Hamblin 1973), to disjunctions, which have been assigned as their semantic value the sets of the propositions expressed by the disjuncts (in order to account for the semantic behavior of disjunctions in modal contexts and questions) (Aloni 2007), to conditionals (Santorio, to appear), and to certain types of indefinites (in order to deal with their exceptional wide-scope behavior) (Kratzer/Shimoyama 2002).

There is a significant connection between truthmaker semantics and alternative semantics. Truthmaker semantics, in a way, provides a version of alternative semantics, an alternative on which the alternatives are not propositions, but truthmaking situations. Truthmaker semantics assigns sets of (possibly different) truthmaking situations to disjunctions and to existentially quantified sentences, rather than sets of propositions. Truthmaker semantics can be reformulated, though, so as to assign kinds or sets of truth makers to disjuncts, the correlates of propositions, and for certain purposes it needs to be so reformulated (such as the semantics of *case*-NPs standing for pluralities of kinds of cases).

Deviating somewhat from Rooth, I will not assign the very same sentence containing a focused constituent two different semantic values, but rather distinguish two syntactic structures of such sentences: a syntactic structure without focus structure and syntactic with focus structure. Truthmakers for a sentence S without a focus structure will be the ordinary truth makers of S , whereas truthmakers for S with a focus structure $S[Y_{\text{focus}}]$, with a focused constituent Y , will include truth makers for the result of replacing the focused constituent Y by a different expression X of the syntactic category of Y . Thus, we have (34) where $S[X/Y]$ is the result of replacing Y by an expression X of the syntactic category of Y (CAT_Y):

(34) For a situation s , $s \Vdash S[Y_{\text{focus}}]$ iff $\exists X (X \in CAT_Y \ \& \ s \Vdash S[X/Y])$

Truthmaker Semantics for the present purposes has a significant advantage over standard alternative semantics since it allows *case*-NPs to make reference to a plurality of cases as well

as reference to a single case within a background of alternatives. A unified semantics of *case*-NPs would not be available on the standard, propositions-based version of alternative semantics, which does not allow for reference to particular cases.

Truthmaker semantics extended to kinds would provide kinds of situations, when there is kind reference involved, as below:

(35) the case in which an Américan wins the race

Obviously, kinds can also act as truthmakers of focused sentences.

When a *case*-NP refers to a kind of situation, it also involves a case space, a set of alternative kinds of situations. Unlike with reference to an actual situation, alternatives for kinds of situations are always available, since they do not require factual situation to exist (that is, a kind of situation may have only possible, nonfactual situations as instances).

Semantically, the involvement of a case space means that the noun *case* does not just take a particular situation or kind of situation as argument, but also a set of alternative situations or kinds of situations, a case space. The case space must include the situation argument and have at least two elements. In both cases we have discussed, the case space is determined by the sentence, possibly together with its focused structure: it is the set of truthmakers or kinds of truthmakers of the sentence.

5.2. Epistemic case spaces

The case space need not be given by a sentence but may instead consist of options taken into consideration with the utterance of the *case*-construction. The attitude supporting those options may be indicated by an epistemic modal of possibility, which distinguishes the sentences in (36) from those in (37):¹³

- (36) a. The case in which John might have returned yesterday could not be ruled out.
 b. The case in which it is raining outside needs to be taken into consideration.

¹³ By contrast, modals of necessity do not improve the examples:

(i) ??? the case in which John must have returned yesterday

- (37) a. ??? The case in which John returned yesterday could not be ruled out.
 b. ??? The case in which it is raining outside needs to be taken into consideration

The *case*-NPs in (36) unlike those in (37) no longer describe actual cases, but rather epistemic possibilities besides others. How does the modal semantically contribute to setting up the alternatives that are then able to fulfill the Case-Space Requirement? On the relevant reading, the modal does not contribute to the propositional content of the relative clause, since the *case*-NP does not refer to a case of a possibility obtaining. Rather the *case*-NP stands for a possible case among others that are being considered. Here the contribution of an epistemic modal appears a mere indicator force, as it used to be put, rather than contributing to truth conditions (Papafraou 2007). In fact, the very same semantic effect can be achieved using sentence adverbials:

- (38) The case in which John has perhaps / possibly already returned

Epistemic modal verbs of adverbials in *case*-sentences as an indication that the *case*-sentence be evaluated so as to permit reference to merely possible situation, by having the actuality entailment be fulfilled with respect to the domain of a shifted local context containing a domain of objects considered just possible, not actual.

Another indication for an epistemic case space may come from adjectival modifiers of case descriptions. Case descriptions permit adjectival modifiers indicating epistemic uncertainty, as in (39a), but not those indicating stronger form of acceptance, as in (39b):

- (39) a. in the unlikely / improbable / unforeseeable case in which the treasure is returned
 b. ??? in the likely / probable / foreseeable case in which the treasure is returned

Only the modifiers in (39a), not those in (39b) indicate a state of uncertainty setting up a case space.

The noun *case* moreover excludes factive modifiers, as expected:

- (40) ??? the fortunate / regrettable case in which Mary returns

Also sentences describing situations in the future, with an overt or implicitly understood future tense, will set up a case space:

- (41) a. The case in which John returns tomorrow cannot be ruled out.
 b. The case in which I will solve the problem is very unlikely.
 c. The case that it will rain tomorrow cannot be excluded.

Future tense sets up a case space because it represents different options or at least different epistemic possibilities.

In addition, sentences describing mathematical uncertainties (at the relevant point in time) can be case-constitutive, with or without overt epistemic modal:

- (42) a. The case in which there is a solution to the equation is would be very interesting.
 b. The case in which there might a largest prime number has long been ruled out.

By contrast, sentences describing known mathematical facts cannot set of a case space:

- (43) a. ??? The case in which 2 is a prime number
 b. ??? The case in which there is no largest prime number is wellknown.

The same constraint also holds for predications of essential properties. Here case reference is possible just in case the statement is not taken to be known:

- (44) a. ??? The case in which my pet is a cat is well-known.
 b. The case in which Sacha, the animal Joe mentioned, is a cat is not unlikely.

Thus, if the *case*-clause is not disjunctive or existentially quantified and thus generates a case space itself, a state of uncertainty, indicated by modals, modifiers, or future tense or understood implicitly may set up a case space, that is, a doxastic attitudinal object that has other truthmakers than that of the *case*-clause itself. In that case, the actuality entailment of the noun *case* need to be satisfied only with respect to the secondary context set up by the attitudinal objects, not the primary context.

One might try to unify the two sorts of case-spaces, by taking a case space set up by a sentence to be a special case of an epistemic case space. However, *case*-sentences can generate case spaces even if not associated with a state of uncertainty, as in (28) – (31).

Two distinct sources for a case space thus need to be distinguished: one is the *case*-sentence itself; the other is a doxastic attitudinal object, which may be associated with an epistemic modal. The first case, the semantics of a case nominal will be as in (45a); in the second case as in (45b), where e_{might} is the doxastic attitudinal object associated with the modal *might*:

(45) a. Sentential case space

For a context c , $[\textit{case in which S}]^c = \{s \mid \langle s, \text{CS}(S) \rangle \in [\textit{case}]^c \ \& \ s \in [S]^c \}$

b. Epistemic case space

For a context c , $[\textit{case in which might S}]^c = \{s \mid \langle s, \text{CS}(e_{\text{might}}) \rangle \in [\textit{case}]^c_{\text{might}} \ \& \ s \in [S]^c_{\text{might}} \}$

I will not give a semantics of the various elements that can be indicative of the attitudinal objects that sets up an epistemic case-space.¹⁴ It suffices to make clear that such elements act as context shifters, leading to a context whose domain includes merely possible situations. The noun *case*, we have seen, is subject to an actuality condition. With *case*-nominals involving an epistemic case space, obviously this actuality condition is no longer in place, or better it is satisfied with respect to the shifted context rather than the context of the utterance.¹⁵

¹⁴ Obviously the situation s and the context c are linked, though formalizing this link further would depend on the elaboration of the semantics of epistemic modal verbs and adverbials.

¹⁵ For this to be possible the noun *case* needs to be interpreted inside relative clause, in the scope of the modal expression or future tense, as roughly below:

(i) the s $[\textit{might}_c \ [s \ \textit{case}]^c \ [John \ \textit{have returned yesterday}]^c(s)]$

This matches a syntactic view according to which the head of the relative clause originates from the lower position inside the relative clause. More specifically, it has been argued that the head noun of a relative-clause construction may originate from inside the relative clause (Carlson 1977 and Grosu / Landman 1998). If moreover movement of an expression is in fact copying, then an unpronounced copy of the expression moved will be left behind. This will then be the one taken into account by semantic interpretation. That is, that the construction can be interpreted as if the head noun was in the lower position, either by having left a copy in that position (on the copy theory of movement) or by being reconstructed into the lower position. The copy left behind should have the status of a restricted variable, bound by a silent operator that stands for the relative pronoun. The syntactic issues should not concern us detail in detail, for present purposes it suffices to point the general syntactic view that permits an interpretation of the sort in (i).

Given the Case-Space Requirement, the lexical meaning of the noun *case* involves the general condition (46), based on the definition of a case space in (47):

(46) Lexical condition on the noun *case*

For a context c , a situation s and a non-empty set X , if $\langle s, X \rangle \in [case]^c$, then for the doxastic attitudinal object or sentence d that is part of c d_c , $X = CS(d_c)$ and $s \in CS(d_c)$.

(47) Definition of a case space

For an object d (a sentence or doxastic attitudinal object),

$$CS(d) = \{s \mid s \models d \ \& \ \exists s' (s' \models d \ \& \ s \neq s')\}.$$

The Case-Space Requirement is also apparent in the absence of an antecedent sentence introducing the case. Compare (48a) and (48b) uttered out of the blue:

(48) a. In that situation, I would flee.

b. In that case, I would flee.

(48a) and (48b) are appropriate in different visual contexts: (48a) when confronted with a single situation, (48b) when pointing at one situations among several that are visually displayed.¹⁶

6. Case anaphora with conditionals, disjunctions, and questions

Case-anaphora give further support for cases as situations in the role of truthmakers within a space of alternatives. These are in particular *case*-anaphora whose antecedent is introduced by conditionals, disjunctions, yes/no-questions, attitude reports, and modal sentences.

The involvement of a case space is apparent already when the antecedent of a *case*-anaphor is introduced by a preceding non-embedded sentence. Thus, it makes a difference whether the *case*-anaphor relates to a preceding utterance of the same speaker or a different speaker. The *case*-anaphor is not very good in the discourse below:

¹⁶ Thanks to a referee for pointing out the source of the potential unacceptability of (48b).

(49) ??? John won the race. In that case, Mary will be happy.

Here *that case* should refer to the kind of situations in which John won the race, but being described by an assertion of the same speaker, it does not have alternatives and thus does not belong to a case space. The Case-Space Requirement can be fulfilled, though, when the preceding sentence is asserted by a different speaker, as below:

(50) A: John won the race.

B: In that case, Mary will be happy.

In B's utterance, the *case*-anaphor can relate not to an attitude of B's belief (that John won the race), but only a weaker attitude of, say, B's hypothetical acceptance that John won the race, as a reaction to A's assertion, an attitudes that also allows for alternatives. That attitude allows for alternatives and thus sets up a case space. The *case*-anaphor in B's utterance in fact is acceptable only if B is not yet convinced that John won the race.

Also yes/no-questions support *case*-anaphora in a subsequent sentence. Here the antecedent may be uttered by the same speaker:

(51) Did John win the race? In that case, Mary will be happy.

A yes/no-question obviously is associated with an attitude of inquiry supporting two alternatives and thus setting up a case space, a requirement for the use of a *case*-anaphor within the same local context.

Also disjunctive declarative sentences permit *case*-anaphora. But that is because an assertion with a disjunctive content permits as many situations as there are disjuncts, just as disjunctive *case*-clauses do. As such, it sets up a case space for a *case*-anaphor applying within the same local context:

(52) a. John will interview or Mary will. In either case, we should be well-prepared.

b. The exam will be about Goethe, Schiller, or Kleist. In all three cases, there will be the same sorts of questions.

As in the case of *case* nominals with clausal modifiers, the disjunction may set up a case space consisting of kinds of situations, the kinds of situations that are truthmakers of the disjuncts. *Case*-anaphora with a disjunctive antecedent are associated with a case space because an assertion of a disjunction generally implies a state of uncertainty regarding the different situations making the disjuncts true.

Note that the presence of *either* in (52a) and *three* in (52b) shows the exclusive semantics of disjunctions just as in the case of *case*-NPs with disjunctive *case*-clauses: situations in which John and Mary will interview could not constitute a third fourth case, and similarly for situations, for example, in which the exam is about both Goethe and Schiller.

Also conditionals set up cases for *case*-anaphora:

- (53) a. If it rains, we won't go.
 b. In that case / In such a case, we will stay home.
 c. Let's better not think about that case.

That case in (53b) and (53c) refers to the kind of situation that is an exact truthmaker of the antecedent of the conditional.¹⁷ The attitude associated with the antecedent of a conditional is that of hypothetical acceptance, not that of belief (Stalnaker 1984). It will thus set up a case space, consisting of the kind of situation satisfying the antecedent, but also the kind of situation falsifying the antecedent.

Case-anaphora are subject to general constraints on anaphora. In particular, a *case*-anaphor can refer only to a situation that has been made at least as explicit as its alternatives. This is reflected in the contrast between simple yes/no questions and disjunctive ones below:

- (54) a. Will you come? In that case / ??? In either case, I would come too
 b. Will you come or not? In both cases / In either case / ??? In that case, I would come too.

¹⁷ The choice of *the* would be expected if *case*-anaphora would work like E-type pronouns standing for single cases introduced by existential quantification over cases in the evaluation of the preceding sentence. That can hardly be used in place of donkey pronouns unless uniqueness is implied:

(i) If John makes a mistake, he corrects it / the mistake / ??? that mistake.

Simple *yes/no*- questions provide a single case for a subsequent *case*-anaphor, even though they set up a case space with two alternatives. By contrast, corresponding disjunctive questions, which set up the same case space, provide two cases for a subsequent *case* -to refer to.¹⁸

There are also specific reasons to take truthmaking to be involved in the semantics of conditionals. Thus, Fine (2012, 2014) argues for a semantics of counterfactual conditionals in terms of truth-making of roughly the following sort:¹⁹

(55) *If S, then S'* is true iff for every situation s , $s \Vdash S$, s has a possible outcome containing a part s' such that $s' \Vdash S'$.

A situation-based semantics of conditionals of this (or any) sort can then be carried over to prepositional phrases *in that case* and *in the case in which S*, which involve the semantics of a conditional. Thus, based on Fine's semantics for the counterfactual case, *in that case S* would have the truth conditions below, where I is the instantiation relation:

(56) *In that case S* is true iff for every situation s , $s I [that\ case]$, s has a possible outcome containing a part s' such that $s' \Vdash S$.

Case-conditionals of the prepositional sort are generally found in languages that have *case*-constructions (German has *im Fall, dass*, French *dans le cas que*).^{20, 21}

¹⁸ Constraints on the linguistic representation of antecedents are familiar from the semantic literature on anaphora, from examples such as:

- (i) a. Someone left. He did not come back.
b. ??? Not everyone stayed. He did not come back.

Case-anaphora, though, are not expected to fall under the very same constraint as ordinary pronominal anaphora since *case*-anaphora refer within a case space and do not have pronominal form. But *case*-anaphora show contrasts analogous to that in (i):

- (ii) a. John believes that Mary will come. In that case. I will go too.
b. ??? John doubts that Mary won't come. In that case. I will go too.

¹⁹ I will not go into the motivations and details of Fine's analysis of conditionals since they do not matter for the current purpose. See also Kratzer (online) and references therein for analyses of conditionals on the basis of situations, as well as Santorio (to appear) for an analysis based on alternative semantics.

7. Case-anaphora with attitude verbs and epistemic modals

The Case-Space Requirement manifests itself also with *case*-anaphora relating to a sentence embedded under an attitude verb in a preceding sentence. *Case*-anaphora display striking differences in acceptability with respect to the choices of attitude verbs and clausal complements in the preceding sentence.

First of all, as expected, (nondisjunctive) complement clauses of factive attitude verbs do not support subsequent *case*-anaphora. This holds both within the same secondary context (57a) and for the primary context (57b):

- (57) a. ?? John is happy that he won the election. In that case, he wants to celebrate.
 b. ?? John noticed that Mary is at home. In that case, Bill is at home too.

Factive attitudes with nondisjunctive content do not set up a case space, neither for the context of the described agent nor the speaker's context.

Complement clauses of certain nonfactive attitude verbs do support *case*-anaphora (within the same secondary context), for example *fear* and *hope*:

- (58) a. John fears that Mary has lost the election. In that case, he won't / would not celebrate.
 b. John fears that Mary has lost the election. In that case, I would be relieved.
 (59) a. John hopes that Mary has won the election. In that case, he will / would celebrate.
 b. John hopes that Mary has won the election. In that case, I would celebrate.

²⁰ *In case* can also act as a complementizer:

- (i) We will take an umbrella in case it rains.

Here the main clause is said to be true in view of one possible future course of events, namely in which a situation-like case as described by the *case*-NP occurs. In English, the construction is grammaticalized, containing no determiner before *case* and no complementizer *that* after it (* *in the case it rains*, * *in the case that it rains*).

²¹ There are differences between ordinary *if*-conditionals and *case*-conditionals. *If*-conditionals can go along with adverbs of quantification, of which the *if*-clause appears to act as a restriction, but *case*-conditionals cannot:

- (i) a. If a student fails the exam, he usually tries again.
 b. ??? In case a student fails the exam, he usually tries again.

A fear that S and a hope that S come with an uncertainty as to whether S, that is, a doxastic attitudinal object that supports alternatives and thus sets up a case space in the relevant secondary context. A fear that S and a hope that S also support *case*-anaphora within the primary context, namely if the speaker just hypothetically accepts that S, as indicated by the choice of *would* in (58b) and (59b).

Fear and *hope* contrast with *believe*, which does not support case anaphora within the secondary context (unless it has disjunctive content), but only within the primary context, and that only if the agent of the described attitude is not the speaker:

- (60) a. ??? John believes that Mary has lost the election. In that case, he wants to celebrate.
 b. John believes that Mary has lost the election. In that case, I will / would celebrate.
 c. ??? I (firmly) believe that Mary has lost the election. In that case, I will celebrate.

A belief that S only supports situations that make S true and excludes situations that make S false. (60b) presupposes that the speaker does not share the degree of John's belief and the choice of *will* or *would* depends on the degree of acceptance of the preceding clausal complement. If the case anaphor is acceptable, the speaker will take into consideration both situations making the complement clause true and situations making it false. (60c) is unacceptable when *believe* expresses strong belief, but not when the use of *believe* (as an 'adverbial verb') serves to weaken the sincerity condition of the assertion.

Other 'purely positive' attitudes, for example expectation and assertion, exhibit the very same pattern as belief:

- (61) a. ??? John expects that it will rain tomorrow. In that case, he wants to stay home.
 b. John expects that it will rain tomorrow. In that case, I want / would want to stay home.
 c. ?? I expect that it will rain tomorrow. In that case, I want / would want to stay home.
 (62) a. ??? John claims that Sue won the race. In that case, he wants to celebrate.
 b. John claimed that Sue won the race. In that case, I will celebrate.
 c. ??? I claim that Sue won the race. In that case, I will celebrate.

Purely positive attitudes of a third person *a* do not support *case*-anaphora with respect to the subordinate attitudinal context, but only with respect to the main attitudinal context, namely if

the speaker does not share the same attitude as *a*, but rather engages in a weaker attitude, allowing for alternatives.

Attitude verbs such as *think*, *imagine*, and *dream* behave interestingly different in that they do not support *case*-anaphora at all with respect to the subordinate attitudinal context:²²

- (63) a. ?? John thinks that that Mary is not interested in him. In that case, he will ask Sue out.
 b. ?? John imagines that he is rich. In that case, he will be generous.
 c. ?? John dreamt that he was a bird. In that case he wanted to fly.

The reason is that attitudes such as thoughts (in the sense of an attitude of ‘entertaining’), imaginations and dreams are not associated with an attitude of uncertainty, unlike fear and hope. They will thus not be able to set up an epistemic case space for a *case*-anaphora within the same secondary context.

There is one circumstance when attitudes such as belief, thought, and imagination can support *case*-anaphora within a secondary context, and that is when the clausal complement is a disjunction:

- (64) a. John believes that Mary won the race or Jane won it. In either case, he wants to celebrate.
 b. John expects that the party will be held on Friday or on Saturday. In either case, he plans to go.
 c. John thought that he would become a teacher or a doctor. In either case he imagined to be successful.

Here, of course, the alternatives are those given by the disjunctive embedded sentence, rather than by a state of uncertainty.

²² Verb of saying such as *remark*, *say*, *whisper*, *scream*, and *write* also fail to support case anaphora in a subsequent sentence, both when applying to the main and the subordinate attitudinal context:

- (i) John said /whispered/screamed that Sue won the race. ??? In that case, Bill will be disappointed.

Verbs of saying arguably describe merely locutionary, not illocutionary acts, and thus do not serve to specify truth or satisfaction conditions (Moltmann 2017).

Case spaces can be indicated also by epistemic modals. Epistemic modals of possibility and necessity both support *case*-anaphora, though speakers differ somewhat as to which modals better support them:

- (65) a. John might have arrived. In that case Mary should be relieved.
 b. John must be at home. In that case, Mary will be at home too.

The support of *case*-anaphora with epistemic *must* obviously presupposes that epistemic *must* is not factive, a view defended by Karttunen (1972).²³ It may thus indicate a state of uncertainty for the subsequent sentence, a state that permits alternatives and thus sets up a case space.²⁴

8. Attitude reports with infinitival clauses

That-clause complements of attitude verbs differ from infinitival (controlled) clausal complements with respect to supporting *case*-anaphora. This difference concerns case anaphora in the primary context relating to a preceding attitude report with a different agent than the speaker. In contrast to *that*-clauses, controlled infinitival clauses do not support *case*-anaphora in the primary context very well, as seen in the contrasts below:

- (66) a. John hopes that Bill will win the competition. In that case, we will celebrate.
 b. John hopes PRO to win the competition. ?? In that case, we will celebrate.
 (67) a. John hopes that he has locked the door. In that case, we need not worry.
 b. John hopes PRO to have locked the door. ?? In that case, we need not worry.
 (68) a. John claims that Bill has won the election. In that case, we have reason to celebrate.
 b. John claims PRO to have won the election. ??? In that case, we have reason to

²³ However, see von Stechow / Gillies (2010) for a defense of the factivity of *must*.

²⁴ Deontic and ability modals do not permitting case anaphora:

- (i) a. You may take an apple. ??? In that case, you may take a pear too.
 b. ??? You must leave. In that case, your wife will leave too.
 c. ?? John can lift the table. In that case, he should carry it upstairs.

A case space can be set up only by doxastic attitudinal objects, a belief or consideration, not an obligation or permission.

celebrate.

- (69) a. John intends to leave the country. ??? In that case, Mary will leave the country too.
 b. John decided to come to the party. ??? In that case, we will be happy.
 c. John plans to write a book. ??? In that case, he would be occupied all summer.

This means that a controlled clause as complement of an attitude verb does not provide cases for *case*-anaphora with respect to a context that is not the secondary context of the agent of the described attitude.

The examples above contrast with those below, where the *case*-anaphor relates to the secondary context of the agent whose attitude the preceding sentence reports:

- (70) a. John intends to study medicine or law. In either case, he will study very hard.
 b. John decided to invite Mary or Sue to the party. In either case, he wants to send out the invitation only next week.
 c. John plans to buy a house or rent an apartment in Berlin. In either case, he wants to keep his apartment in Munich.

The contrasts in (66-68) can be explained if controlled clauses involve the self-ascription of a property along the lines of Lewis' (1979) account of attitudes *de se*. According to that account, in the first sentence in (66a, b) John self-ascribes the property of winning the competition. Such a self-ascription in turn results in a doxastic attitudinal object of roughly the sort John's (weak) acceptance of winning the competition, an object that would support other alternatives as well and thus set up a case space. If controlled clauses express properties to be self-ascribed by the agent of the attitude in question, then they cannot be constitutive of a doxastic attitudinal object of a different agent,

Note that controlled clauses can support *case*-anaphora if the speaker is the described agent:

- (71) I hope to win the competition. In that case, we will celebrate.

Here the self-ascription of the property of winning the competition is constitutive of a doxastic attitudinal object of the speaker, an object that can set up a case space of alternatives for the *case*-anaphor in the subsequent sentence.

8. The predicate *is the case*

The predicate *is the case* also involves situations acting as truthmakers within a case space. *Is the case* is a syntactic predicate that allows as subject a *that*-clause or a pronoun such as *that*:²⁵

- (72) a. That it is raining is not the case.
 b. John feared that it might rain. That was in fact the case.

Some philosophers hold the view that *is the case* and *is true* mean the same thing:²⁶

- (73) That it is raining is not true.

However, there are significant semantic differences between the two predicates. Those differences are, for some reasons, not as well reflected in English as, say, in German with *ist der Fall* 'is the case' and *ist wahr* 'is true', which I will therefore focus on. (This may be because English *is true* is actually polysemous, permitting also a use equivalent to *is the case*.) The most important semantic differences concern adverbial modifiers.

²⁵ One might think that *the case* unlike *true* does not have the status of a predicate. However, standard linguistic criteria for predicatehood diagnose (*is*) *the case* as a predicate syntactically. First, *the case* is able to act as the predicate in small-clause constructions, as below, a standard criterion for predicate-hood:

- (i) a. I consider it true that John is a genius.
 b. I consider it clearly the case that John is a genius.

Second, like *true*, *the case* can go with other copula verbs than *be*, such as *remain* and *seem*:

- (ii) a. That John is the best player will always remain the case.
 b. The generalization remained true despite the changing circumstances.
 (iii) a. That John is happy does not seem the case.
 b. That John is happy does not seem true.

²⁶ This at least is a hallmark of the deflationist view of truth (Horwich 1990), according to which 'the key idea [...] is that there seems no reason to distinguish *being true* from *being the case*. If there is no distinction between being true and being the case, presumably there is also no distinction between 'It is not the case that *p*' and 'It is not true that *p*' (Stoljar, online). *Is the case*, is implicitly considered a redundant expression even by philosophers that do not share the deflationist view of truth. Not every philosopher shares that view about *is the case*. Correia/Mulligan (online) take the view that *is true* applies to propositions and *is the case* to states of affairs, mistakenly so, because *is the case* cannot actually apply to terms of the sort *that state of affairs*.

First, *ist wahr* and *ist der Fall* differ in their acceptance of location modifiers. Location modifiers are perfectly fine with *ist der Fall*, but often hard to make sense of with *ist wahr*:

(74) a. In unserer Firma ist es nicht der Fall, dass Angestellte ohne Erklärung entlassen werden.

‘In our firm, it is not the case that employees get fired without explanation.’

b. ??? In unserer Firma ist es nicht wahr, dass Angestellte ohne Erklärung entlassen werden.

‘In our firm, it is not true that employees get fired without explanation.’

(75) a. In Hans’ Familie ist es nicht der Fall, dass Kinder ihre Eltern respektieren.

‘In John’s family, it is not the case that children respect their parents.’

b. ??? In Hans’ Familie ist es nicht wahr, dass Kinder ihre Eltern respektieren.

‘In John’s family, it is not true that children respect their parents.’

Whereas (74a) and (75a) are perfectly natural as statements of facts, (74b) and (75b) are hardly acceptable or at least convey a particular metasemantic notion of location-relative truth.

Furthermore, *ist der Fall* is fine with adverbs of quantification, with which *ist wahr* is hardly acceptable or at least conveys a particular metasemantic notion of time-relative truth:

(76) a. Es ist immer mehr der Fall, dass der Alzheimerpatient etwas vergisst.

‘It is more and more the case that the Alzheimer patient forgets something.’

b. ??? Es ist immer mehr wahr, dass der Alzheimerpatient etwas vergisst.

‘It will more and more true that the Alzheimer patient forgets something.’

(77) a. Es war zweimal der Fall, dass jemand von der Versammlung abwesend war.

‘It was twice the case that someone was absent from the meeting.’

b. ??? Es war zweimal wahr, dass jemand von der Versammlung abwesend war.

‘It was twice true that someone was absent.’

In contrast to *ist der Fall*, with *ist wahr* the subject clause needs to be (more or less) truth-conditionally complete, that is, complete regarding context-dependent elements (such as quantifier restrictions, tense interpretation, spatial location etc, though the proposition

expressed may of course involve ‘unarticulated constituents’).²⁷

A further difference between *is true* and *is the case* shows up with adverbs that may act as degree quantifiers such as German *kaum* ‘hardly’. With *is the case*, such adverbs can act only as adverbs of quantification, whereas with *is true* they most naturally act as degree modifiers:

(78) a. Es ist kaum der Fall, dass Hans Kaffee trinkt.

‘It is hardly the case that John drinks coffee.’

b. ??? Es ist kaum wahr, dass Hans Kaffee trinkt.

‘It is hardly true that John drinks coffee.’

Whereas (78a) means that there are only rare cases of John drinking coffee, (78b) claims that it can hardly be said that John drinks coffee.

The semantics of *the case* involves quantification over truthmakers, that is, exact truthmaking. That exact truthmaking is involved is apparent from the way adverbs of quantification are understood:²⁸

(79) a. It was twice the case that John made a mistake.

b. It was only once the case that John lost the game.

c. It was three times the case that John or Mary received a gift.

²⁷ There are of course also views according to which the context for the evaluation of a sentence as true may contain various additional parameters besides a world, such as times, standards for relative adjectives, and taste parameters.

²⁸ This recalls Lewis (1975) use of ‘case’ in connection with adverbs of quantification, though for Lewis cases are n-tuples consisting of objects and relations.

Adverbs of quantification actually do not strictly count cases, but epistemic situations correlated with cases. Thus (i) appears false:

(i) It is a billion times the case that someone is Indian.

That adverbs of quantification quantify over epistemic situations is not restricted to contexts of *case*-sentences. For example (ii) sounds true, just like (iib) does:

(ii) a. A natural number is many more times even than prime.

b. It is many more times the case that a natural number is even than it is prime.

This also means that the standard treatment of adverbs of quantification as unselective quantifiers ranging over n-tuples of entities (which David Lewis called ‘cases’) is not adequate.

Twice in (79a) counts those and only those situations that are completely relevant for the truth of *John made a mistake*, that is, situations that include nothing more than John, a single mistake, and the ‘making’-relation holding between the two. *Twice* does not count any larger situations. Similarly, *once* in (79b) counts just situations of a single event of losing, not any larger situations. Finally, *three times* in (79c) counts situations in which either John or Mary received a gift. It does not count larger situations or sums of such situations. Moreover, adverbs of quantification with *is the case* do not count non-worldly facts, which could be quantificational and disjunctive. Otherwise, there would only be a single fact to be counted in (79a) and (79c).

The predicate *is the case* itself does not involve reference to a particular case, but rather, in the absence of an adverb of quantification, existential quantification over cases. This is obvious from the interpretation of *is the case*-sentences in the scope of negation and in the antecedent of a conditional:

(80) a. It is not the case that a student failed the exam.

b. If it is the case that a student fails the exam, then that student should be given the chance to repeat it

(80a) states that there is no ‘case’ that makes the sentence *a student failed the exam* true. Also (80b) involves existential quantification over cases as part of the evaluation of the antecedent.

Is the case also involves a case space. This is reflected in the fact that *is the case* is hardly acceptable when it is not in the scope of negation, the antecedent of a conditional, or the scope of an adverb of quantification – in contrast to *is true* :

(81) a. ?? It is the case that it is raining.

b. It is true that it is raining.

c. It is not the case that it is raining.

d. It was sometimes the case that it was raining.

In (81a), *is the case* quantifies over situations that would be supported by the attitude of assertion with which the sentence is uttered, but assertions do not support alternative situations and thus do not set up a case-space. By contrast, the scope of negation as in (81c) is

associated with a state of consideration as to whether it is raining or not.²⁹ Similarly, a quantificational sentence of the sort *it was sometimes the case that S* presupposes a domain of distinct occasions over which *sometimes* quantifies, a domain that forms a case space, making the noun *case* applicable.

The truth conditions of *is the case*-sentences thus involve existential quantification over truthmakers, as below, where *case* will express the very same relation between situations and case spaces as when it occurs as the head of an NP:³⁰

(82) *It is the case that S* is true in a context *c* iff for a sentence or doxastic attitudinal object *d* that is part of *c* and a situation *s*, $\langle s, CS^c(d) \rangle \in [case]^c$.

The situations that satisfy *case* must be actual situations (relative to the local context *c*), not merely possible ones. This can again be attributed to the actuality entailment of *case*, rather than an implicit existential quantifier, since existential quantification is neutral as regards existence and nonexistence or so it has been argued (Priest 2005, Moltmann 2013b).

Compositionally, the semantics of an *is the case* sentence can be obtained by construing the relation between the *that*-clause and the *is the case*-predicate as a case of higher-order predication. The *is the case*-predicate itself will then denote the of set of sets below:

²⁹ *Not* also associates with focus, in which case it is the focus-semantic meaning of its scope that sets up the case-space:

(i) It is not the case that every student failed the exam.

With an indefinite *it is the case that S* is better:

(ii) It is the case that a student failed the exam.

This may be because (ii) is generally uttered against a presupposed domain of situations in which a student takes the exam, thus satisfying the case space requirement with respect to the focus-semantic value of *a student failed the exam*.

³⁰ The semantics of *it is the case that S* recalls the semantics that Austin (1950) proposed for independent sentences in general. On Austin's view, with the utterance of a sentence, a speaker refers to an (actual) situation and claims that the situation referred to is of the type specified by the sentence uttered. The situation referred to with the utterance of a sentence thus is meant to be a truthmaker of that sentence. On the present view, this is only part of the constructional meaning of *is the case*. With *is the case*, adverbs of quantification range over 'cases' and location adverbials act as predicates of cases. Austin's motivations for implicit situation reference were in fact quite different from the present ones. The situation referred to, for Austin, is responsible for contextual restrictions on quantification domains, the interpretation of tense etc. The present motivation for invoking truth-making is the semantics of *case*-constructions.

(83) For a set of situations X, $[is\ the\ case]^c = \{X \mid \exists s(s \in X \ \& \ \langle s, CS(d_c) \rangle \in [case]^c)\}$

A location modifier in in that construction will act as a predicate of the situations the sentence will quantify over as cases:³¹

(84) $[in\ NP\ is\ the\ case\ that\ S]^c = \{X \mid \exists s(s \in X \ \& \ \langle s, [NP]^c \rangle \in [in]^c \ \& \ \langle s, CS(d_c) \rangle \in [case]^c)\}$

An adverb of quantification such as *sometimes* will itself introduce a quantifier binding the case variable introduced by *case*, rather than an existential quantifier, just as adverbs of quantification, viewed as unselective quantifiers, do with indefinites (Lewis 1975):³²

(85) $[is\ Q\text{-times}\ the\ case]^c = \{X \mid \text{for } Q\text{-many } s: s \in X \ \& \ \langle s, CS(d_c) \rangle \in [case]^c\}$

Note that on this analysis, the definite determiner *is the case* makes no semantic contribution, only the noun *case* does. That is because *the case* in that context does not have the status of a referential NP. Several diagnostics show that. First, *the case* in *it is the case* does not permit any other determiner than the simple definite determiner, as seen in (86). Second, it does not permit adjectival or relative-clause modifiers, as seen in (87). Third, it cannot act as the antecedent of a *case*-anaphor, as in (88):

(86) a. * It is not that case that S.

b. * It is not a case that S.

(87) a. * It is not the improbable case that S.

b. * That S is not the case that we expected.

(88) That no one comes to the party might be the case. ?? But we would not like that case.

³¹ *Is the case* with a location modifier appears to require a condition of maximality: (74a) is about the maximal situation in the firm, not just some situation within the firm. However, this maximality condition appears independent of the *case*-construction and should be derived independently. *The situation in our firm* is generally also understood as referring to the maximal situation in the firm, unless a particular contextually relevant situation is meant.

³² The semantics of the *is the case*-predicate raises similar issues for compositionality as indefinites, or the event quantifier, and similar solutions will be . These, though, need not be further pursued in this paper for reasons of space.

The case in is the case rather appears to be a mere ‘referential residue’ with *the* being a pleonastic determiner.³³

9. Existence predicates for cases

So far cases were characterized ontologically as situations (within a case space) that are on a par with worldly facts, as parts of possible positions. As such, they are distinct from events, which may belong to the domain of a situation, but are not situations themselves. They are also distinct from possibilities as (potentially nonactual) entities that are referents of NPs of the sort the possibility that S and as such are on a par with non-worldly facts (allowing for disjunctive as well as quantified possibilities). They are also not on a par with states (despite the fact that Fine (2012, 2014, to appear) calls truthmakers ‘states’, rather than ‘situations’). The context of linguistic semantics, two sorts of states have been distinguished: concrete or Davidsonian states, which are on a par with events, and abstract or Kimian states, which are on a par with non-worldly facts, except that unlike facts they have a duration. There is further linguistic support distinguishing cases from events, possibilities, as well as states, and that is the applicability of existence predicates.

This requires a brief remark concerning existence predicates in natural language in general.³⁴ Natural languages generally display a range of predicates that express existence,

³³ There is a potential alternative analysis of the *is the case*-construction that one might think of, namely as a specificational sentence (Higgins 1979), as a sentence of the same sort as those below:

- (i) a. That John is innocent is the truth.
- b. That we would all go is the idea.
- c. That one can walk home is the advantage.
- d. That John is incompetent is the problem.

But there are major differences. First, *is the case* does not permit extraposition, unlike specificational sentences:

- (ii) a. * It is the truth that John is innocent.
- b. * It is the idea that we would all go.

Moreover, *is the case* does not permit inversion, unlike specificational sentences:

- (iii) a. The truth is that S
- b. The idea is that S.
- c. * The case is that S.

Thus, an alternative analysis of the *is the case*-construction as a specificational sentence is not an option.

³⁴ See Moltmann (2013b) for the notion of an existence predicate.

English, for example, *exist*, *occur*, and *obtain*. What characterizes existence predicates and distinguishes them from other types of predicates is that they may yield true sentences with an empty subject and negation, as is illustrated with the verb *exist* below:

(89) Vulcan does not exist.

Existence predicates in natural language are generally restricted to particular types of objects. Thus, *exist* applies to material and abstract objects (or empty terms describing them) as in (89) and (90a), but not to events, as seen in (90b):

- (90) a. The number four exists.
 b. ??? The accident existed yesterday.

The existence predicates that select events are instead *occur*, *happen* and *take place*. They in turn resist material and abstract objects:

- (91) a. The accident never happened / took place.
 b. ??? The planet / The number four happened / took place.

Obtain is an existence predicate reserved for condition-like entities, of the sort of non-worldly facts, laws, states, and conditions:

- (92) a. The law / condition no longer obtains.
 b. The fact obtains that Joe lost the election.
 c. The state of emergency no longer obtains.

None of those existence predicates naturally apply to cases:

- (93) a. ??? The case in which John will not return might exist / might take place / might happen.
 b. ??? The case in which it rains on a Sunday has never existed / happened / taken place / obtained.

Cases rather come with their own existence predicate, that is, an existence predicate not applicable to other types of entities but cases. In German, the choice of a ‘case’-specific existence predicate is particularly remarkable. German chooses *eintreten* ‘to enter’ as the existence predicate for cases.³⁵

(94) Der Fall, daß Hans nicht zurückkommt, ist nicht eintreten.

‘The case that John might not return could enter.’

Eintreten as an existence predicate applies to no other sort of entity (except to a very restricted class of events, such as deaths). Also French uses a special existence predicate for cases, namely *se produire* ‘produce itself’ (which also applies to certain types of events, but nothing else):

(95) Le cas où Jean retourne ne s’est pas produit.

‘The case that John returns did not produce itself.’

In German and French, existence predicates of the sort of *exist*, *take place*, *happen*, and *obtain* are inapplicable to cases (*existieren*, *stattfinden*, *passieren*, and *bestehen* in German; *exist*, *avoir lieu*, *se passer*, and *obtenir* in French). In English, *present itself* can be used as a case-specific existence predicate, and also *occur* can be used that way (the latter being able to apply also to certain types of events):

(96) a. The case in which John will not return could occur / present itself.

b. The case in which it rains on a Sunday has never presented itself / has never occurred.

The choice of existence predicates generally is indicative of how natural language categorizes an entity ontologically. The observations from English, German, and French thus indicate that cases are not on a par with non-worldly facts or abstract states, since cases do not accept

³⁵ *Eintreten* is restricted, though, to possible future situations, as are the case-specific existence predicates in French and English. *Eintreten* excludes epistemically possible situations of the present or the past:

(i) a. ??? Der Fall, dass n eine Primzahl ist, kann eintreten / ist eingetreten.

‘The case that n is a prime number could enter / has entered.’

b. ??? Der Fall, dass Hand das Licht angelassen hat, ist eingetreten.

‘The case that John has let the light on has entered.’

existence predicates of the sort of *obtain*. Moreover, the inapplicability of existence predicates for events, *occur*, *happen* and *take place*, indicates that cases are not events (as does the inapplicability of German *passieren* and *stattfinden* as well as French *se passer* and *avoir lieu*). Only *occur* is applicable to cases, *happen* and *take place* never are. A party may have taken place, but not the case in which the party will take place. An accident may have happened, but not the case in which an accident has happened. A case may present itself just in case a particular sort of event occurs, but this does not mean that the case is identical to the event (See Appendix Section 3).

Existence predicates of the sort *exist* and *occur* express different ways in which entities relate to space and time, and in addition *exist* has a time-independent use conveying that the entity being referred is not merely intentional, constituted by an unsuccessful act of reference (*largest prime number does not exist*) (Moltmann 2013b). Existence predicates for cases, by contrast, convey actualization of one alternative among several. Thus, they are not applicable if the cases referred to are particular cases in the past and the case space is determined by a sentence:

- (97) a. ??? Die zwei Faelle, in dene nein Student das Examen geschafft hat, waren eingetreten.
 b. Der Fall, in dem niemand das Examen geschafft hat, ist eingetreten.

Cases differ from ‘possibilities’ with respect to the attribution of existence, that is possibilities in the sense of the entities that terms of the sort *the possibility that S* stand for. Possibilities as ‘mere’ possibilities ‘exist’ (*the possibility that John may never return exists*). By contrast, merely possible cases do not ‘exist’. If they have the status of existing, which means if they ‘present themselves’, then they are not merely possible situations, but actual ones.³⁶

11. Conclusion

³⁶ Cases also differ from states of affairs: states of affairs ‘exist’ whether or not they ‘obtain’. States of affairs accept two different existence predicates conveying two modes of being. But cases accept only one, the *case-specific* existence predicate. Other entities that accept *obtain* as an existence predicate also engage in two modes of being. Laws and conditions arguably engage in a mode of being even if they do not actually obtain. Again this is indicative of cases being on a par with worldly facts rather than with entities that go together with non-worldly facts, such as laws and conditions

In everyday speech, talk about ‘cases’ is abundant, and it is surprising that constructions with the noun *case* (or similar nouns in other languages) have received close to no attention in the linguistic or philosophical literature. Yet *case*-constructions bear significantly on central issues in contemporary semantic theory and philosophy of language, such as the notion of a situation and its role in semantics, and the format of a semantic theory involving them. The paper has argued for a semantics of *case*-constructions based on both truthmaker semantics and alternative semantics. *Case*-constructions also bear on the notion of a kind in semantics as well as the notion of an existence predicate.

The theoretical importance of *case*-constructions raises the question of how general *case*-constructions are across languages. As a matter of fact, not all languages have *case*-constructions, not even all European languages. Chinese lacks them, as do Danish and Swedish, to mention just three. This, of course, does not undermine the semantics based on truthmaking: the truthmaking relation may play an important role in the semantics of natural language even if some languages do not have constructions displaying it overtly.

Appendix 1: Nominal *case*-constructions

This appendix will discuss *case*-NPs with nominal complements or modifiers, rather than clausal ones, and suggest an extension of the truthmaker-based semantic analysis to them.

1. Property-related and object-related cases

The *case*-NPs below seem to have a semantics quite different from that of *case*-NPs with clausal modifiers:

- (1) a. a case of flu
 b. the case of the stolen statue

It is also not obvious whether and how the two types of nominal *case*-NPs in (1a) and in (1b) are semantically related. *Case*-constructions of the sort in (1a) seem to stand for instances of universals and can be called *property-related cases*, whereas *case*-constructions as in (1b) refer to cases tied to particular objects and thus can be called *object-related cases*.

There are good reasons not to posit an ambiguity in the word *case* in the various nominal constructions with *case*. The European languages that have *case*-constructions (such as English, Italian, French, and Spanish) generally display all three constructions, those discussed in the main part of the paper and those in (1).³⁷ Moreover, cases described by two different nominal constructions may be identical, permitting identity statements as below to be true:

- (2) a. The case of the missing statue is the case of the recent museum theft.
 b. The case of the new cancer patient is a case of stage 2 cancer.

Property-related may be medical or legal cases, but also, for example, cases of a particular art movement or a particular virtue:³⁸

- (3) a. This is a case of insanity.
 b. What John has is a case of schizophrenia.
 c. The incident is a case of fraud.
 d. John's behavior toward Mary is a case of harassment.
 e. This building is an unusual case of art deco.

These cases are trope-like or event-like, just as the universals in question have as their instances tropes or events.^{39, 40}

³⁷ By contrast the word for *case* as in *briefcase* translates very differently in those languages.

³⁸ There are also property-related cases that appear to be individuals, noted by van de Velde (ms) with the French example below:

- (i) J'ai connu des cas de journalistes honnêtes.
 'I knew of cases of honest journalists.'

³⁹ Such types of cases appear to have inspired Woltersdorff's (1980) use of 'cases' for tropes.

⁴⁰ However, not all instances of universals are cases. There are constraints as to what properties a case can be related to. For instance, for a universal to be a case, it needs to have a particular complexity that does not make it too obviously an instance of the universal. Whiteness and darkness do not have instances that are cases (?? *a case of whiteness*, ?? *a case of darkness*), but fraud and modesty, as we have just seen, do. This means that property-related cases are not just instances of universals. Rather for something to be a property-related case, it needs to fulfill further, or other, conditions.

Typical object-related cases are legal and medical cases, and in fact there are constraints on what can be object-related cases restricting them largely to contexts of medicine or law.⁴¹ Despite such constraints, there are good reasons to consider object-related cases on a par ontologically with other nominal case-constructions. Further examples of *case*-constructions that describe cases related to objects are those below:

- (4) a. the case of that incident
 b. the case of the man that has suffered from this illness for more than 20 years
 c. the case of the stolen statue

Here the complement of *case* describes what I call *the correlated object* of the case.

Generally, a case has very different sorts of properties than its correlated object and should be considered an entity distinct from it.⁴² First, a case and its correlated object lead to different readings of predicates expressing object-related attitudes, and that whether the correlated object is a material object or a complex feature or trope. The semantic differences among the following sentences illustrate the point:

- (5) a. We studied the case of the disabled student. (as a medical / legal case , ..)
 b. We studied the disabled student.
 c. We studied the disability of the student.

Obviously, (5a), (5b) and (5c) mean quite different things. Unlike (5b) and (5c), understanding (5a) requires understanding what kind of case the case is supposed to be, a legal or medical case, for example. What the case is, in turn, depends on which features of the student or his disability are relevant. It depends on whether the features are features relevant from a medical or legal point of view, for example, and thus constitutive of a medical or a legal case. Importantly, the features may include not only intrinsic properties of the object in question, but also relations it enters to other entities. No identification of relevant features is

⁴¹ Legal cases are also associated with a more special *case*-construction in English of the sort *the case Dominique Strauss-Kahn*, which is a close apposition and syntactically distinct from the construction in (2).

⁴² There are constructions of apparently the same type that seem to express an identity relation between the referent of the complement and the referent of the entire NP, for example *the city of Munich*. But this is not so with the *case*-construction describing object-related cases.

required for (5b) and (5c). Here the object of study may simply be the student himself or his disability.

Cases and their correlated objects differ similarly as objects of discussion and evaluation:

(6) a. We discussed the case of the book.

b. We discussed the book.

(7) a. The case of the stolen statue is interesting.

b. The stolen statue is interesting.

c. The theft of the statue is interesting.

(8) a. John compared the case of the first student to the case of the second students.

b. John compared the first student to the second student.

Again *case*-terms require the identification of relevant features of the correlated object making up the kind of case in question.

Cases and their correlated objects generally also differ with respect to part-whole structures. In general, a case does not inherit its part-structure from its correlated object. Thus, (9a) has a different meaning from (9b), which is about the parts of an artifact, and from (9c), which is about the (temporal) parts of an event:

(9) a. Part of the case of the stolen statue is familiar.

b. Part of the stolen statue is familiar.

c. Part of the theft of the stolen statue is familiar.

The part structure of a case is not based on spatial, functional, or temporal parts, but instead on partial content regarding the situation made up from the relevant properties (intrinsic or relational) holding of the correlated object. Note that *part of the situation* is understood in the same way as *part of the case of the stolen statue* in (9a).

Thus, object-related cases are ontologically distinct from the correlated objects if the latter are material objects or events. In fact, the same cases may be correlated with different objects, as seen in the possibly true identity statement below:

(10) The case of the stolen statue is the case of the museum theft.

The understanding of evaluative properties and the part structure of object-related cases indicate that object-related cases are on a par with cases that are situations acting as truthmakers of sentences. Object-related cases carry just those properties relevant for verifying that the correlated object meets the contextually given condition. This motivates a unified account of cases described by clausal *case*-terms and object-related *case*-terms in terms of truthmaking. Obviously, though, sentences are not available in object-related case constructions. Instead, for the semantics of object-related case-terms, simple propositions of the form $\langle P, o \rangle$ can be considered the entities that truthmakers stand in the truthmaking relation to, where P is a property of the sort ‘is a potential crime’, ‘is a crucial element in a potential crime’, or ‘is seriously ill’. What exactly P is will to an extent depend on the context, subject, though, to a strong preferential restriction to classificatory categories from contexts of law and medicine. The noun *case* in object-related case terms should also involve a case space, the truthmakers of the structured proposition $\langle P, \exists_c \rangle$, where \exists_c is the existential generalized quantifier, restricted by the context c . Thus, an object-related case term will have the semantics below:

(11) For a context c , $[\textit{case of the stolen statue}]^c = \{ \langle s, \text{CS}(\langle P, \exists_c \rangle) \rangle \mid s \Vdash \langle P, [\textit{the stolen statue}]^c \rangle \}$

Since object-related cases can be identical to property-related cases, as in (11), the semantics of property-related *case*-terms should be of the same sort, as below:⁴³

(12) For a context c , $[\textit{case of theft}]^c = \{ \langle s, \text{CS}(\langle [\textit{theft}], \exists_c \rangle) \rangle \mid s \Vdash \langle [\textit{theft}]^c, \exists_c \rangle \}$

⁴³ A somewhat different treatment is required when *case* occurs predicate-initially, as below:

(i) John’s illness is a case of cancer.

It is plausible that (i) is not an ordinary subject-predicate sentence, but rather is on a par with (ii):

(ii) True is a truth value.

The predicate in (i) arguably does not just attribute a property to the semantic value of the subject, but involves its reification as an object that is a truth value (Moltmann 2013a, Chapt. 6). Similarly, the predicate in (i) would involve ‘filtering’ of the subject referent as a case.

Object-related cases may differ from their correlated objects in other respects. Generally, it is difficult for a case to have properties of concreteness. Thus, cases generally do not have a spatial location, even if their underlying object has:

- (13) a. ??? The case of the stolen statue is on the table.
 b. The statue is on the table.

Moreover, cases generally do not act as objects of perception:

- (14) a. ??? I saw / noticed the case of the broken vase.
 b. I saw / noticed the broken vase.

Finally, cases generally are not causally efficacious (except, of course, as objects of mental attitudes):

- (15) a. An overweight baby caused the cradle to break apart.
 b. ?? The case of an overweight baby caused the cradle to break apart.

These restrictions are expected if cases are on a par with worldly facts, rather than material objects or events. Events are spatially located and enter causal relations, but not facts, at least not on a common view.⁴⁴

The restrictions are not strict, though. Under special circumstances, object-related and property-related cases appear to act as objects of perception and relata of causal relations:

- (16) a. This case of musical experimentation sounds horrible.
 b. This one case of cholera / The case of that cholera infection was the cause of a great epidemic.

Cases described by nominal *case*-terms may differ from worldly facts also in that they may go along with the existence predicate *exist* or the existence predicate *happen*, unlike cases described by clausal *case*-terms, which have their own special existence predicate:

⁴⁴ Note, though, that in Situation Semantics, situations (worldly facts) have been considered objects of (immediate) perception (Barwise / Perry 1981).

- (17) a. The case of the cancer patient that Mary described exists / ??? occurred / ??? presented itself.
- b. That case of fraud happened yesterday.

Here object-related cases inherit their mode of existence from the correlated object. Similarly, object-related and property-related cases may inherit perceptual or causal properties from the correlated objects. This may be attributed to *case* having another, related meaning, allowing nominal *case*-NPs to describe objects reduced to only some of their properties, those fulfilling the condition in question. Such ‘filtered objects’ are like the original objects, but they will have only some of the properties of the original objects, such as their modes of being and properties of spatial location and causal efficaciousness.⁴⁵ The properties or relations that are constitutive of object-related cases depend entirely on the filtering condition.⁴⁶

2. Event-related cases

Another type of *case*-term relates to an event, for example *the case of bad weather* or *the case of a defeat*. Such event-related *case*-terms have a semantics more closely related to the semantics of clausal *case*-terms than object-related ones. But as such, again, their semantics can be based on truth-making. Event-related cases differ from other object-related cases in that they can easily be correlated with a merely possible event. This may lead to sentences having the status of conditionals, as below:

- (18) We will cancel the event in the case of bad weather.

A case of an event is not identical to the event itself. The difference is apparent with certain object-related attitude verbs such as *imagine* and *remember*:

⁴⁵ Note that filtered entities as entities reduced to some of their features are not tropes or features themselves, that is, instantiations of properties in ordinary objects. While cases may share some of their properties with the correlated objects, tropes hardly ever share properties with their bearers. Cases as filtered entities are not tropes, but ‘trovers’, to use Loux’s (ms) term. A filtered object would be something in between a ‘thin particular’ and a ‘thick particular’ to use Armstrong’s (1997) terms.

⁴⁶ This condition, which sets up object-related cases as situations or filtered objects, may be called an *ontological case filter* mimicking the more familiar, but unrelated, syntactic notion of a ‘Case Filter’ of Chomsky (1981).

- (19) a. The coach remembered an unexpected victory.
 b. The coach remembered the case of an unexpected victory.

Whereas in (19a) the coach is likely to remember the details of the victory (as experienced by himself), in (19b) it suffices entirely that the coach remembers just the fact that a victory happened (which he probably was not involved in). Event-related cases need not involve the details of the correlated event, which supports the view that a case of an event is a situation making it true that the event occurs, which is distinct from the event itself.

The difference between events and cases of events is further supported by the observation that cases of events do not have typical event properties. Cases of events do not ‘last’, ‘start’, or ‘end’, and generally cannot be ‘sudden’, ‘visible’, or ‘audible’:

- (20) a. A snowfall might be long-lasting / sudden / visible.
 b. ?? The case of a snowfall might be long-lasting / sudden / visible.

A case of an event thus has lost the descriptive properties and temporal structure of the event.

Cases of events and events also differ in what prepositions they may go along with. Thus, *during* is a preposition selecting events (*during snow*), but it does not select cases (?? *during a case of snow*). Conversely, *in* applies to cases (*in the case of a defeat*), but not in the same way to events (?? *in a defeat*).

The semantics of event-related *case* terms thus involves truth-making, though in a somewhat different way than for other object-related cases. Regarding the complement of an event-related *case* term as a sort of ‘concealed proposition’, its semantics should be based on an implicit existence predicate for events, say *occur*, as below:

- (21) For an event noun N, for a context c, $[case\ of\ an\ N]^c = \{k \mid \langle k, X \rangle \in [case]^c \ \& \ k \Vdash an\ N\ occurs\}$

Event-related *case*-terms thus further support the semantics of cases based on truthmaking.

Appendix 2: Cases and the truthmaker debate in metaphysics

Fine's notion of truthmaker in 'truthmaker semantics' must be understood appropriately since it differs from the use in the metaphysical tradition. Truthmaking in the sense of Fine and in the sense relevant in this paper is simply the relation between a situation *s* and a sentence *S* such that *s* is wholly relevant for the truth of *S*. Truthmaking in a different sense is a central topic of discussion in contemporary metaphysics and concerns the question whether the truth of a sentence needs to be grounded, and in particular grounded in entities in the world, that is, in entities acting as truthmakers. Advocates of truthmaking for the grounding of truth generally do not assume that the truthmaking relation plays a role in the semantics of natural language itself. This interest in truthmaking is completely different from that of truthmaker semantics in the sense of Fine, where the truth-making relation in fact only serves semantic purposes and truthmakers are not necessarily part of the world, but include both actual *and* possible (and even impossible) situations. Truthmakers thus are not meant to be part of what there really is or to 'carve reality at its joints'. Nonetheless semantics of cases as truthmakers may shed light on some of the issues the philosophical debate about truthmakers raises.

One issue concerns the nature of truthmakers. Some philosophers, in particular Mulligan / Simons / Smith (1984) and Lowe (2006), take truthmakers to be fully individuated entities that play an independent role in the world, such as as objects of perception and relata of causal relations. Truthmakers on their view consist in events, tropes and perhaps objects.^{47, 48} A trope of John's happiness would then be the truthmaker of the sentence *John is happy*, an event of John's walking a truthmaker of the sentence *John walked*, and John himself the truthmaker of the sentence *John exists*. A difficulty for that view is that fully individuated entities cannot fulfill the condition of exact truthmaking. There are always features about a particular walk, for example, that may not be relevant for the truth of *John walked*, for example the location of the walk and the way the walking was performed. There are also many features of John that do not matter for the truth of *John exists*. Truthmakers suited for exact truthmaking need to be thinner than fully individuated objects. This is what the notion of a situation (or Fine's notion of a state) is meant to achieve. Such entities are considered primarily part of the world, not entities *in* the world.⁴⁹

⁴⁷ Armstrong (1997, 2004) takes truthmakers to be states of affairs, which for him also act as causal relata.

⁴⁸ This is also the view adopted in Moltmann (2007), where truth-making is applied to the semantics of event- and trope-nominalizations and of adverbials.

⁴⁹ This view differs from that of Rodriguez-Pereyra (2005), who makes use of exact truthmaking, but is non-committal regarding the nature of truthmakers.

Another potential difficulty for the view that truthmakers are ordinary objects is that it is not compatible with presentism, the view that only objects at the present moment exist (Sider 2001, Merricks 2007). Given presentism, most true sentences will fail to have a truthmaker or will at some point lose their truthmaker if truthmakers are entities of the sort of events, tropes, and objects. Truthmakers conceived of as situations or ‘cases’, by contrast, appear to be compatible with presentism. Cases are entities that exist not in time, but time-independently – and thus derivatively at any time. This is reflected in the use of tense in natural language. Existential quantification over cases whose correlated objects are past events is not possible with sentences in the present tense. By contrast, existential quantification over past events requires past tense. Talking about events in the past, (1a) and (2a) are perfectly fine (that is, possibly true); but (1b) and (2b) are not, as opposed to (1c) and (2c):

- (1) a. There are at least three cases of this disease.
 b. ??? There are at least three outbreaks of this disease.
 c. There were at least three outbreaks of the disease.
- (2) a. There are only three cases in which someone managed to cross the border.
 b. ??? There are only three crossings of the border.
 c. There were only three crossings of the border.

Cases are situations constituted by the holding of tensed properties or relations. As such, they will exist not relative to a particular time; but at any time. They won’t have a temporal duration, unless a temporal duration is part of their constitutive properties.⁵⁰

The metaphysical truth-making view according to which a sentence is true only in virtue of something in the world that makes it true is a controversial philosophical view.⁵¹ What is

⁵⁰ There is another type of object-related entity that shows the same time-independence as event-related cases. These are entities constituted by the lasting legacy of a person, such as philosophical or literary figures. Below, we see that present tense can be used to quantify over philosophical figures that, as persons, no longer exist, which is not possible with entities viewed simply as persons:

- (i) a. There are three famous philosophers that had studied in Tuebingen, Hegel, Fichte and Schelling.
 b. ??? There are three people that had studied in Tuebingen and became famous philosophers, Hegel, Fichte, and Schelling.
 c. There were three people that studied in Tuebingen and became famous philosophers, Hegel, Fichte, and Schelling.

It is quite plausible that philosophical figures are filtered objects, persons reduced to their philosophical views and achievements. As such, they share their time-independent existence (once they have come into existence in the first place) with cases.

controversial is in particular the view that grounding requires an entity to act as a truthmaker. Some philosophers such as Lewis (2001) and Hornby (2005) agree that the truth of sentences should be grounded, but disagree that they need to be grounded in entities acting as truthmakers; rather the truth of sentences should be grounded in *how* things are. The grounding of truth on that view does not require a ‘reification’ of entities as truthmakers. *Case*-constructions given the semantic analysis in this paper do not involve the truth-making relation in the metaphysical sense, but only in the semantic sense, with truthmakers being possible or actual situations reflecting the content of the sentence. But if truthmaking was understood in the metaphysical sense, the semantics of *case*-constructions need not actually involve a commitment to the truthmaking idea itself, but only a commitment to the weaker view that the truth of sentences be grounded. Instead of analysing *case* as expressing a relation between situations and propositions, *case* could be considered a ‘nominalizing’ or ‘reifying’ expression, mapping the way things are to support the truth of a sentence onto the set of objects that would act as truthmakers of that sentence. Formally, *case* could then denote a function [*case*] mapping a world *w* and a sentence *S* onto a relation between entities that are reifications of whatever it is in *w* that makes *S* true and a case space. Thus, for the denotation of *case in which S* at a world *w*, we would have:

$$(3) [\textit{case in which S}]^{w,c} = [\textit{case}]^w(\langle w, S \rangle) = \{ \langle s, X \rangle \mid s = \textit{reif}(w, S) \ \& \ X = \textit{CS}(S) \}$$

This would apply only to clausal *case*-constructions, however, and it presupposes that truthmaking is not involved in the semantics of natural language elsewhere, independently of nominalizing expressions that reify grounds for truth as truthmaking entities.

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⁵¹ For an overview of the truthmaking debate see Rodriguez-Pereyra (2006) and the contributions in Beebe/Dodd (2005).

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