

# Occasion-sensitive semantics for objective predicates\*

Tamara Dobler†

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## Abstract

In this paper we give a semantics for objective predicates that takes into account the phenomenon of occasion-sensitivity associated with so called *Travis cases*. The key idea is that the truth-makers for a simple declarative sentence have different capacities to support a particular goal-directed course of action. This property of goal-conduciveness decides whether some utterance of a sentence is accepted as true on a particular occasion at a given world. We propose that the utterance will not be accepted as true in case its truth-maker is not conducive to a contextually salient goal. Occasion-sensitivity in interpreting sentences containing objective predicates is then explained by reference to different goals that are salient of different occasions. We give a formal semantics for occasion-sensitivity inspired by partition semantics for questions (Groenendijk and Stokhof 1984), and we consider two applications: to disagreement and to cancellability.

## 1 Introduction

### 1.1 Objective and discretionary predicates

This paper presents a novel approach aimed at explaining the occasion-sensitivity of objective predicates. By *objective predicate*, we refer to a broad range of predicates such as *green*, *desk*, *doctor*, or *under the bed*, which can be contrasted with *subjective* or *discretionary* predicates (predicates of *personal taste*) such as *tasty* or *fun* (cf. Lasersohn 2005, Kölbel 2004, Coppock 2016). To properly appreciate the difference between these types of predicates consider the following pair of dialogues, the first involving the objective predicate *doctor* and the second involving the discretionary predicate *tasty*:

1. (a) A: John is a doctor.

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†Institute for Logic, Language and Computation, Universiteit van Amsterdam, P.O. Box 94242, 1090 GE, Amsterdam, T.Dobler@uva.nl

- (b) B: No, John is not a doctor.
- 2. (a) A: The chilli is tasty.
- (b) B: No, the chilli is not tasty.

Intuitively, in the dialogue (1) either A or B (but not both) is mistaken, both can't be saying something true: there is *a fact of the matter* as to whether John is a doctor. By contrast, in the dialogue (2), both A and B could be saying something true; none is at *fault* whilst they seem to be disagreeing.<sup>1</sup> Different accounts have been proposed to account for this intuitive contrast; what they seem to agree on is that the interpretation (evaluation) of a sentence containing a discretionary predicate is relative to certain *subjective parameters* (judge, centred world, outlook, perspective...), which are taken to determine either its intension (contextualism) or its extension (relativism). By contrast, a factual statement containing an objective predicate is normally considered true at a world *simpliciter* without its intension or extension being dependent on further factors.

## 1.2 Travis cases

The intuitive contrast between objective and discretionary predicates seems to break down in light of occasion-sensitivity. So called 'Travis cases' (Travis 1978, 2000, 2008, 2009) show that truth conditions (and/or evaluations) of factual statements could vary depending on certain factors even when the point of evaluation remains the same. In the following dialogue, for instance, we are asked to imagine that the leaves in question are naturally red but painted green. The artist needs green leaves for an artistic decoration, the botanist for an experiment.<sup>2</sup>

- 3. (a) The artist: The leaves are green.
- (b) The botanist: No, the leaves are not green.

Presumably, *green* like *doctor* is an objective predicate: i.e. it is a matter of fact (rather than opinion or taste) as to whether something is green or not. However, in the dialogue (3) there is an intuitive sense in which neither the artist nor the botanist is at fault: relative to *their* occasions (goals) both could be saying something true. Still, by the initial assumption, insofar as there is a fact of the matter as to whether the leaves are green one of them ought to be at fault.

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<sup>1</sup>For discussion of faultless disagreement see Kölbel (2004), MacFarlane (2014), Stojanovic (2007), Huvenes (2014), Coppock (2016).

<sup>2</sup>In the original exposition of this case by Charles Travis the following scenario is described:

A story. Pia's Japanese maple is full of russet leaves. Believing that green is the colour of leaves, she paints them. Returning, she reports, 'That's better. The leaves are green now.' She speaks truth. A botanist friend then phones, seeking green leaves for a study of green-leaf chemistry. 'The leaves (on my tree) are green,' Pia says. 'You can have those.' But now Pia speaks falsehood (Travis 2008: 111).

### 1.3 Reinstating the contrast?

Can we preserve the intuitive contrast between discretionary and objective predicates if objective predicates are occasion-sensitive in this way? A key aim in this paper will be to try to explain the phenomenon of occasion-sensitivity without compromising the objectivity of factual statements and the notion of objective disagreement. It will be argued that the sense of faultlessness in the dialogue (3) arises due to the fact that speakers modify their acceptance of when the sentence is true in an attempt to fulfil certain practical goals. Depending on what this goal is, the sentence may or may not be accepted as true for the purposes of that goal. Although the interpretation of both objective and discretionary predicates is, on this account, relative to some (contextual) factors, the interpretation of **tasty** is relative to *subjective or personal factors* (i.e. something to do with A and B as individuals) and the interpretation of **green** or **doctor** is relative to *objective factors*, i.e. something to do with what A (artist) and B (botanist) do, with their plans, goals and actions.

### 1.4 The current approach and the roadmap

Let us briefly outline the main points that are crucial to the approach defended in this paper. In an attempt to accommodate the intuitions elicited by Travis cases we are going to suggest that despite having an important role in the interpretation of an utterance, our knowledge of standing meaning must be supplemented by other extralinguistic factors which, besides meaning, play a role in our intuitive truth evaluations of utterances.<sup>3</sup> Knowing the meaning of a sentence leaves room for a great deal of variation among the truth-makers for a sentence: for instance, the sentence **The leaves are green** is true when the leaves are only painted green, but also when they are only naturally green, or both.<sup>4</sup> Whereas all these different sets of worlds make the sentence true they nonetheless do so in different ways. The key point is that these differences may matter for a successful fulfilment of a given goal, and so some alternatives may be preferred to some others. If a particular truth-maker for a sentence is incompatible with a successful fulfilment of an activity – if it is not *goal-conducive*, as we will call this property of it – then it won't be recognised by rational, well-informed agents as a truth-maker of that sentence on that occasion. As a consequence, the utterance of the sentence on that occasion is considered false despite the fact that the world instantiates a truth-maker for the sentence. In this way pragmatics decides how a sentence ought to be

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<sup>3</sup>This idea has been defended for more than four decades by Charles Travis and others. See Travis 1978, Travis 2008, Moravcsik 1994, Recanati 2004, Carston 2002, Austin 1975, Searle 1980, Chomsky 2000, Pietroski 2005.

<sup>4</sup>We follow Yablo (2014, 2017) in defining a truth-maker for a sentence as a fact which makes the sentence is true, formally represented as a set of possible worlds. However, we also allow that an atomic sentence  $p$  can have more than one truth-maker:  $p$  can be made true in more than one way. Although the union of truth-makers of  $p$  forms a cover over the set of worlds where  $p$  is true, the two sets (the set of  $p$ 's truth-makers and  $p$ 's truth set) are not identical.

interpreted if we are to carry out our practical projects.

In order to capture the idea that an atomic sentence may have a set of alternative truth-makers, in section 2 we propose an approach that builds on insights from a *partition semantics of questions* (Groenendijk and Stokhof 1984). On the proposed approach, the conventional, standing or literal meaning of a sentence determines a very broad, undifferentiated range of worlds at which the sentence is true (henceforth, *the truth set for p*). However, this set can be further partitioned according to different ways in which *p* is true, where each partition cell corresponds to a different truth-maker for *p*.<sup>5</sup>

Among extralinguistic factors, contextually salient *goals* are crucial in narrowing down the set of truth-makers (a partition of the truth set for *p*) to those most likely to support a particular course of action. In section 3 we introduce the notion of *goal-conduciveness*, which is a feature that agents assign to partition cells (truth-makers) on the basis of whether they judge them to be conducive to their goals. The idea is that to understand correctly what someone has asserted or asked using a particular sentence presupposes being aware of their goal, because goals determine which particular ways that the world could be out of many compatible with standing meaning are in the agent’s purview on an occasion.

After introducing a formal model in section 4, in section 5 we turn to two applications, namely, to intuitions about genuine and faultless disagreement (5.1) and to cancellability (5.2).

## 2 Partition semantics for simple declaratives

What does one know when one knows the lexical meaning of an objective predicate and a declarative sentence containing it? What does knowing the meaning of a declarative sentence enable one to do? A classical answer is that to know the meaning of a sentence is to be able to specify its truth conditions, i.e. when it would be true. Travis cases bring this idea into question by showing that knowing meaning and the world of evaluation doesn’t guarantee an agreement between two agents as to whether the sentence is true. Our challenge then is to adequately explain the idea that although meaning does place some restrictions on which worlds are candidates for making an utterance of a sentence is true, it does not go so far as to determine, for any given world, whether we would *accept* it as an instance of a truth-maker for the utterance.<sup>6</sup>

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<sup>5</sup>The point is similar to the one Yablo makes *vis-a-vis* disjunctive sentences: “When Frost writes, *The world will end in fire or in ice*, the truth-conditional meaning of his statement is an undifferentiated set of scenarios. Its “enhanced” meaning is the same set, subdivided into fiery-end worlds and icy-end worlds” (Yablo 2014: 2).

<sup>6</sup>We leave it open here how standing meaning is fixed and whether certain contextual factors (e.g. a history of use) play a role in shaping the conventional meaning of a word.

## 2.1 Ways of being F

The idea that there are different ways in which a sentence is true reflects the fact that we often use an objective predicate in several different senses. The predicate **green**, for instance, can be (non-figuratively) used in the sense of *naturally green*, *painted green*, *lit green*, *mouldy green* and so on. Insofar as a predicate can be used in different senses, we assume that its wide denotation also has a more complex structure which we will refer to by talking of *different ways of being F*.<sup>7</sup> With respect to “ways” (and their cardinality) we are taking a metaphysically light view that no particular way of being F has precedence over any other, or as having more metaphysical justification in terms of being “strictly speaking” or “properly” F. Thus, for instance, since **green** can be used in the sense of *lit green*, for an object to be lit green counts as a way of it being green even though the object may not instantiate greenness understood in some strict metaphysical sense.<sup>8</sup> Our motivation for introducing the notion of ways of being F is thus primarily linguistic, not metaphysical. Informally, we suggest that “ways of being F” be understood as sub-categories of F.<sup>9</sup> As we’ll see in section 4, this notion can be represented formally in terms of n-tuples (sequences) that *cover* the denotation of F at a given world *w*.

## 2.2 Truth-conditions and alternatives

Let us call the set of worlds where an atomic sentence *p* is true, *the truth set for p*, or  $|p|$  for short. Anyone who knows the meaning of *p* thus expects the actual world to be somewhere in  $|p|$  when *p* is asserted. That is, she knows the *minimal proposition* expressed by *p*.<sup>10</sup> To capture the notion that one’s knowledge of a minimal proposition is not sufficient to determine in *which way* *p* is true, we can use partition semantics to represent alternatives that are not resolved in virtue of grasping the minimal proposition. Each cell of the partition of  $|p|$  represents an alternative way for *p* to be true (for the sentence *Fa*, the partition of  $|Fa|$  is induced by different ways of being F). Although in question semantics partitions

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<sup>7</sup>We use *a, b, c...* to denote individuals, *F, G...* to denote properties, and *Fa, Gb* to denote sentences. For atomic sentences, we sometimes also use sentential variables *p, q, r*.

<sup>8</sup>We don’t want to speculate about what greenness in this other, strict metaphysical sense might be, but we leave it open that there is such a thing. We thank an anonymous reviewer for prompting us to clarify this point and adjust the terminology. Notice that taking a metaphysically light approach allows us to go even further and accept that a toy gun is a way of being gun, and fake fur is a way of being fur (albeit not real gun or fur). Thus cases of loose talk and privative modification are also compatible with our approach. For a similar treatment see Partee (2010) and Asher (2011)

<sup>9</sup>Yablo (2017) also unpacks ‘ways’ in terms of more specific properties: “*Aboutness* tries to make an abductive case for subject matter, and at a deeper level for “ways” – as in, to be scarlet is a way of being red, jumping is a way of moving, to be negatively charged is a way of being charged” (Yablo 2017: 771-2).

<sup>10</sup>To some extent this is in line with the view known as *semantic minimalism*. For the defence of this view see Cappelen and Lepore 2008, Borg 2004, Borg 2012. As Emma Borg notes, “[the minimalist] holds that word meanings generalise over specific contextual understandings of them – that the meaning of ‘green’ leaves open the way in which an object might be green (on its surface, on the inside, etc.)” (Borg 2012: 46).

are typically used to represent possible answers to a question (see Groenendijk and Stokhof 1984) the idea of meaning as a set of alternatives is preserved in our account in the form of alternative truth-makers for an atom. Whilst determining when  $p$  is true, meaning nevertheless leaves it undetermined in which way  $p$  is made true. Accordingly, we can think of  $p$ 's *alternatives* as a function from a set of worlds where  $p$  is true to a partition  $P$  of  $|p|$  such that each individual cell of  $P$  corresponds to an alternative way for  $p$  to be true (i.e. a truth-maker for  $p$ ).

**Definition 1** [Meaning, truth-conditions].

The meaning of an atomic sentence  $p$  is a function from possible worlds to truth values, or equivalently, the set of worlds where  $p$  is true,  $|p|$ .

**Definition 2** [Alternatives, truth-makers].

Alternatives for  $p$  represent a function from  $|p|$  to a partition  $P$  of  $|p|$  such that each cell of  $P$  corresponds to an alternative way in which  $p$  is made true.<sup>11</sup>

To illustrate let's assume there are only two basic ways of being F, where  $a$  may be F in only one way or both ways at once. Then the partition of  $|Fa|$  will contain three cells such that their union forms a *cover* over  $|Fa|$ . We depict  $|Fa|$  and the partition of  $|Fa|$  in **Figure 1a** and **Figure 1b**, respectively. The diagram in **Figure 1b** thus represents the set of all alternative ways in which  $Fa$  is true (i.e. the set of truth-makers for  $Fa$ ). Cell 11 consists of the worlds in which  $a$  is F in both ways at once, cell 10 of the worlds in which  $a$  is F in only one way, and cell 01 contains the worlds in which  $a$  is F in the other way only. Since these exhaust the ways for  $a$  to be F, the 00 cell consists of worlds in which  $a$  is not F. Note that in some cases the ways for  $a$  to be F will be incompatible in which case cell 11 will not be part of a partition.<sup>12</sup>

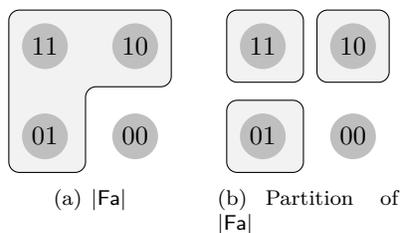


Figure 1: Minimal proposition expressed by  $Fa$  and a three-way partition

<sup>11</sup>The partition of  $|Fa|$  is induced by ways of being F. See section 4 for a formal treatment.

<sup>12</sup>For instance, a door can be closed by being locked or by being unlocked. But these two ways for a door to be closed are incompatible and cannot be predicated of the same door at once.

### 3 Goals

We defined the meaning of a declarative sentence classically as the set of worlds in which the sentence is true. Crucially, however, we suggested that this is not a homogeneous set of truth-makers but it admits of further fragmentation in accordance with different ways in which a sentence may be true. This way of thinking of the truth-set makes us better appreciate the fact that even if one knows the meaning of a sentence and knows that it is true one might not know which particular cell the actual world is located in. In this section we look more closely at a pragmatic mechanism behind the exclusion of certain partition cells which explains why speakers find some sets of worlds unacceptable as truth-makers for an utterance on some occasion as indicated in Travis cases.

#### 3.1 Goal-conduciveness

The main idea behind the present account is that *practical goals* create *preferences* for (and against) certain ways in which the sentence is true, thus influencing the interpretation of utterances. In order to successfully achieve a goal, certain requirements must be met. For instance, a leaf to be used in the botanist’s experiment must be naturally green and not naturally red or yellow, but it doesn’t matter (by assumption) whether it’s painted green, red or any other colour, just as it doesn’t matter if it fell off a tree yesterday or today, or if Pia or John found it, etc. What matters are only those properties (or lack thereof) *pertaining to the leaf’s greenness* that may be reasonably considered as having an impact on the successful fulfilment of the practical goal.<sup>13</sup> In general, whenever a certain goal is salient in a context we expect that what is communicated in a discourse be *maximally conducive* to this goal.<sup>14</sup> Travis cases indicate that a sentence may express different propositions some of which are more conducive to the goal than others. Whenever this is the case we expect that the information provided or requested by uttering the sentence in a context be restricted to information which is *goal-conducive*.

For any practical goal  $\gamma$  there will be a *valuation map* (henceforth, c-map) over the alternative truth-makers for  $p$  specifying, for each cell, a *goal conduciveness value* (henceforth, c-value) in accordance with the capacity of worlds in that cell to support a successful achievement of a given goal.<sup>15</sup> The idea is

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<sup>13</sup>A world may have properties which are conducive to the goal but not pertaining to the ‘subject matter’ of a sentence (see Yablo 2014). E.g. that it’s a Tuesday may be conducive to the botanical experiment but it has nothing to do with the greenness of the leaf. Although downward closure lets in all kinds of possibilities as part of the denotation of a sentence (e.g. a possibility that the leaf is naturally green and it is a Tuesday is part of the meaning of **The leaf is green**) this set can be restricted by requiring that a possibility is *entirely* (not only partly) in agreement with the subject matter of a sentence, i.e. that it’s wholly relevant to what the sentence is about. See Hawke (2017).

<sup>14</sup>Following Roberts (2012) we can distinguish *discourse goals* of inquiry and practical, *domain goals* (see Roberts 2012: 7). What guides interpretation, on our account, are domain goals.

<sup>15</sup>For the simplicity’s sake, here we assume only two values: + for goal-conducive and – for not goal conducive.

that a pragmatically competent agent will activate a relevant c-map once they have taken into account the salient goal. Let  $s$  be an *information state* modelled as a set of possible worlds that are compatible with the information available in the state. The information state of a semantically competent agent who believes that the sentence  $p$  is true contains the truth set for  $p$ . For example, anyone who knows that the leaves are green knows that they are green in some way or other. Let us call the information state of an agent who would locate the actual world in *any* cell of the truth set for  $p$ , the *initial information state*. Besides the knowledge of meaning, the agent’s information state also contains a certain amount of real world knowledge (e.g. about what a botanist is and why they might need green leaves for etc.) that is necessary for producing an accurate c-map. Of course, for some more specialised goals a more specialised knowledge base will be required which not everyone will share.<sup>16</sup> In many cases, however, commonsense knowledge base will suffice for producing a good c-map, and it will usually be presupposed in a discourse that the agent has activated the relevant map once the goal is made salient.<sup>17</sup>

The information state of a pragmatically competent agent is *enhanced* compared to the initial information state, in as much as the agent has taken into account the contextually salient goal and activates the relevant c-map. Which particular map is relevant on an occasion of utterance is thus determined by the salient goal on that occasion. **Figure 2a** illustrates the partition of the set of worlds where the leaves are green assuming two (compatible) ways for the leaves to be green; i.e. painted and naturally green. In cell 11 the leaves are both naturally and painted green, in cell 10 only painted green, and in cell 01 only naturally green. In **Figure 2b**, we depict the c-map for the botanist’s goal such that cell 10 has a negative c-value for this goal. **Figure 2c** depicts the proposition expressed by **The leaves are green** in the botanist context, which excludes the cell with the negative c-value. Although there will be some variations among c-maps between agents (due to different knowledge bases), in many cases, pragmatically competent agents will have overlapping valuations as to which cells are conducive to a particular goal. As we shall see in section 5.1, a prerequisite for *genuine disagreement* is that both agents have access to similar or overlapping valuations, otherwise they will not express the same proposition (i.e. they will communicate at cross-purposes).

<sup>16</sup>In those cases communication will be at cross-purposes (unless more information is explicitly provided). For discussion of the notion of disagreement by talking at cross-purposes, see Davies (2017)

<sup>17</sup>Notice that this doesn’t require that the interlocutor in a discourse knows what exactly it takes to achieve a given goal, only to be able to identify better and worse cells. For instance, assuming a certain level of general, commonsense knowledge about what a botanist does, an interlocutor (who herself is not a botanist) should be able to evaluate naturally green leaves as more conducive to the goal than non-naturally green ones, without however having to know other facts about how to successfully perform an experiment with the leaves. Thanks to an anonymous reviewer for an invitation to clarify this point.

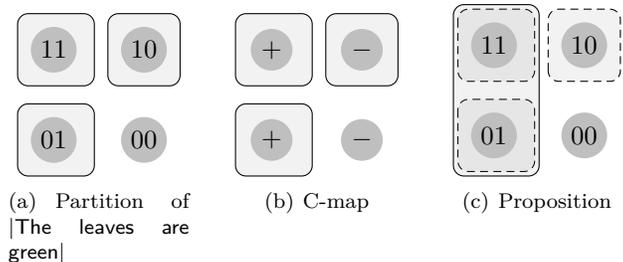


Figure 2: Botanist context: partition, map and the proposition expressed

### 3.2 Communication

We suggested that a particular way the world is can be more or less conducive to some practical goal, and that the sentence’s truth-makers can be evaluated based on the extent to which they are conducive to a given goal. It also became clearer that not all truth-makers for a sentence are necessarily conducive to a certain goal. Thinking of truth-makers in terms of goal-conduciveness thus gives rise to a particular view of communication where agents communicate to seek and exchange information about the state of a world that helps them achieve their goals.

To take a Travis case again as our example, if I know that my friend is a botanist and is searching for some green leaves for her experiment (assuming I am not totally ignorant about this topic) then I should also know that her request for green leaves bears on that particular goal and that so should my response. If I then sincerely say to my friend, “Search no more, the leaves on my tree are green”, what I say is that the relevant property of the world is indeed such that her project can be successfully carried out (at least as far as greenness of the leaves is concerned). In other words, by asserting this, I suggested that the relevant property of the world *is* conducive to my friend’s goal. If it turns out, however, that I have leaves that are painted green but are naturally red then her reasonable expectations as to the state of the world won’t be satisfied and her project won’t take off. That is, *this* property of the world is *not* conducive to the salient goal, and so what I said to my friend is not accepted as true (although it could have been accepted as true were her goal decorating rather than chemistry).

On the current approach, not every utterance of a declarative sentence will be sufficiently informative in a certain context. Assuming the context of an utterance is enriched with a goal, an assertion is considered sufficiently informative only if it has a bearing on that goal.<sup>18</sup> To illustrate, consider the following polar question in (4). Let us assume that A, B, C, D and E are all semantically competent and know that there are different ways for the leaves to be green.

<sup>18</sup>This is in line with some decision-theoretic approaches to questions where whether an answer resolves a question or not is determined by the salient decision problem. See Van Rooy (2003).

Furthermore, they all know the contextually salient goal and have activated the relevant c-map.

4. A: Are the leaves green <sub>$\gamma$</sub> ?
  - (a) B: The leaves are green <sub>$\gamma$</sub>  or the leaves are not green <sub>$\gamma$</sub> .
  - (b) C: The leaves are green (in some way or other).
  - (c) D: The leaves are green <sub>$\gamma$</sub> .
  - (d) E: The leaves are not green <sub>$\gamma$</sub> .

A's question is uttered in a context where a certain goal  $\gamma$  is operative and so it requires the c-map that is relevant to  $\gamma$ . The informativeness of an answer increases as more alternatives are excluded. (4a) is not informative since it asserts something that any rational agent should already know. (4b) excludes *some* possibilities, and to this extent it is not entirely trivial and uninformative. Yet it is *not* sufficiently (pragmatically) informative to facilitate a particular course of action or support A's goal because (4b) is compatible with *any* cell in the truth set. Those who seek information often do so with a particular end in sight. The answer in (4b) does not resolve a particular goal-related issue; it does not contain information based on which agent A can act. The only sufficiently informative answers that resolve the issue raised by the question in (4) are (4c) and (4d) because it is asserted (denied) that the actual world belongs to the truth-maker that is most conducive to  $\gamma$ .<sup>19</sup> An utterance of a negative sentence in (4d) can be seen as conveying information that is *indirectly* conducive to the botanist goal although it does *not* have any goal-conducive sets of worlds as part of its denotation.

In the following section we define a formal model of occasion-sensitive semantics for a small fragment of English.

## 4 Occasion-sensitive semantics

In order to determine when an utterance of a sentence  $p$  on some occasion is considered true we propose to evaluate the cells of the partition of the worlds where  $p$  is true in terms of how conducive they are to the contextually salient goal  $\gamma$  and to assign each a c-value. A set of most goal-conducive worlds that are also semantically compatible with  $p$  constitute the proposition expressed by the utterance of  $p$  by an agent on that occasion.

### 4.1 Language

A small language fragment for occasion sensitive semantics  $\mathcal{L}_{os}$

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<sup>19</sup>The notion of issues and their resolution conditions have been formalised in the framework of inquisitive semantics. See Groenendijk et al. 2009, Ciardelli et al. 2013, Ciardelli et al. 2015, Ciardelli and Roelofsen 2015)

#### 4.1.1 Basic expressions

5. Individual constants: Sid, the leaves, the shoes
6. Predicates: green, desk, under the bed
7. Logical constants:  $\neg, \wedge, \vee$

#### 4.1.2 Formation rules

8. if  $\alpha$  is a predicate and  $\beta$  is an individual constant, then  $\alpha(\beta)$  is a sentence
9. if  $\phi$  is a sentence, then  $\neg\phi$  is a sentence
10. if  $\phi$  is a sentence, then  $\phi \vee \psi$  is a sentence
11. if  $\phi$  is a sentence, then  $\phi \wedge \psi$  is a sentence

### 4.2 Occasion-sensitive semantics for $\mathcal{L}_{os}$

A model  $M$  for  $\mathcal{L}_{os}$  is a tuple  $\langle D, W, I, \Sigma, \Gamma \rangle$  where

- i.  $D$  is a non-empty set of *individuals*
- ii.  $W$  is a non-empty set of *possible worlds*
- iii.  $I$  is the *interpretation function*
- iv.  $\Sigma$  is the *refinement function*
- v.  $\Gamma$  is a set of *goals*

#### 4.2.1 Interpretation function

$I$  is the interpretation function of the model  $M$  assigning an intension  $I_\alpha$  to each predicate and  $I_\beta$  to each individual constant as follows:

**Definition 3 (Interpretation function  $I_\alpha$ )**

If  $\alpha$  is a predicate then  $I_\alpha$  is a function such that for each  $w \in W : I_\alpha(w) \subseteq D$

**Definition 4 (Interpretation function  $I_\beta$ )**

If  $\beta$  is an individual constant then  $I_\beta$  is a function such that for each  $w \in W :$   
 $I_\beta(w) \in D$

### 4.2.2 Truth

We write  $M, w \models \phi$  for a sentence  $\phi$  is true in model  $M$  with respect to the world of evaluation  $w$

**Definition 5 (Sentential truth)** <sup>20</sup>

$$M, w \models \phi \text{ iff } \forall w \in W : I_\beta(w) \in I_\alpha(w)$$

We write  $[[\phi]]_w$  for the denotation of a sentence  $\phi$  at a world  $w$ .

### 4.2.3 Refinement function

The refinement function of the model  $M$  is supposed to categorise individuals in the extension of  $I_\alpha$  at a world  $w$  according to different ways in which  $I_\alpha$  may apply to them. For any  $I_\alpha$  there will be  $n$  number of ways in which it may be applied to an object denoted by  $\beta$ . Recall that in our theory the notion of “ways” has a primarily linguistic motivation in that it is supposed to capture the fact that an objective predicate can be used in different senses.

**Definition 6 (Refinement of  $I_\alpha(w)$ )**

Let  $\Sigma_\alpha$  be a function from  $W$  to  $n$ -tuples of sets of individuals, such that for any world  $w$ ,

- $\Sigma_\alpha(w) = \langle \sigma_\alpha^1(w), \dots, \sigma_\alpha^n(w) \rangle$ , where  $\sigma_\alpha^i(w) \subseteq I_\alpha(w)$  and  $i \in \{1 \dots n\}$
- $\Sigma_\alpha(w)$  is a *cover* of  $I_\alpha(w)$  such that the union of the sets in  $\Sigma_\alpha(w)$  is equal to  $I_\alpha(w)$ , i.e.  $\bigcup \sigma_\alpha^i(w) = I_\alpha(w)$ .<sup>21</sup>

*Example 1:* Let us assume that  $W : \{w_1, w_2, w_3, w_4, w_5\}$ , and  $D : \{a, b, c, d\}$ . For each world  $w$ , let us further assume that the interpretation function  $I_\alpha$  assigns the following values to the predicate  $\alpha$ :

$$I_\alpha(w_1) = \{a, b, c\}, I_\alpha(w_2) = \{a\}, I_\alpha(w_3) = \{a, b\}, I_\alpha(w_4) = \{a, b, c\}, I_\alpha(w_5) = \emptyset$$

The application of  $\Sigma_\alpha$  to  $W$ , where  $n = 2$  returns the following values:

$$\Sigma_\alpha(w_1) = \langle \sigma_\alpha^1(w_1), \sigma_\alpha^2(w_1) \rangle = \langle \{a, c\}, \{a, b, c\} \rangle$$

$$\Sigma_\alpha(w_2) = \langle \sigma_\alpha^1(w_2), \sigma_\alpha^2(w_2) \rangle = \langle \{a\}, \{\emptyset\} \rangle$$

$$\Sigma_\alpha(w_3) = \langle \sigma_\alpha^1(w_3), \sigma_\alpha^2(w_3) \rangle = \langle \{a, b, c\}, \{b\} \rangle$$

$$\Sigma_\alpha(w_4) = \langle \sigma_\alpha^1(w_4), \sigma_\alpha^2(w_4) \rangle = \langle \{b\}, \{a, c\} \rangle$$

$$\Sigma_\alpha(w_5) = \langle \sigma_\alpha^1(w_5), \sigma_\alpha^2(w_5) \rangle = \langle \emptyset \rangle$$

<sup>20</sup>Definitions for negation and disjunction are classical.

<sup>21</sup>For the definition of set cover see Kelley 2017: 49)

#### 4.2.4 Equivalence relations

**Definition 7 (Equivalence relations wrt the meaning of  $\alpha(\beta)$ ).**

$$wR_{\alpha(\beta)}w' \text{ iff } I_{\beta}(w) \in I_{\alpha}(w) \leftrightarrow I_{\beta}(w') \in I_{\alpha}(w')$$

Let  $P$  be a partition of  $W$ , and let  $c \in \mathcal{W}$  be a cell of the partition  $P$  induced by the meaning of  $\alpha(\beta)$ . Any two worlds are in the same cell  $c$  of the partition  $P$  iff  $wR_{\alpha(\beta)}w'$ . Notice that the partition of  $W$  induced by the meaning of  $\alpha(\beta)$  is equivalent to a disjoint, non-empty set of worlds where  $\alpha(\beta)$  is true and where  $\alpha(\beta)$  is false, i.e.  $P = \{|\alpha(\beta)|, |\overline{\alpha(\beta)}|\}$

**Definition 8 (Equivalence relations wrt  $\alpha(\beta)$  and  $\Sigma_{\alpha}$ )**

$$wR_{\Sigma_{\alpha}}^{\alpha(\beta)}w' \text{ iff } \forall i : 1 \leq i \leq n : I_{\beta}(w) \in \sigma_{\alpha}^i(w) \leftrightarrow I_{\beta}(w') \in \sigma_{\alpha}^i(w')$$

$R_{\Sigma_{\alpha}}^{\alpha(\beta)}$  is an equivalence relation between worlds with respect to the way  $\sigma_{\alpha}^i$  in which an individual denoted by  $\beta$  relates a property denoted by  $\alpha$ . It states that any two worlds are equivalent relative to the meaning of  $\alpha(\beta)$  and a given way  $\sigma_{\alpha}^i$  only if the individual denoted by  $\beta$  relates to a property denoted by  $\alpha$  in the same way  $\sigma_{\alpha}^i$  (or is in the extension of  $\sigma_{\alpha}^i$ ) at both worlds. In the interest of visual clarity in what follows we will write  $R$  as a shorthand for  $R_{\alpha(\beta)}$  and  $\mathcal{R}$  as a shorthand for  $R_{\Sigma_{\alpha}}^{\alpha(\beta)}$ .

*Example 2:* Suppose that  $\beta = \text{the leaf}$ , and  $\alpha = \text{green}$ .  $I_{\beta}(w) = a$  for all worlds in  $W$ . In that case the interpretation function returns the following values for The leaf is green:

$$[[\text{The leaf is green}]]_{w_1} = 1$$

$$[[\text{The leaf is green}]]_{w_2} = 1$$

$$[[\text{The leaf is green}]]_{w_3} = 1$$

$$[[\text{The leaf is green}]]_{w_4} = 1$$

$$[[\text{The leaf is green}]]_{w_5} = 0$$

Let  $[w]_R$  be an equivalence class generated by  $R$ . The partition of  $W$  then consists of two cells (where  $w_1$  and  $w_5$  are *class representatives*):

$$[w_1]_R = \{w_1, w_2, w_3, w_4\}$$

$$[w_5]_R = \{w_5\}$$

Furthermore, suppose that  $\Sigma_{\text{green}}(w) = \langle \sigma_{\text{green}}^1(w), \sigma_{\text{green}}^2(w) \rangle$ . Then there will be a further fragmentation of the initial partition wrt to these two ways in which  $I_{\text{green}}$  may be applied to the object  $a$  denoted by the leaf. Assuming  $\Sigma_{\text{green}}(w)$  returns the same values as in *Example 1*, then we have a refined partition of  $W$  wrt to the equivalence relation  $\mathcal{R}$  as illustrated in **Table 1**.

Table 1: Partition of  $W$  wrt  $\mathcal{R}$

$c_1: \sigma_{\text{green}}^1$	$c_2: \sigma_{\text{green}}^2$	$c_3: \text{Both}$	$c_4: \text{None}$
$w_2$	$w_4$	$w_1$	$w_5$
$w_3$			

#### 4.2.5 Goal-conduciveness

In the current framework, given a particular goal  $\gamma \in \Gamma$ , an agent will evaluate certain partition cells induced by  $\mathcal{R}$  as conducive or not to that goal.

##### Definition 9 (Goals).

Let a goal  $\gamma$  be a function from a partition  $P$  of  $W$  induced by  $\mathcal{R}$  to assignments of c-value  $\{+, -\}$  to each cell  $c$  in the partition:  $\forall c \in P, \gamma(c) \rightarrow \{+, -\}$

*Example 3:* Suppose that a partition of  $W$  induced by  $\mathcal{R}$  contains four cells as specified in **Table 1**. Each cell corresponds to an equivalence class  $[w]$  such that:

$$c_1 : [w_2]_{\mathcal{R}} = \{w_2, w_3\}$$

$$c_2 : [w_4]_{\mathcal{R}} = \{w_4\}$$

$$c_3 : [w_1]_{\mathcal{R}} = \{w_1\}$$

$$c_4 : [w_5]_{\mathcal{R}} = \{w_5\}$$

Furthermore, suppose that for all  $w \in \{c_1, c_2, c_3\}$ ,  $[[\text{The leaf is green}]] = 1$  and for all  $w \in c_4$ ,  $[[\text{The leaf is green}]] = 0$ . A goal  $\gamma$  assigns each cell  $c$  a value  $\{+, -\}$  in accordance with the capacity of the worlds in the cell to support  $\gamma$ <sup>22</sup>. Let us assume  $\gamma$  returns the following values:

$$\gamma(c_1) = -$$

$$\gamma(c_2) = +$$

$$\gamma(c_3) = +$$

$$\gamma(c_4) = -$$

This valuation map for goal  $\gamma$  will be important for determining the truth value of an utterance of **The leaf is green** at  $w$  given a contextually salient goal  $\gamma$ .

<sup>22</sup>NB: the cell corresponding to the complement of  $[\text{The leaf is green}]$  is assigned negative c-value by definition.

#### 4.2.6 Contextual truth

We write  $M, w \models_{\gamma} \alpha(\beta)$  for an utterance of  $\alpha(\beta)$  is true in model  $M$  with respect to the world of evaluation  $w$  and the goal of context  $\gamma$ .

We also write  $[[\phi]]_{\gamma}$  for the denotation of a sentence  $\phi$  relative to  $\gamma$

#### Definition 9 (Contextual truth)

$M, w \models_{\gamma} \alpha(\beta)$  iff

- i.  $I_{\beta}(w) \in I_{\alpha}(w)$
- ii. For any  $[w]_{\mathcal{R}}, [w']_{\mathcal{R}} \in P$  there is no  $[w']_{\mathcal{R}} \in P$  such that  $\gamma([w']_{\mathcal{R}}) > \gamma([w]_{\mathcal{R}})$

$M, w \models_{\gamma} \neg\phi$  iff  $M, w \not\models_{\gamma} \phi$

$M, w \models_{\gamma} (\phi \vee \psi)$  iff  $M, w \models_{\gamma} \phi$  or  $M, w \models_{\gamma} \psi$

$M, w \models_{\gamma} (\phi \wedge \psi)$  iff  $M, w \models_{\gamma} \phi$  and  $M, w \models_{\gamma} \psi$

Let us briefly comment of some of these clauses.

**Atomic sentences.** The definition states that an utterance of the sentence  $\phi$  relative to the goal of context  $\gamma$  is accepted as true at a world  $w$  only if the sentence is true at  $w$  and  $w$  is in the equivalence class  $[w]$  generated by  $\mathcal{R}$  to which  $\gamma$  assigns greater value than it assigns to some other class  $[w']$  (i.e. any cell with c-value that is lesser than the c-value of other cells in this partition is excluded from it). Notice that in case no cell is conducive to  $\gamma$  the contextual proposition expressed by  $p$  will consist of those cells that are not conducive to  $\gamma$ .<sup>23</sup>

**Contextual negation.** The contextual proposition expressed by  $\neg\phi$  is a negation of the contextual proposition expressed by  $\phi$ . Notice, however, that  $[[\neg\phi]]_{\gamma}$  contains the cells that consist of worlds where  $\phi$  is classically false, but it may also contain some cells consisting of worlds where it is classically true but which are not conducive to  $\gamma$ .

**Disjunction.** The contextual proposition expressed by a disjunctive sentence is true in model  $M$  relative to the goal of context  $\gamma$  just in case either  $\phi$  is true relative to  $\gamma$  or  $\psi$  is true relative to  $\gamma$  (or both).

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<sup>23</sup>The condition (ii) assures that an utterance of the sentence where  $\gamma$  is salient could be accepted as true when none of its truth-makers is conducive to  $\gamma$ . This is the case, for instance, with (positive) sentences that (contextually) entail or implicate true negations of  $\phi$ . For instance, in the botanist context at the world where the leaf is painted green and naturally red the utterance of **These leaves are naturally red** is true (and relevant) even though none of its possible truth-makers is conducive to  $\gamma$ .

**Conjunction.** The contextual proposition expressed by a conjunctive sentence is true in model  $M$  relative to the goal of context  $\gamma$  just in case both  $\phi$  is true relative to  $\gamma$  and  $\psi$  is true relative to  $\gamma$ .

*Example 5:* Let us assume that the actual world is  $w_2$  and that the sentence is **The leaf is green**. As in previous examples  $\beta = \text{the leaf}$ ,  $\alpha = \text{green}$ , and  $\forall w \in W, [[\text{the leaf}]]_w = a$ . Then, since  $w_2$  is in the cell  $c_1$  (see **Table 1**) and  $\gamma(c_1) < \gamma(c_2)$ ,  $M, w \not\models_{\gamma} \text{The leaf is green}$ , i.e. the utterance of **The leaf is green** in model  $M$  with respect to the goal of context  $\gamma$  is considered false at  $w_2$ .

## 5 Applications

### 5.1 Disagreement: discretionary and objective predicates

We started this discussion pointing out the intuitive difference between objective and discretionary predicates. We noted that factual statements containing objective predicates, unlike statements of opinion containing discretionary predicates, are normally considered true at the world *simpliciter* without further relativisation to individual perspectives, etc. However, in an attempt to account for Travis cases we have shown that factual statements *are* also relative to further factors besides the world of evaluation, namely, to contextually salient goals. So the question is whether our account preserves the intuitive distinction between objective and discretionary predicates including the idea of objective disagreement or not.

To answer this question let us first distinguish between some varieties of agreement and disagreement that are relevant to us. As noted earlier, semantically competent agents are assumed to be in the initial information state in which case we can see them as *verbally agreeing* on what a sentence containing an objective predicate means. Verbal agreement assures that the agents would agree on which worlds constitute the truth set for the sentence. Verbal agreement does not, of course, ensure that the agents will agree in their factual judgements; some agents might be simply ignorant about certain facts which would have an impact on their factual judgements, despite them sharing basic semantic competence. Nonetheless, in Travis cases the disagreement between agents is not a consequence of any such ignorance: here it is assumed that the disagreeing parties share relevant knowledge about the world (e.g. they both know that the leaves are only painted green). So, if not about meaning or facts, concerning what do agents disagree in these scenarios, and, besides meaning and facts, concerning what exactly there ought to be an agreement between them? Is the variety of disagreement in Travis cases faultless (as in matters of opinion and taste) or is it objective? Does it amount to disagreement at all?

It is often assumed that for there to be a disagreement between agents in the first place the agents should be contradicting one another, or, minimally, hold opposite (doxastic or non-doxastic) attitudes towards the same content.<sup>24</sup>

<sup>24</sup>However, see Huvenes (2012) for an argument to the effect that asserting and denying the same proposition is not a necessary condition of disagreement.

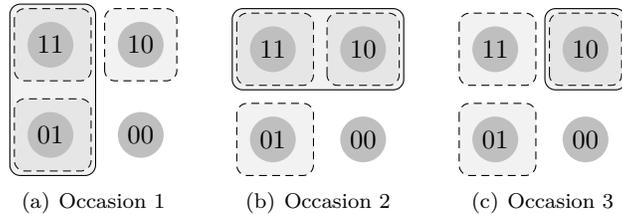


Figure 3: Different contextual propositions expressed by **The leaves are green**

Here we adopt this simple view of disagreement without, however, wanting to commit ourselves to any particular theory of predicates of personal taste such as relativism or contextualism. Verbal agreement which assures that agents are not talking past one another is thus necessary for any factual agreement or disagreement. A disagreement is considered *faultless* if two individuals are contradicting one another, but neither can be said to be at fault (see Kölbel 2004). We have seen earlier that the sense of faultlessness surrounds not only disagreements about taste, but also disagreements about facts once we take into account occasion-sensitivity. Yet, despite this initial appearance of faultlessness, we argue that occasion-sensitivity properly understood does not destroy the phenomenon of objective, factual disagreement.

To see this, consider again the dialogue between the botanist and the decorator concerning naturally red but painted green leaves, which we repeat here:

12. (a) The decorator (in the decorator context): The leaves are green.
- (b) The botanist (in the botanist context): The leaves are not green.

On our account, the artist and the botanist are in verbal agreement about the meanings of **green** and **the leaves**. Furthermore, they are both *au fait* with the relevant facts: for instance, they can both perceive the leaves and they know that they are painted green. The sense of faultlessness here comes from different perspectives that they occupy, which we cashed out in terms of different goals and purposes. In **Figure 3**, we have visually depicted three contextual propositions expressed by **|The leaves are green|** relative to three different goals. Let **Figure 3a** be the botanist context, and **Figure 3b** the decorator context.<sup>25</sup> In **Figure 3c** we have depicted the contextual proposition determined relative to the goal which requires that the leaves be only painted green.<sup>26</sup>

The botanist and the decorator agree that the sentence is true at the worlds in the cell 11, but they disagree about its truth-value at the worlds in the cells 10 and 01. Notice that, given that the botanist and the decorator don't share the same *contextual* proposition, there is *no genuine contextual agreement or disagreement* between them. In other words, when communicating, they talk

<sup>25</sup>Note that this is only for the illustration purposes; we don't claim this depiction necessarily reflects actual goals of a decorator or an artist.

<sup>26</sup>We leave it open as to which goal this may be.

at *cross-purposes* and fail to genuinely agree or disagree because they don't share the same contextual goal. Call this variety of agreement and disagreement *contextual pseudo-agreement* and *contextual pseudo-disagreement*. The fact that there is an appearance of agreement between agents at a world about the truth-value of an utterance does not entail that the agents entertain the same contextual proposition: i.e. although the botanist and the decorator pseudo-agree that the utterance of (12) is true in the cell 11, they nevertheless express *different* contextual propositions by their utterances, i.e.  $[[ (12) ] ]_{\gamma}$  and  $[[ (12) ] ]_{\gamma'}$ . Finally, the botanist's and the **Figure 3c** proposition never intersect: there will be no contextual pseudo-agreement between the agents entertaining these propositions, although they still verbally agree on lexical meanings of **green** and **the leaves**.

So far we explained what verbal and contextual pseudo agreement and disagreement consist in. When, according to our account, would two agents *genuinely agree* or *disagree* in a given context? Let us compare two versions of the dialogue between the botanist and the decorator, in (12) and (13), where (13) closely approximates the original Travis case.

13. (a) The decorator (in the botanist context): \*The leaves are green.
- (b) The botanist (in the botanist context): No, the leaves are not green.

In the dialogue (12), the decorator and the botanist are not part of the same context: they don't share the same goal. Intuitively they both seem to be saying something true relative to their goals, hence the sense of faultlessness. The contrast between the dialogues in (12) and (13) can be accounted for by the difference in the activation of *relevant c-maps*. In (12) either (i) the decorator's information state does not include the c-map for the botanist's goal  $\gamma'$ ; (ii) she's not sufficiently aware of the botanist's goal and so is unable to activate the relevant c-map; or (iii) she might be mistaken about what is conducive to the botanist's goal (e.g. her c-map isn't accurate). In any case, she is unable to share the botanist's proposition and so they communicate at cross-purposes. However, assuming the decorator knows enough about the botanist's goal and what sort of a green leaf is required for it (*viz.* she activates a relevant and accurate c-map for the botanist's goal), she *ought to accept* (if rational) that an utterance (13a) is false at the worlds in the cell 10. Given that the decorator in the dialogue (13) *could* and *should* evaluate the world (for goal-conduciveness) from the point of view of the botanist's goal, she is *at fault* as regards the truth-valuation of the utterance. Thus, here we have a case of *objective contextual disagreement* because, with respect to the worlds in the cell 10, one party (the decorator) asserts that the leaves are green in a way that is suitable for the botanist's purpose, i.e.  $[[ (13) ] ]_{\gamma'}$ , and the other party (the botanist) claims that the leaves are not green in a way that is suitable for her purpose,  $[[ \neg (13) ] ]_{\gamma}$ . **Table 2.** summarizes the three varieties of disagreement for sentences containing objective predicates.

Let us now see how this classification compares to our intuitions about matters of taste. Our first observation is that insofar as judgements of taste depend

Table 2: Varieties of disagreement: objective predicates

Disagreement	Shared meaning	Shared proposition	Faultless
verbal	no	–	–
pseudo	yes	no	–
genuine	yes	yes	no

on personal experiences and (possibly) non-doxastic attitudes<sup>27</sup> the possibility of sharing the same information state seems *not* to be available in the same way for matters of taste as it is for matters of fact. A fortiori, the requirement to retract one’s judgement in the face of acquiring new, contextually relevant information does not apply to matters of taste. To appreciate this point consider the following two dialogues in which A learns some new relevant facts in light of which A may retract the original judgement.

*B needs a green leaf to conduct an experiment; the leaf is only painted green*

14. (a) A: The leaf is green
- (b) B: No, the leaf is not green
- (c) B tells A that a painted green leaf is not conducive to conducting a botanical experiment
- (d) A: \*I see, but the leaf *is* green!

*A and B both dislike pork, they don’t find it tasty*

15. (a) A: This chilli is tasty
- (b) B: No, this chilli is not tasty
- (c) B tells A that the chilli contains pork
- (d) A: I see, but the chilli *is* tasty!

Whilst the response in (14d) seems inappropriate, the response in (15d) is intuitively acceptable. We conjecture that this is due to the fact that learning a new fact about the chilli need not affect A’s attitude toward the chilli and his personal gustatory experience on which her judgement of taste is grounded; in contrast, learning a new information about the relation between greenness and botanical experiments *ought to* make A retract her original judgement. When A and B disagree as to whether the chilli is tasty the best they could do is acknowledge that their attitudes towards the world are different. Still no matter what they do (how much information about the world or each other they obtain) there is *no* rational expectation or requirement for A to put himself in B’s perspective (and vice versa) and acknowledge that (and in which way) A’s standard of taste is wrong (false) and B’s is correct. Contrast this to matters

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<sup>27</sup>See Huvenes (2014)

of fact where there *is* such a requirement once both agents are assumed to be aware of the contextual goal and have activated relevant valuation maps.

A second, related observation: although factual judgements like judgements of taste are, indeed, dependent on further factors over and above the world of evaluation the nature of these factors crucially differs. In particular, whilst the latter are dependent on *subjective* standards of taste (or sets thereof)<sup>28</sup>, the former depend on activities and goals that are widely shared and are, in principle, accessible by all rational creatures. Anyone with an appropriate knowledge base (including know-how) about a certain practice could come to appreciate what's required to fulfil its goals successfully. But no knowledge of facts is in itself sufficient to bring about appreciation that something yucky or boring is, as a matter of fact, tasty or fun because *there is no fact* that decides these matters. So, even though, *prima facie*, occasion-sensitivity seems to temporarily blur the intuitive contrast between objective and discretionary predicates, the contrast is still there insofar as objective perspectives (goals and valuation maps) are accessible to all rational agents and subjective perspectives (personal tastes) aren't.

## 5.2 Cancellability

Cancellability is a feature of utterances usually associated with conversational implicatures where the intended content to be communicated by an utterance is something that is implied by uttering a sentence in a given context rather than something that the sentence would semantically express (meaning what it does). By saying that I am French I (may) imply in a context that I am a good cook (and a number of other things).<sup>29</sup> In the following example, (16b) conversationally implicates (16c), which here spells out the content that the speaker intends to communicate in context.

16. (a) Can you cook?
- (b) I am French.
- (c)  $\rightsquigarrow$  *I am a good cook*

Any implicated content such as the one in (16b) may be explicitly *cancelled* if the speaker wants to make sure that the hearer doesn't interpret (16b) as (16c).

17. I am French but I am not a good cook.

Whilst expected implicatures may be felicitously cancelled in this way, we cannot cancel what the sentence semantically expresses without a contradiction as illustrated in (18).

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<sup>28</sup>Huvenes (2012) points out that on more sophisticated versions of contextualism it's standards of a wider community that are relevant for judgements of taste (Huvenes 2012: 172). Nonetheless increasing the number of individuals as the value of the 'judge' parameter doesn't seem to make judgements of taste less subjective.

<sup>29</sup>See Recanati 2004.

18. \*I am French but I am not French.

Now even though we think it would be wrong to assimilate the phenomenon of occasion-sensitivity to that of conversational implicature, it is still important to note that in Travis cases the contextually expected interpretation of an utterance *is* cancellable without a contradiction. In (19) we assume by now the familiar set-up where the salient leaves are painted green and naturally red, and the salient goal is to perform a botanical experiment.

19. (a) Botanist: Do you have green leaves?  
(b) Pia: These leaves are green, but they are not naturally green.

Unlike in the original Travis case where Pia's response (*viz.* These leaves are green) is intuitively unacceptable (and we offered an explanation of why this is so), once the contextually expected material is made explicit then Pia's response in (19b) seems more acceptable. How does our theory account for this intuition?

On the approach presented in this paper, the acceptability of Pia's response in (19b) is to be explained in the following way. Pia has activated the adequate valuation map and is aware of the contextually salient goal which is manifested by the fact that she is indicating the contextually expected reading of the expression *green leaves* by using a more specific form, namely, *naturally green leaves*. However, instead of simply denying that the leaves are green in the way that would be relevant for the botanist's goal (saying that the leaves are not green), Pia in addition asserts that they are green in some other way where this is *not* the way expected in this context. In (19b) the expected interpretation of *These leaves are green* is cancelled but it is also asserted that the leaves count as being green in some other way, for some other unknown purpose. The remark is thus *metalinguistic* in as much attention is drawn to another sense of *green* which is not the one that the botanist would expect on this occasion. Still, although it's possible to assess the truth of the second conjunct relative to the botanist goal it is difficult to evaluate the entire sentence since it's not obvious which goal Pia has in mind for the occurrence of *green* in the first conjunct.

Although (19b) is acceptable it is not entirely appropriate. First, (19b) contains *more* information than is necessary (given the contextually salient goal) since two things are asserted (of which only one is relevant): (i) that it's not the case that the leaves are naturally green (so that the world is not conducive to the contextually salient goal), and (ii) that the leaves are green in some way which is not relevant to the botanist. In (19b) Pia is thus violating Grice's maxims of quantity and relevance by providing more information than is needed and imposing the interpretation that is not informative in a goal-conducive way to her interlocutor. Thus this kind of cancellation is justified only when there is a reasonable assumption that the interlocutor may be interested in other possible ways of being green despite the contextually salient goal, or where there are two or more conflicting goals on an occasion. Otherwise the response in (19b) comes across as inappropriate and partly irrelevant.

## 6 Conclusion

In this paper we have proposed an occasion-sensitive semantics for objective predicates as a way to account for the phenomenon observed in Travis cases. Our explanation for the phenomenon exploits the fact that the set of worlds which make a sentence true has the additional, internal structure as a result of different ways of being F. We suggested that this structure can be formally represented as a partition of the set of worlds where the sentence  $Fa$  is true. Travis cases indicate that in many cases speakers would accept only a subset of the truth set as truth-makers for the sentence on a given occasion. Furthermore, it was suggested that the main factor guiding the selection process are contextually salient practical goals. Starting from the fact that rational agents may pursue different goals on different occasions, and that they generally know what it takes to achieve them, it was suggested that their information states can be seen as being equipped with particular c-maps, which in turn play a role in truth-evaluations of utterances on particular occasions. Thus, because in Travis cases on each imagined occasion a different practical goal is salient, the intuitive truth-valuation of an utterance varies despite the same sentence being used. Additionally, we have shown how the proposed account applies to some cases of disagreement and cancellability, and we argued that our approach preserves the intuitive distinction between discretionary and objective predicates.

Based on the account we suggested in this paper there is one particular avenue for future work that we are keen to explore. The empirical focus of many accounts of occasion-sensitivity has thus far been restricted exclusively to declarative sentences. In particular, the large majority of motivating examples involve simple positive declaratives such as *Steel is strong enough*, *Tipper is ready* or *Smith weighs 80 kilograms*, and only occasionally simple negations such as *You are not going to die*. We believe, however, that the phenomenon is more general and that it affects the interpretation of other sentential forms besides declaratives since it stems from sub-sentential (i.e. predicate) expressions. Our next task is to try to extend the proposed model to interrogative and imperative sentences. For now, however, we hope to have shown how our interpretation of declarative sentences containing objective predicates crucially depends on wider goal-directed projects: insofar as such projects change from one occasion to the next so do our expectations as to what our sentences say.

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